

Investing in ASEAN

Association of Southeast Asian Nations

2019 | 2020



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Contents

Introduction

ASEAN strives for leading role in the Fourth Industrial Revolution

5

Messages

US-ASEAN Business Council

8

UK-ASEAN Business Council

9

EU-ASEAN Business Council

10

Business - the Future

For ASEAN to continue to prosper in 2019 and beyond, strong regional integration is needed – HSBC

11

Financial technology is set to transform banking

16

Towards 2025 – Deutsche Bank

21

Bosch, Southeast Asia and the Internet of Things

25

Smart technologies launch ASEAN into the driving seat

28

Small firm, big results – Legal ASEAN

33

Infrastructure

Region's spending on infrastructure is set to accelerate

36

Urban development challenge relies on smart solutions

40

Industry & Manufacturing

Free trade strategies entice foreign manufacturing investment

43

Plastic and the environment - An ASEAN perspective – Ipsos Business Consulting

47

Renewable Energy

Renewable energy strategy takes centre stage

50

Healthcare - Life Sciences - Pharmaceuticals

Innovative solutions address the healthcare challenge

53

The region is developing as a global biomedical sciences hub

57



Education

Education overhaul opens up major investment opportunities

60

Retail & Consumer

Changing aspirations of the growing middle class create new markets

63

Creative

The creative economy is new engine of growth

67

Sports

ASEAN strives to become global sports hub

70

Defence & Security

Spending to improve defence capabilities accelerates

74

Clement Shield - Your security Architects

76

Tourism

ASEAN countries widens tourism appeal

79

Useful contacts

82



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Allurentis is delighted to have been involved in partnership with ASEAN on this, the eighth publication and would like to thank all sponsoring organisations for their kind contributions. We are confident that it will raise awareness with all readers and prove to be an invaluable resource, especially for those wishing to become involved in the extraordinary business opportunities and growth prospects within the region.

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ASEAN strives for leading role in the Fourth Industrial Revolution



The ASEAN region is of vital geostrategic importance to the world. Each year, trade valued at some US\$5.3 trillion passes through its sea lanes, while an estimated 15 million bpd of oil is transported through the Malacca Straits. With a population of some 650 million and fast growing wealth it is also becoming an economic superpower.

Ranking as the fourth largest exporting region in the world, the countries that constitute ASEAN account for some 7% of global exports. They had a combined GDP of US\$2.8 trillion in 2017, making them the third largest economy in Asia and the sixth largest globally.

Economic growth continues to average 5.4%, way above the global average and this rate is forecast to continue for the near future. Singapore's Prime Minister, Lee Hsien Loong, has predicted that ASEAN will become the fourth largest economy in the world by 2030, led by the US, China and the EU. In view of this, ASEAN presents a compelling investment proposition for businesses who are looking to expand in one of the most dynamic and ambitious parts of the world.

This attraction is illustrated by the level of FDI flows into ASEAN countries, which rose to record levels from US\$123 billion in 2016 to US\$137 billion

in 2017. An important development is the rising investment in their digital economies, including e-commerce, financial technology, the development of data centres and ICT infrastructure.

Significant growth opportunities are available for business across a range of industries and commercial sectors, including automotive, financial services, consumer goods, medical services and equipment, telecoms and transportation.

ASEAN countries have now concluded six Free Trade Agreements with seven of the region's main trading partners – Australia and New Zealand, China, India, South Korea, Japan and Hong Kong. The challenge is to continue to support an open and inclusive multilateral system and to work with like-minded partners to deepen cooperation, says Singapore's Prime Minister.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is one of the largest Free Trade Agreements in the world and accounts for almost 13.5% of global GDP. The Agreement brings together Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam, offering

those countries investment access and freer trade. It has been estimated, for example, that Vietnam's GDP could be boosted by 2% over a decade as a result of new trading opportunities created by the Agreement.

Alongside its remarkable journey of economic growth, ASEAN countries have not neglected social development with millions across the region now lifted out of poverty. More than 100 million people are estimated to have joined ASEAN's workforce over the past 20 years and another 59 million are projected to be added by 2030.

Human resources are a key factor with a growing, young and increasingly better educated workforce that is manifested in a fast emerging middle class. Almost 70 million households in ASEAN countries can be considered as consumers with incomes exceeding the level at which they can begin to make significant discretionary purchases. Examples of these include entertainment, air travel as well as the ability to access such services including private education and healthcare.

The steady movement of people to urban environments, particularly to medium-size cities, combined with the enthusiastic take up of digital technologies will further power the advance of ASEAN's growing middle class. The region is the fastest-growing internet economy in the world with an online population expanding by an estimated 124,000 new users each day.

Adoption of new technologies is changing the way business is conducted, with countries such as Indonesia, Malaysia, the Philippines, Singapore,



Thailand and Vietnam on course to run digitalised economies by 2025. Indonesia, with 269 million people has the world's fourth largest population and is rapidly becoming a digital nation. The population is exceeded by the number of mobile phone subscriptions and there are more than 100 million internet users.

Financial technology (FinTech), in particular, has the potential to dramatically increase the scope and availability of financial services in previously underbanked parts of the region. This will be of immense benefit not only to individuals and communities but also to SMEs which comprise most economic activity in ASEAN countries. Increasingly new mobile applications technology will enable them to access capital and the advisory services needed to develop their businesses.



Ranking as the fourth largest exporting region in the world, the countries that constitute ASEAN account for some 7% of global exports.



ASEAN Secretary General, Lim Jock Hoi, says that member states are intensifying cooperation to strengthen the competitiveness of their ICT industries, expand e-commerce and facilitate digital connectivity, including through working towards signing an ASEAN e-commerce agreement and adopting an ASEAN Digital Integration Framework to help transform the region into a competitive global digital hub.

The developing ASEAN Economic Community (AEC) provides an opportunity to create a seamless intra-regional market and to build an integrated manufacturing and production base, equipped for the technological challenge of the Fourth Industrial Revolution.

Intra-regional trade in goods increased by 47% to US\$543 billion in 2017, from US\$369 billion in 2007. Such trade is likely to expand further as ASEAN's economic integration strategy is improving the movement of goods, services, skilled personnel and capital. Transaction costs are being lowered as a result of a self-certification scheme which allow exporters in member states to issue their own declarations on the origin of exported goods.

ASEAN has strengthened and widened the use of its Qualifications Reference Framework to further the movement of skilled labour between countries. Meanwhile the move towards a Single Aviation Market continues, allowing airlines from ASEAN member states to operate freely throughout the region. In addition to creating better connectivity, this policy is enhancing competition and increasing the range of services available for passengers.

The Asian Development Bank estimates that at least US\$60 billion will need to be spent each year on both improvement and new infrastructure projects. Countries are eager to embrace PPPs for infrastructure finance.

ASEAN is home to young, literate and increasingly urbanised and aspirational populations. A new generation, with higher incomes and brighter employment prospects is demanding a range of better quality products and services and this presents a significant opportunity for businesses to tap into. The chapters in this investment guide portray a vibrant and ambitious region brim full of enterprising people and huge business prospects.



US-ASEAN Business Council

Alexander C. Feldman, President & CEO, US-ABC



Alexander C. Feldman

In 2019, the US-ASEAN Business Council celebrates 35 years of witnessing this region's incredible growth, working with our members and governments to support the region's dynamism and deepening our engagement with ASEAN member states and citizens. The Council continues to develop programming which helps both our members' businesses thrive and delivers positive impacts to the nations and people of Southeast Asia.

The establishment of the ASEAN Economic Community (AEC) in 2015 and ASEAN's focus on free trade agreements (FTAs) enhance the region's competitive advantage as a premier destination for trade and investment from companies around the world. Two ASEAN member nations – Singapore and Vietnam – have ratified the 11-member Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the highest-standard FTA in the world, with two more signatories – Malaysia and Brunei – in the process of ratification. Additionally, ASEAN hopes to conclude Regional Comprehensive Economic Partnership (RCEP) talks to link ASEAN with its Plus Six partners – Australia, China, India, Japan, Korea, and New Zealand. RCEP will create a free trade area covering nearly half the world's population, a staggering 3.4 billion people, and 40% of the world's GDP, or US\$49.5 trillion.

While ASEAN's global exports are not immune to global headwinds, its diverse engines of growth and increasing

domestic consumption bolster its economic resilience. Average GDP growth rates between 4% to 5% in the region are expected to be sustained and make ASEAN the world's fourth largest economy by 2050. Fueling this growth are ASEAN's 650 million citizens, which include a rapidly growing middle-class and expanding urban development. This population is young and tech-savvy. More than half of ASEAN is under age 35, a segment 20% larger than the entire U.S. population. With more than four billion mobile subscriptions, ASEAN is also highly connected. ASEAN's mobile connectivity figures, which exceed the global average, contribute to the projected 500% growth of ASEAN's digital economy by 2025. Its penchant for technology and its vibrant SME ecosystem make ASEAN ripe for startups and venture capital. Regional startups attracted nearly US\$8 billion in capital investments in 2017, up 220% from 2016. Today, ASEAN boasts nearly a dozen homegrown "unicorn" startups and even a "decacorn".

ASEAN's growth numbers, diverse and increasingly skilled workforce, and member states' appetite to harness the Fourth Industrial Revolution create an opportunity for investment and partnership, particularly in energy, infrastructure and the digital economy. I encourage you to visit our website at www.usasean.org to learn more.

UK-ASEAN Business Council

Margaret Manning OBE, Chair, UKABC



Margaret Manning OBE

As the UK looks to partner regions around the world, ASEAN stands out and continues to offer tremendous trade and investment opportunities for UK companies as one of the fastest growing parts of the world. The UKABC is the premier UK organisation that sits at the heart of the UK-ASEAN Business Network. We link UK and ASEAN government and business from Birmingham to Bangkok and drive up economic prosperity.

UK-ASEAN trade is now worth nearly £37 billion. The ASEAN export market is worth more to the UK than Australia, Brazil, India, Japan, New Zealand, Russia and could soon overtake China. As a region its economy is bigger than India's and its population of 639 million is the third largest consumer market after China and India.

'Advancing Partnership for Sustainability' is the theme of Thailand's Chairmanship of ASEAN and its focus on technology and the green economy is a perfect match for the UK's world leading expertise in these areas. The knowledge hungry citizens of the Southeast Asia are looking to learn and benefit from the UK's research and development and how they can apply our cutting-edge technology to their home markets.

ASEAN's future is one of long-term growth and the UK wants to contribute to and participate in that growth. Join us at the UK-ASEAN Business Council as we work to raise awareness of the opportunities in this vibrant community, providing insight, intelligence and practical assistance to UK businesses large and small at each stage of their ASEAN journey. Find out more about ASEAN and the work we do by visiting www.ukabc.org.uk.



EU-ASEAN Business Council

Donald Kanak, Chairman, EU-ABC



Donald Kanak

ASEAN is a region with much to celebrate and much to look forward to. Taken as a collective, the ten ASEAN member states represent the world's fifth largest economy and have the third largest workforce. GDP per capita growth has exceeded 70% over the last ten years and GDP is predicted to continue to grow at around 5% on average over the next few years.

A majority of European businesses continue to believe that ASEAN is the world's region of greatest opportunity. Europe is by far the largest source of Foreign Direct Investment in ASEAN, more so than that from China and Japan combined. Our 2018 Business Sentiment Survey rated ASEAN as the region with the best economic opportunity, ranking 2-to-1 over the next; 99% of respondents expected to increase or maintain their current levels of trade and investment with Southeast Asia, and close to three-quarters expected an increase in profits in the region in 2018. In an era of turbulence in the global trading and investment environment, most notably US-China trade tensions, that faith in trade and investment in ASEAN is exemplary and welcomed.

ASEAN will need tremendous investment in the coming years and decade, both to address rising consumer growth from the growing the middle class

as well as the huge investment need to modernise urban settings and create connectivity. This will create great opportunities for European companies and others from all over the world to prosper in ASEAN.

To continue its progress, ASEAN needs to press ahead to boost intra-ASEAN trade and investment; harmonise standards across the region; remove non-tariff barriers to trade and investment; and open up markets. Those changes will benefit consumers, foster more domestic innovation and competition, and boost foreign and domestic investment.

The EU-ASEAN Business Council is encouraged by the greater interaction between the public and private sectors, particularly on trade and investment issues, and we hope that 2019 will herald a new chapter in the strong relationships as governments take their seats in Indonesia and Thailand following elections, and with a new Commission being in place in Brussels by the end of the year.

The opportunities for European businesses across ASEAN are enormous. Deeper engagement in ASEAN can show the very best of what Europe has to offer: long term, sustainable, progressive and responsible investment for a more secure, prosperous and inclusive future.

For ASEAN to continue to prosper in 2019 and beyond, stronger regional integration is needed

Tony Cripps, Chief Executive Officer, HSBC Singapore



Tony Cripps

For ASEAN to continue to prosper in 2019 and beyond, they'll need to drive harder for regional integration, says HSBC Singapore's Tony Cripps.

SINGAPORE: Southeast Asia's fortunes have risen tremendously since the Asian Financial Crisis – you only have to look at the gleaming malls and airports that have sprouted in Hanoi, Jakarta and Manila, or the increasingly modern manufacturing sites of Kuala Lumpur, to get a sense of the economic buzz that permeates the region.

But now is not the time to rest easy. On the contrary, policy makers across the region should step up reform efforts designed to boost the Association of Southeast Asian Nations (ASEAN)'s openness and integration.

This is crucial both to shield its economies and businesses from the challenging and tough global backdrop, and to allow them to capture opportunities going forward.

As ASEAN's Chair in 2019, Thailand – under the theme of Advancing Sustainable Partnerships – has set a positive tone for the region highlighting several areas of focus.¹

Offsetting a global trade slowdown

The policy shifts in the US and China and, its impact on trade, coincides with the cyclical slow-down in electronics trade – one of Southeast Asia's most integral sectors, equivalent to 25% of the region's total exports in goods.²

No one wins in a trade war but the impact on ASEAN economies can be partly offset if the much-discussed

supply chain diversion to Southeast Asia, from the likes of China, US and Korea, materialises.

Supply chain diversion is happening in pockets across Vietnam, Malaysia and Thailand – given they bulk-export the same products impacted by the US-China tariffs – but increasing the ease in which goods and services flow across ASEAN will make the transition more widespread.

Some important progress has already been made including the imminent launch of the ASEAN-wide self-certification scheme which allows wing certified exporters to self-certify the origin of their exports.³

The ASEAN Single Window that digitises intra-ASEAN trade documents launched across Indonesia, Malaysia, Thailand, Vietnam and Singapore in early 2018, has reduced the number of days it takes to clear cross-border goods flows to one day.⁴

But more needs to be done to smoothen the flow of goods and services across ASEAN. This includes rolling out the window to all ASEAN countries, standardising the cost and time of customs clearance across Southeast Asia and enabling the freer movement of professionals across the region.

Attracting more inbound investment

ASEAN needs to attract more investment from outside the region.

While Foreign Direct Investment (FDI) into Southeast Asia has improved post-global financial crisis, the lion's share

has gone to Singapore, Vietnam and Malaysia - not to countries like Thailand, Indonesia or the Philippines where supply chains are expected to grow in future.⁵

The levers to attract investment to ASEAN more widely are clear: Reasonable production costs, stable institutions, improved technological innovation, lowering tariffs and import barriers for production inputs, and increasing labour skills.

As the Regional Comprehensive Economic Partnership is getting closer to a conclusion⁶, the recently-launched Comprehensive and Progressive Agreement for Trans-Pacific Partnership, which came into force in late 2018, is likely to be extended to more countries.⁷

Upgrading existing trade pacts with the likes of Hong Kong and China are also on the to-do list. Again, these have been earmarked by Thailand as key initiatives in developing ASEAN's potential.⁸

Investment in digital economy

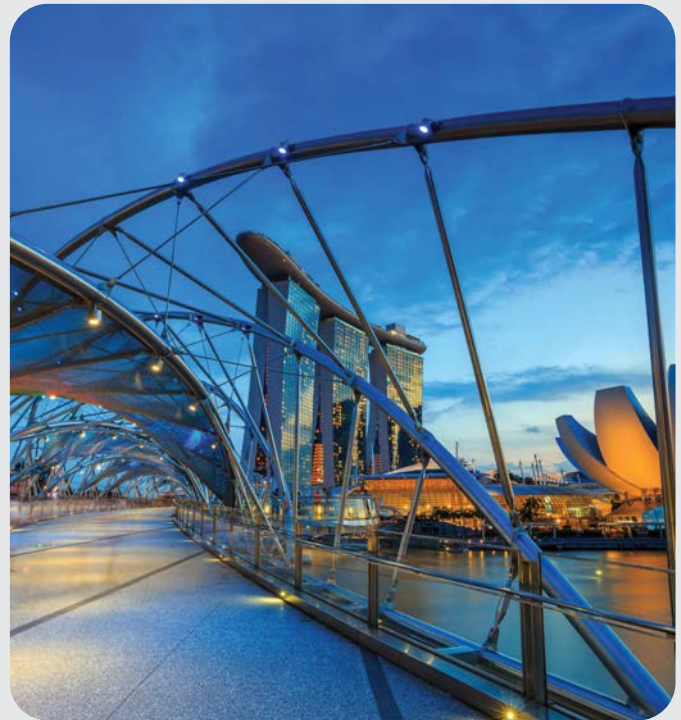
Improving digital connectivity, and investment into ASEAN's digital space to support the region's burgeoning consumer base, can both shore up the region's supply chain potential and increase the gravitational pull for multi-nationals and companies.

The Masterplan on ASEAN Connectivity 2025 has stated that between US\$220 billion to US\$650 billion in additional annual economic impact in ASEAN by 2030 could be injected into ASEAN through new technology and the Internet economy.⁹

Its potential is clearly understood with US, Chinese and Japanese companies investing in information and communications technology (ICT) over the past two years. But ASEAN's digital advancements are still mixed.¹⁰

For example, in five ASEAN countries, e-commerce represents under 3% or less of total retail sales, compared to China with 23%.¹¹

There have been bright spots though. ASEAN members signed the ASEAN Agreement on E-Commerce in November, one of the first in the world to have such an agreement.¹²



However, converting agreements to tangibles like a regional electronic payment infrastructure, or enabling the cross-border movement of business, collaboration on cyber security to instil consumer and government confidence, and the development of market access regimes is crucial.

Driving a sustainable ASEAN

Perhaps the biggest challenge for ASEAN will come in the form of natural disaster events. Southeast Asia is one of the most natural disaster-prone regions in the world that wreaks social and economic havoc. This has only been exacerbated by climate change in recent years.

An ISEAS-Yusof Ishak Institute survey¹³ found that threats from more intense weather events resulting from climate change were more

concerning for ASEAN government and business leaders than economic downturns, terrorism and military tensions.

In response, Thailand has flagged that deepening sustainable financing will be a focus for its chairmanship.

Developing regional incentive frameworks and standards, such as subsidies on the legal and banking advisory costs linked to generating green loans and bonds, will increase the cost-effectiveness and attractiveness of these financial instruments for corporates.

Weather aside, urbanisation will mean that between 2015 and 2030, more than 100 million people region-wide are expected to migrate from the countryside into towns and cities across Southeast Asia.¹⁴

So how will Southeast Asia deal with the strain on resources such as food, health, and infrastructure? A key thrust will be Thailand's commitment to continue the ASEAN Smart Cities Network, started by the Singapore Government, which involves 26 pilot cities sharing best practices on how to build more future-ready and resilient cities.

What we should expect to see is how Thailand can start concretising the ASEAN Smart Cities Network – launched in April 2018 – from a concept programme to now identifying and scoping specific projects across the pilot cities.

The US, Europe and Japan each has also announced funding initiatives in the second half of 2018 aimed at supporting the building of Southeast Asia's infrastructure as part of their countries' respective sustainable development programmes.¹⁵ Ensuring projects are transparent and "bankable", and therefore the debt is sustainable, will be some of the biggest challenges for ASEAN countries.

Where to go from here?

ASEAN's past integration efforts have driven a lot of success for the region as evidenced by the level of geopolitical and economic interest and investment that the region is receiving. But ASEAN needs to quicken the pace in order to give it a larger and stronger political and economic voice amid an increasingly fragmented and protectionist world.

It's not going to be without distractions as the upcoming national elections in Thailand, the Philippines and Indonesia this year will challenge nations to keep their eye on the reform prize.

But businesses are crying out for tangible reform that will smoothen intra-regional trade, encourage international investment and create a sustainable future.

Achieving these in 2019 will help the region both capitalise and shield itself from global events that are likely to play out over the coming years.

¹ <https://www.bangkokpost.com/business/news/1586378/trade-department-pushes-12-priorities-for-asean-chair>

² <https://www.rsis.edu.sg/rsis-publication/cms/co18003-aseans-electronics-sector-facing-the-disruptive-trends/#.XD2ljPlubIU>

³ <https://www.businesstimes.com.sg/government-economy/asean-services-providers-exporters-to-gain-from-two-accords-signed-at-asean>

⁴ <http://asw.asean.org/>

⁵ HSBC Global Research: ASEAN Perspectives, 28 August 2018

⁶ https://asean.org/?static_post=rcep-regional-comprehensive-economic-partnership

⁷ <https://thediplomat.com/2018/11/the-cptpp-trade-agreement-will-enter-into-force-on-december-30/>

⁸ <https://www.bangkokpost.com/business/news/1586378/trade-department-pushes-12-priorities-for-asean-chair>

⁹ Master Plan on ASEAN Connectivity 2025, p.48.

¹⁰ <http://www.southeast-asia.atkearney.com/documents/10192/6986374/ASEAN+Digital+Revolution.pdf/86c51659-c7fb-4bc5-b6e1-22be3d801ad2>

¹¹ <https://sbr.com.sg/retail/news/chart-day-singapore-lags-japan-and-china-e-commerce-use>

¹² <https://www.mti.gov.sg/te-IN/Newsroom/Speeches/2018/11/Opening-remarks-for-the-ASEAN-Agreement-on-Electronic-Commerce>

¹³ State of Southeast Asia: 2019 survey, conducted by the ASEAN Studies Centre at ISEAS - Yusof Ishak Institute https://www.iseas.edu.sg/images/pdf/ASEANFocus%20FINAL_Jan19.pdf

¹⁴ <https://www.straitstimes.com/opinion/south-east-asia-is-getting-smart-with-urbanisation>

¹⁵ <https://asia.nikkei.com/Politics/International-Relations/Japan-and-EU-to-jointly-fund-3rd-country-infrastructure>

Can your business grow as fast as the world's most dynamic region?

ASEAN, the Association of Southeast Asian Nations, is now one of the world's top 5 economies. With a projected GDP of US\$4 trillion by 2022¹ and a rapidly rising middle-class, the economic bloc offers new and untapped opportunities for businesses to grow.

At HSBC, we have over 130 years of experience in connecting businesses to Singapore, Indonesia, Malaysia, Thailand, Vietnam and the Philippines. With award-winning trade and treasury solutions as well as more than 200 locations in ASEAN, we're here to help.

Connecting businesses to where the growth is.
See how at business.hsbc.com/asean



Disclaimer: 1. PWC, The future of ASEAN: Time to act

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Together we thrive

Financial technology is set to transform banking

Less than one third of adults in ASEAN countries have ever had a bank account. This is a situation that clearly inhibits individuals and small businesses to develop. However, the expanding coverage provided by mobile phones, and which are increasingly linked to the internet, provides an opportunity to bridge the gap.

Governments believe that technology can provide the way forward for an under-banked population by merging online connectivity with the fast-developing range of applications that are enabling money transfers and other financial transactions to be conducted by cellular devices. This will have a transformational effect on economies.

Cambodia, for example, has the highest mobile connectivity in the region but only 13% of adults in the country have a bank account, according to the Asian Development Bank. They estimate that the development of digital financial services in Cambodia could well raise the country's GDP by up to 6%.

Smartphone connectivity to the internet is now nurturing an environment where people can conduct monetary and trading transactions via mobile devices in reliable ways that are protected from error and fraud. Consequently, new forms of financial technology are developing and supporting a growing FinTech sector. The underlying applications also form the core of a system that embraces online shopping, taxi-hailing, food and parcel delivery among others.

The expansion of ride-hailing such as Grab from a start-up in Singapore to cover much of the region has also seen the company recently extending into the digital payments' environment, with its offshoot GrabPay that has been launched in Malaysia, the Philippines and Singapore. The new venture is engaged in an industry that has almost limitless potential to expand. The start-up of money remittance firms like Ayannah in the Philippines also serve to illustrate how FinTech development is rapidly taking off throughout ASEAN member states.

A major long term consideration in their investment is that governments are heading towards cashless economies. In Vietnam, digital monetary transactions doubled in the first three quarters of 2018. The trend has encouraged the setting of targets to achieve a mostly cashless society by 2020.

This strategy means that the FinTech industry is prepared for exponential growth in the next few years. Another factor is that existing bank customers rank among the most accepting of FinTech products, exceeding those willing to use such products in the US and Europe.

Along with mobile payments, the market for applications able to handle remittance payments is also growing. Very large migrant worker populations in countries such as Indonesia, Vietnam and the Philippines generated payment transfers totalling some US\$70 billion in 2017.

Singapore's Grab and Go-Jek are among companies launching cross-border remittance products that ensure end-to-end transfers of money from sender to receiver. The Bank of Thailand also intends to start a similar system in 2019, between Cambodia, Lao PDR, Myanmar, Thailand and Vietnam with customers using their smartphones to scan machine readable QR codes.

Indonesia and the Philippines are particularly large potential markets given the number of under-banked communities living in extensive island areas, where traditional banking services are uneven and sparse. This has meant that alternative payment platforms such as e-wallets, a type of electronic card connected to a bank account, have quickly become popular.



In 2018, the Philippines Central Bank announced a policy that would see 20% of the country's transactions being carried out digitally within two years. The plan is dependent on FinTech solutions because it is aimed at establishing banking services for the majority of Filipinos that have never had access to financial services.

Vietnam is also seeking an electronic strategy for its future banking industry, with the government aiming to make the country a largely cashless society by 2020, with cash transactions limited to consumer markets such as retail shopping outlets. FinTech offers a means to succeed with this ambitious strategy with more than 80% of the country's cellular phone users utilising the latest available internet connected smartphone devices.



In 2018, the Philippines Central Bank announced a policy that would see 20% of the country's transactions being carried out digitally within two years.



However, the situation is changing with unbanked citizens turning increasingly to FinTech to help their financial transactions. According to Hamburg research firm Statista, online payment transactions in Vietnam are forecast to grow to more than US\$12 billion a year by 2022, from US\$6 billion in 2017.

Thailand is one of the minority of ASEAN countries that possesses an extensive banking network with around 82% of the population having an account with a financial institution. However, this is stimulating FinTech business. Almost 75% of the country's internet users are estimated to use online banking services. Nearly half of internet users make online payments while 70% purchase goods online. A high level of cryptocurrency dealing is another spur to FinTech development in the country.

Singapore has become the region's hub for FinTech industry development. Several major financial institutions such as Visa and Paypal have started up innovation units in Singapore to work on proof of concept for the diverse FinTech products now beginning to gain traction in ASEAN markets.

Banks are also collaborating with the Government on Blockchain technology, all of which is establishing Singapore in the global league for FinTech development. The Development Bank of Singapore (DBS) for example, has launched one of the biggest Application Programming Interfaces (APIs) covering fund transfers and real-time payments.

The Monetary Authority of Singapore (Central Bank) has sponsored the formation of the country's Financial Sector Technology and Innovation scheme to encourage financial firms to collaborate with FinTech start-ups, which the Government is actively engaging with to speed development of the sector. This has led to Singapore being ranked among the world's leading development hubs for the FinTech industry alongside London and New York. In 2018, Innovate Finance, the UK FinTech development body signed a memorandum with Singapore to stimulate mutual cooperation and development of the sector.

Regional banks such as United Overseas Bank, Development Bank of Singapore and Maybank are working on in-house incubator programmes

to partner with FinTech start-ups. The ASEAN Financial Innovation Network (AFIN) is also helping to support the integration by bringing together FinTech firms and financial institutions including insurers and regulatory authorities.

AFIN arose from a collaboration between the Monetary Authority of Singapore (MAS), the World Bank's International Finance Corporation and the ASEAN Bankers Association. In November 2018, AFIN set out to launch the world's first cross-border API market place and sandbox platform in which participants can integrate and test applications with each other through a cloud-based computer architecture.

New FinTech concepts are fast becoming reality. Within a decade biometrics, such as facial recognition or fingerprints could become the standard way to access banking services. In India, fingerprints and iris scans have replaced traditional ID cards and through an Open API Policy businesses are also able to integrate that database into the services they provide and allow customers to open a bank account in seconds.

The US\$215 million investment raised in 2018 by Voyager Innovations in the Philippines, illustrates how attractive the market is for FinTech start-ups. Shanghai based Tencent, an online private Chinese bank, was a principal funder for the deal along with New York based private equity concern Kohlberg Kravis Roberts (KKR) and the International Finance



Corporation, the World Bank's private sector investment affiliate. Voyager is developing systems for conducting digital payments and money transfers, especially those involving remittances from overseas workers using smartphones.

Investment in FinTech enterprises in 2018 totalled an estimated US\$6 billion, an increase of more than 30% to the previous year. According to research conducted by EY, nearly 90% of the region's FinTech firms intend to expand in the near term while 77% are also targeting international expansion, especially in the US, UK and China.

Among emerging markets, some of the greatest opportunities for FinTech companies exist within ASEAN countries, where a young population is eager to adopt digital technologies and where governments are highly supportive of new means of broadening the reach of financial services.



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Towards 2025

Boon-Hiong Chan, Head of Business Control Unit-Market Advocacy in the Global Transaction Banking division, Deutsche Bank



Boon-Hiong Chan

As the ASEAN countries turn digital and economic strategy and policy into commercial reality, Deutsche Bank's Boon-Hiong Chan highlights key areas of success and why the region will continue to be attractive to investors.

The attraction of the Association of Southeast Asian Nations (ASEAN) as a more integrated, modern economic region of growth is not accidental – it can be attributed to many factors including a tireless execution and coming together of its numerous policies, deepening cooperation of ASEAN Member States (AMS), openness to dialogue, and continuous overall improvement in the ease of doing business¹ that represents the successful translation of policies into market practices.

The attraction is best evidenced by the steady growth of FDI into ASEAN that reached a height of US\$137 billion in 2017, an impressive 20% share of all global FDI to developing economies. Encouragingly, FDI has also diversified from manufacturing into retail services and new value-added industries like healthcare, R&D and e-commerce².

New growth policies and initiatives to watch

In 2018 and the start of 2019, new forward looking policies continue to be introduced that are highly relevant to the global community of ASEAN participants.

For example, a high-level ASEAN framework on Electronic Commerce³ agreed to recognise and encourage AMS cooperation to build out its cross-border e-commerce features including paperless trading, interoperable electronic authentication and electronic signatures to minimise barriers to the flow of information. It was followed by an ASEAN data governance survey for private-sector to calibrate data-related policies.

Complementing this work, letters of intent have been signed between the central banks of Thailand, Malaysia, Indonesia and the Philippines to initiate discussions on an establishment of a local currency settlement framework – which will facilitate cross-border e-commerce – that is anticipated by the end of 2019⁴. As a first step, the central banks are also working on cross-border instant payment, with the first live linkage between Thailand and Singapore expected by 2020.

Capital markets

This economic vibrancy is also matched by a dynamic ASEAN capital market with an aggregated market capitalisation size of roughly US\$2.5 trillion⁵, making it a top ten by market capitalisation in the world if it were to be combined. In 2018, ASEAN aggregated local currency bond market stood at a respectable US\$1.4 trillion, with

Thailand having the largest local currency bond market while Malaysia has the largest Islamic bond market⁶.

Its equity markets are progressively moving to a shortened settlement cycle of “T+2” that can reduce collateral costs and settlement risks to enhance the region’s attraction to global investors. In 2019, Malaysia is scheduled to join Singapore, Thailand and Indonesia as the next T+2 market while the Philippines is consulting on it. In the meanwhile, Vietnam is drafting a significantly revised securities law which contains proposed changes to reform nearly all aspects of primary issuance and secondary market trading.

Reflecting the region’s need to modernise its infrastructure and resource richness⁷, the joint initiative between ASEAN Capital Markets Forum (ACMF) and a central bank’s working committee to develop new ASEAN asset classes and ecosystems in infrastructure financing and sustainable finance, including its Roadmap for ASEAN Sustainable Capital Markets⁸, was endorsed. This would give another shot of growth into ASEAN financing activities.

A pronouncement that simply stated that an ASEAN Framework for the Cooperation on Digital Asset Oversight will be developed could spur new risk capital formation methods.



From policy to implementation and market practice

In the coming years, as ASEAN implements these and other policies to remake itself towards 2025 including new emphasis on the 4th Industrial Revolution (4IR) and greater connectivity between ASEAN capital markets, discussions that can combine related policies to assess their effects on the industry can facilitate the important steps of adoption, and to mitigate otherwise unforeseen or unnecessary complexity.

For example, discussions on e-commerce and local currency settlement policies are relevant to intra-ASEAN trade and supply chain financing and FX risks management. For a regional business, interests by its procurement or sales divisions to pursue cross-ASEAN opportunities would be reflected

in its corporate treasurer's interests in local currency policies that can affect effective management of US dollar and domestic currencies to minimise trapped liquidity. Ability to consolidate working capital activities, clearer cashflow forecasting, effective market risks management like hedging, and reporting efficiency to different regulators and central banks would follow as other related treasury considerations.

As regional treasury and financial management can operate on a hub-spoke model, attention is also needed on data localisation effects from digital-related laws and regulations that could inhibit cross-border financial data flow that is required for holistic financial market risks management.

In such a period of implementation, other "cross topic" examples can include effective collateral management for banks in cross-border instant payment. Collateral is related to the currency and size of remittance value which in turn, would influence how consumer and business use instant payments. Remittance transaction monitoring and safety practices will also need new standards in the era of instant cross-border payments, just like custom and logistic practices are adapting to meet higher volume but lower value e-commerce orders.

In the ASEAN capital markets space, seminal ACMF work on prospectus disclosure, cross-border delivery of investment advisory and interests to increase such trading of ASEAN equities – and similar work by the ABMF⁹ on the bond markets – can be facilitated if different market entry and repatriation documents and processes including know-your-customer can also be streamlined. Likewise, the ASEAN funds industry – currently characterised by a relatively high level of paper and manual processes – is a related area to align with cross-border funds passport initiatives and the automation ideals of "4IR".

The third pillar of Asia growth

Ambitious and forward looking policies with complementary market forces is a potent mix for success, and this is evident in today's ASEAN standing as a strong third pillar of Asian growth, together with China and India.

In the run-up to 2025, more cross-policy considerations, bold and collaborative execution to build market adoption and responsive calibration of regulations and market practices, can further entrench ASEAN as a globally competitive and attractive region.

At Deutsche Bank, we are excited by the prospects and look forward to a prosperous ASEAN 2025.

¹ Doing Business 2017, World Bank Group

² ASEAN Investment Report 2018, Foreign Direct Investment and the Digital Economy in ASEAN, The ASEAN Secretariat, United Nations Conference on Trade and Development

³ ASEAN Agreement on Electronic Commerce, 2018

⁴ Joint Statement of the 5th ASEAN Finance Ministers' and Central Bank Governors' Meeting, 5 April 2019

⁵ As at December 2018. Annual Statistics Guide January 2019, World Federation of Exchange

⁶ Asia Bond Monitor, March 2019, Asian Development Bank

⁷ For example, ASEAN is ranked 3rd largest producer of oil and natural gas in the world. Source: www.aseanexchanges.org

⁸ Joint Statement of the 5th ASEAN Finance Ministers' and Central Bank Governors' Meeting, 5 April 2019

⁹ ASEAN+3 Bond Market Forum

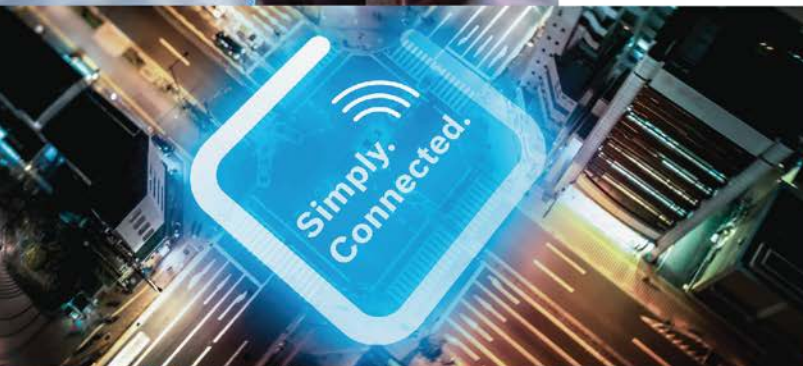
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100 Years
Bosch in SEA | 1919-2019



Bosch, Southeast Asia and the Internet of Things

Martin Hayes, President, Bosch in Southeast Asia



Martin Hayes

ASEAN and the potential of the Internet of Things (IoT)

The world is becoming interconnected at a phenomenal rate. There will be over 30 billion connected devices by 2020, producing a staggering five quintillion bytes of data each day. This extends beyond mobile devices and wearables that we have today and will include the usage of sensors in all different types of applications.

With a population of over 600 million, 60% of which is under the age of 35, ASEAN represents the fastest growing internet region in the world, with over 480 million users by 2020. A relatively young population with an unquenchable thirst for technology, ASEAN has the potential to soon become a truly digital economy.

Addressing challenges head-on through smart solutions

Rapid urbanisation plays an integral part of the region's growth. It also presented a slew of challenges including weary infrastructure, rampant traffic congestion, as well as air and noise pollution. To tackle these issues, many cities in Southeast Asia are turning to connected solutions enabled by IoT to make cities smarter, safer, and more efficient.

Bosch has been actively shaping the world of IoT in Southeast Asia, early on. For Bosch, connectivity is more than just a technology – it's a mindset. It affects all areas of life, making mobility easier, cities smarter, factories more productive and buildings more energy efficient. Most importantly, it puts people's comfort and safety at the centre allowing us to connect with each other in entirely new ways.

Making mobility seamless for all

A smartphone app instead of a vehicle key, a car that searches for a parking space by itself, ride-sharing services that allow people to be mobile without the need to drive. All these technologies are powered by connectivity and automation to make life easier, more comfortable and safer.

Bosch solutions like connected parking, vehicle safety systems and driver assistance systems, will make cities free of accidents, stress, and emissions. The company is already making headways in these areas by pursuing a number of connectivity and automated driving beacon projects. One such example is Bosch's e-scooter sharing service "Coup," launched in Berlin in 2016. The Coup app allows users to

locate and reserve the closest scooter parked in dedicated two-wheel parking zones, thus promoting more sustainable transportation choices, improving traffic congestion, and limiting pollution.

The next step for mobility solutions will be the dawn of automated driving and autonomous vehicles. It will enable ease of movement by significantly improving convenience, safety, and efficiency. The possibilities and reach are endless - from vehicle fleets, parking spaces, freight cars to even rail transport.

Connectivity at workplaces

Data is rapidly changing the way work is done, even across the most traditional of industries. As companies continue to invest in hardware, software and IT services, they will need to harness the large and growing amount of existing data that is necessary as a basis for highly efficient production. Smart manufacturing enabled by IoT ultimately offers customers significant value-added services. It helps manufacturers lower their inventory costs, minimise workflow disruptions and reduces the overall amount of capital required to run their business. This is exemplified in Bosch's new smart factory in Thailand. The plant utilises connected industry 4.0 solutions to improve the overall performance of manufacturing processes.



Given the vast potential of IoT, companies must learn to manage the large volumes of data, harness the technology to gain an undisputed competitive advantage and maximise returns for their businesses.

Connectivity for home users

Today's smart home products cater to a broad spectrum of applications and help users in many different aspects of their lives. The prevalence of smart home systems has made it possible to control connected devices using a single application, allowing users to automatically control regular processes in their homes. These networked devices communicate with one another to automatically adjust to changing circumstances and users' daily routine. For instance, intelligent cooling control saves energy costs and creates a cosy climate, while the automated house surveillance works to protect your home around-the-clock, with a simple click of a button.

Security is a fundamental aspect of us living together peacefully in ever larger cities. Smarter systems can help us prevent crime or warn us before danger strikes. Many cities today integrate a wide range of networked video monitoring solutions to efficiently protect public areas. These help authorities detect potential threats, enable faster prosecution and even improve traffic flow by monitoring and reprogramming traffic lights in real time.

In the domain of connected buildings, Bosch has developed IoT-based solutions, such as elevator monitoring that connects all relevant technology components to enable users to access real-time elevator data. This is available on the cloud anywhere, anytime, helping to improve the efficiency of predictive maintenance. Another key solution is air quality monitoring. This involves measuring several air-quality parameters, allowing users to pinpoint any problems with indoor air and helps building managers make decisions that ensure a pleasant indoor climate.

The future of smart cities in Southeast Asia

The region's next wave of connectivity will see citizens taking the driver's seat, allowing them more control, improved data transparency and exchange, as well as making existing technologies more interactive, thus involving the people in every aspect of the city life, in new, interesting ways.

Whether it is connected mobility, manufacturing, logistics, energy systems or smart building technology, Bosch's strategy is to connect its entire range of products and services. This is the heartbeat of Invented

for Life – our ultimate goal and the mission that drives us to look towards further implementations of innovative technologies and deeper integration in the region.

Bosch is a leading global supplier of technology and services headquartered in Germany. The company's operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovation solutions for smart homes, smart cities, connected mobility, and connected manufacturing. The company uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected cross-domain solutions from a single source. Today, the company employs over 410,000 associates worldwide.

Bosch has been present in Southeast Asia since 1919, when Bosch products were first distributed in Indonesia. With a regional headquarters in Singapore, Bosch is present in every ASEAN member country, with manufacturing and R&D facilities across Singapore, Malaysia, Thailand, Vietnam, and Indonesia. The company currently employs around 10,000 associates in the region.

The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for Life".

Smart technologies launch ASEAN into the driving seat

ASEAN's major economies are embracing what has become known as a The Fourth Industrial Revolution. This evolution is characterised by an introduction of a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries.

Artificial Intelligence (AI) is one of those emerging technologies with the potential to transform every sector of a country's economy on a par with how the internet has radically changed how companies operate and people socially interact.

ASEAN is becoming transformative for this new technology both in research and applying it to production processes, predictive analysis and e-commerce enablement. They are progressing quickly to deliver robotics for smarter manufacturing processes, develop automated guided vehicles and to overhaul logistics, material-handling systems, storage and retrieval methods, energy saving, and providing a location for leading edge biomedical technology research.

AI is already being deployed in surgical procedures in Singapore hospitals and used to detect types of skin cancer, analyse chest X-rays or perform

diabetes screening from a patient's retina scan. Scientists at the Genome Institute of Singapore have developed a new type of AI, where machine learning computer models accurately pinpoint why gastric cancer occurs. Steve Leonard, CEO of SG Innovate, a state-owned company, says that Singapore is positioning itself at the leading edge of a healthcare revolution.

The Civil Aviation Authority of Singapore is also increasingly using AI technology including facial recognition and innovative CT X-ray machines to speed up passenger security procedures and to make them less intrusive. Singapore's PSA Terminal is widely regarded as one of the most advanced in the world. It has invested heavily in advanced technologies including the Computer Integrated Terminal Operations System and a computerised security system to detect anomalies and reduce losses from malfunctions and theft. In future driverless vehicles are also due to be introduced when it's new port opens.

Indonesia, Malaysia and Thailand in addition to Singapore, are actively looking to develop AI to raise productivity in manufacturing processes and also exploit the potential of it to transform transportation.

The management and consultancy firm, Accenture, has calculated that Singapore's manufacturing sector has the potential to expand by 40% by 2035. In order to fulfil this, the Government has identified AI as a core technology essential to drive the country's future digital economy and lay the foundation for Singapore's economy in order for it to remain competitive on a global scale well into the future.

As part of this effort, Singapore is seeking to make itself a location of choice for developing, test-bedding and deploying advanced ground breaking technologies in the manufacturing sector and other areas.

Professor Seng, Chairman of Singapore's National Research Foundation, believes that researchers in Singapore have more bilateral collaborations with counterparts in the UK than they have with any other country in the world. This collaborative research covers sectors ranging from medicine to reducing industrial carbon emissions and photonics for the telecommunications industry.

ASEAN countries are raising their game to keenly embrace technologies that transform how companies manufacture, transport and market products and services. It is recognised that technology driven trade is critical in enabling Southeast Asia to maintain its economic growth and remain one of the global economy's most competitive regions.

In a much wider way, the rapid adoption of digital technologies by businesses, as well as its increasingly affluent consumers, are factors complementing the efforts of ASEAN Governments to make their economic integration a reality.

Data highways are effectively bridging vast island-based peoples hitherto separated by diverse languages and cultures, who are now using smartphones, the internet and social media. This connectivity within and



across borders provides companies with an unprecedented level of contact with consumers.

Online is the buzzword even in remote districts and areas. Government agencies are seizing the opportunities that technology provides to carry out administrative tasks far more efficiently and at a much lower cost. At the same time, e-commerce firms are building the logistical and technological infrastructure that is enabling SMEs to significantly widen the scope of their potential markets. As a result, retail trade conducted by e-commerce providers is forecast to reach US\$88 billion in the region by 2025, according to a study conducted by Google and the state-owned Singapore investment company, Temasek.



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With the use of advanced technology applications for fast moving consumer goods, an accurate analysis of purchasing patterns can help in anticipating demand for particular products. Logistics providers, by shipping and storing selected items in advance, are then better placed to respond to orders faster and at reduced cost.

While technology in itself is not a substitute for adequate roads and other transportation infrastructure, its application can significantly mitigate logistical challenges. One way for logistics providers to achieve better performance, for example, is by improving utilisation of vehicles and other assets by collecting and analysing data on routes and performance in real time.

Another area of development is autonomous vehicle technology. Former Singapore Transport Minister, Ng Chee Meng has said: “We are focusing on self-driving technology in a big way because it has the potential to provide self-driving buses and we are exploring how the technology can be applied for use in freight transport and utility vehicles.”

Malaysia research and development company REKA Studios is working on developing a driverless forklift truck and a number of other prototype autonomous vehicles including cars. The company’s efforts and those of other developers are backed by a Government research and development programme for autonomous vehicles.

Logistical improvements will be a game changer for ASEAN economies. Indonesia, for instance, has some of the highest logistics costs across the

whole region, accounting for 24% of the country’s GDP in contrast to Thailand and Malaysia, where costs total around 13% of GDP.

Singapore start-up Ninja Van has adopted the latest available technology to focus on e-commerce by using real-time tracking, through email and SMS, for its operations in Malaysia, Indonesia, Thailand, Vietnam, the Philippines and its local base.

Vietnam hopes that it could become a major logistics hub, following the Government’s decision in 2018 to open it up to foreign-owned logistics supplier companies, which will hasten the adoption of streamlining procedures with new technology. Vietnam’s logistics costs currently are estimated be up to 25% of GDP, one of the highest figures in the region.

Another boost could come from using a technology known as Blockchain, originally developed to enable dealings in Bitcoin and other digital currencies. Blockchain technology was invented in 2008, and essentially allows digital information to be distributed but not copied. Since its introduction the technology has been recognised as having other applications.

By giving all parties visibility into the products and processes in a supply chain, Blockchain can substantially improve the ability to trace products and lower the coordinating costs of managing complex supply networks. ASEAN economies are among the global front runners in leveraging Blockchain to improve trade logistics, trade finance customs operations and management of supply chains.

A combination of predictive analytics and Blockchain is set to stimulate the already fast expanding e-commerce sector by facilitating the stream of trade while making transactions secure and quickly identifying attempts at fraud. Digitising documents and shifting to Blockchain will also help reduce the time to undertake trade finance procedures from days to hours or minutes.

Kuala Lumpur based NEM Malaysia has launched a Blockchain Centre as a learning hub and incubator for Blockchain businesses in the region. In Indonesia, Online Pajak is operating a Blockchain based app to enable citizens to share secure encrypted tax data with government institutions and banks.

Vietnam Food Integrity Centre has begun using Blockchain to give customers data on the origin of their fish, mangos and pet foods including information on processor firms, who shipped them and when. Once the information is transmitted, it cannot be altered and the information remains visible through the product's entire journey.

Shanghai based Energo Labs has teamed with the Philippines First Gen to set up a Blockchain based microgrid platform in the country that enables having excess energy, possibly produced from solar panels, to sell their power to other parties. A similar venture is operated in Singapore by US company LO3 Energy.

The fourth industrial revolution is evolving throughout the region. In October 2018, Japan's Hitachi opened a digital services hub east of Bangkok aimed at implementing smart factory technology. The Lamada Centre is marketing technology employing the Internet of Things (IoT).



A technology concept that extends internet connectivity into physical devices and everyday objects. Hitachi CEO, Toshiaki Higashihara, says the centre can contribute across a range of manufacturing, urban development, logistics and healthcare.

By accelerating digital integration, ASEAN countries and its companies can sustain growth. Blockchain is one of a number of developing technologies such as e-commerce, the IoT and AI that will help generate greater productivity and maintain its status as one of the world's most dynamic economic regions far into the future.



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Small firm, big results

Mark D'Alelio, Managing Partner, Legal ASEAN



Mark D'Alelio

Can you describe your firm's background, particularly in the Southeast Asian region?

We are a Bangkok based law firm that is active across the ASEAN region in support of our clients' legal advice needs in the area. Our philosophy is to provide practical and business-related legal services to assist clients in navigating local regulations and practices in ASEAN, with a particular focus on Thailand and CLMV (Cambodia, Lao PDR, Myanmar and Vietnam).

The firm's unique selling proposition is that we listen to our clients' needs and then partners them in their business, by offering compelling legal and practical solutions to meet their requirements.

I have worked as a lawyer, in Vietnam, Cambodia and Myanmar, as well as Thailand, and can therefore help facilitate access into these markets and, through our network of local providers deliver on-the-ground support.

There are many ways for a legal adviser to act, and we feel strongly that big is not necessarily best. We run our business by putting our clients first, and by providing them with all the support they may need to develop a successful business in ASEAN.

What principal areas of law are handled by Legal ASEAN?

Our multi-faceted team has experience in advising on FDI in both Thailand and CLMV. We are experienced in supporting clients in disciplines including project finance, employment, real estate, and dispute resolution.

Why is the firm based in Bangkok?

Bangkok is ideally situated to serve the needs of our clients in Southeast Asia. Thailand has several renowned law schools, and is very attractive to us in recruiting talented individuals. In addition, Bangkok's proximity to CLMV means shorter journey times for us, as well as our clients, when doing business in the region.

What is Legal ASEAN's approach to clients and their requirements?

We always look to provide our clients with value-added solutions at an affordable price and on a fixed-fee basis. If there are any changes in scope of work, we communicate immediately to the client, look to address ways to reduce any cost impact and, if it is unavoidable, advise the client on any additional costs.

In essence, there are no surprises and the client will know upfront what our work will cost, along with a schedule of when it will be undertaken. We and the client sign up to this and we manage our time appropriately, to align with to the agreed schedule.

We do not focus on any specific industry sector or nationality of investor, welcoming diversity in the work we carry out and the clients we serve. We have professional staff fluent in spoken and written English, as well as other languages, to facilitate easy communication and responsiveness to client queries.

We are also ready to help on matters beyond those of a purely legal nature, providing introductions to recruitment firms, accounting firms, and auditors, for example. We believe in offering a one-stop service, and have key contacts across the region to help us give real added-value to clients across a range of business disciplines.

How does Legal ASEAN operate outside Thailand?

We operate like other law firms without physical offices in certain regions, in that we have close affiliated relationships with local law service providers. We only work with firms that share similar philosophies to ours, and have a developed a good track record in working with us. We work with tried and tested affiliates, and view them as partners in servicing clients across ASEAN.



We assume the role of lead counsel in arrangements outside any jurisdiction in which we are not physically based, and manage local counsel in performing the services required by a client. This means the client will treat us as a trusted business partner, to project manage any work, and to ensure that the advice or services provided are compliant with local law.

What advice would you give to a foreign company seeking to engage professional service providers in the region?

I believe that prospective clients should meet several service providers, in order to understand what they can expect and to test their knowledge of the market. It is important in these first sessions that the client is



The real key is that laws in ASEAN, while not necessarily all similar in nature, must provide investor confidence that the rule of law will be followed.



confident they can work with the individuals of the firm, and that there is an effective rapport.

Managing communication and developing a mutually-respected relationship is the key. A client needs to know that its professional advisor can navigate through the law and local customs, to ensure they are protected and that governance policies are adhered to.

Any client should demand fixed fees, or fee caps, along with timelines for the services they require. When professional advisors are not willing to abide by these requirements, a client is best served by looking elsewhere for an advisor that is flexible in nature and understanding of the local business environment.

What are the principal differences in legal systems seen across Southeast Asia?

Markets such as Malaysia and Singapore have better established legal systems, and therefore are much further ahead than the developing jurisdictions in ASEAN. The real key is that laws in ASEAN, while not necessarily all similar in nature, must provide investor confidence that the rule of law will be followed, and that there are well-established principles that protect foreign investment.

Countries like Thailand are continuing to relax legislation to allow more foreign investment and provide schemes to attract such investment in particular regions of the country. Myanmar has enacted legislation in recent years that provides investment privileges and comfort that investors can repatriate their profits, as has Vietnam.

What you are seeing in developing markets is the move towards enhancing commercial legislation in the form of enforceability for contract breaches and arbitration legislation, to allow foreign arbitral awards to be applied. From my perspective, this continued advancement in legislation is the key to fostering continued new investment in the region.

How do you view the current investment climate in the ASEAN region from a lawyer's perspective?

These are very exciting times to be a lawyer in ASEAN, with the region growing in economic importance and investors from all parts of the world seeing it as a key market, regardless of industry sector. Every country in ASEAN now recognises the need to reduce foreign investment restrictions, and to create more open economies that will facilitate new investment in their respective jurisdictions.

Region's spending on infrastructure is set to accelerate

New seaports, airports, railways, highways and power projects are the principal sectors promising to transform ASEAN countries and help propel economic growth well into the future. The investment strategy is steadily gaining pace and is being prioritised throughout ASEAN.

Following his election Philippines President Rodrigo Duterte, announced in July 2017, that infrastructure development was to be the main priority for the country declaring "in other words, we are going to build, build and build." Public spending on infrastructure projects as a result is set to reach around US\$160 billion, far in excess of any previous programme. The main focus is on speed of implementation and also addressing the needs of communities outside the capital Manila.

Around US\$16.9 billion has been allocated to building the Government's flagship infrastructure improvement programmes in 2019 alone. Much of the allocation is for projects with a significant portion allocated for new roads and bridges and other transport related needs in addition to flood management schemes.

Projects being fast tracked include the Central Luzon Link Expressway and the expansion of Clark Airport, 80km northwest of Manila. In addition, US\$479 million has been provided for the construction of the first phase of the planned 35km 13 station Metro Manila subway, the country's first underground railway. The US\$6.7 billion project is expected to be completed by 2025.

In comparison to other countries in the region, Singapore's infrastructure already ranks as world-class. However, it has embarked on a multibillion dollar programme of transportation improvements to reinforce its pre-eminent maritime and aviation position in global logistics connectivity.

The PSA International terminal at the mouth of the Malacca Strait already ranks as one of the most advanced ports globally, handling 20% of the world's transhipped containers, making it the second largest container port after Shanghai. In 2019, this ranking is being consolidated as construction begins on the new Tuas mega-port in the west of the country.

The new port is due to be completed in 2040, and will have a handling capacity of 65 million containers (twenty-foot equivalent units-TEUs), double the current capacity. Innovation will be at the core of development which will feature autonomous vehicles and drones to service the vessels.

The port will consolidate Singapore's position as one of the world's most efficient and largest maritime logistics centres and a vital nodal point for smaller ports in Southeast Asia. The port's completion will mirror the island's other multibillion dollar infrastructure project in the form of Changi International Airport's Terminal 5 development.

In April 2018, Changi Airport Group selected various architectural design and engineering consultancy firms. These include local affiliates of UK firms Arup and Mott MacDonald. The project will see construction of a terminal larger than all of the other four combined. The new US\$10 billion

project is part of the larger Changi East development, including a three runway airport system and a range of new ground transport infrastructure.

The expansion is due to be completed over the next 12 years and will accommodate 50 million passenger movements a year and 100 additional aircraft stands. Over the same period, Singapore is due to implement an estimated US\$40 billion project to build the 50km Cross Island MRT rail line. This will be the eighth such line and feature 230km of track, more than half of which will deploy driverless technologies. The ultimate aim is for everyone to be able to reach a station within ten minutes.

The Trans-Sumatra toll road is one of the projects arising from the Masterplan for Indonesia's Economic Development Acceleration and Expansion. Five of the road's planned 24 sections are scheduled to be completed by the end of 2019. Its completion is seen as the key to facilitating opening up the vast mineral and agricultural resources.

The implementation of China's trillion dollar Belt and Road Initiative (BRI), has alerted global attention to the strategic implications of infrastructure development in neighbouring Southeast Asia and beyond.

Sometimes described as the new Silk Road, in reference to the ancient network of routes that once connected China with Central Asia and Europe, the concept involves construction of a series of overland highways, railways and seaports to create a vast logistics network pivoting from China through Southeast Asia connecting to Europe and across the Indian Ocean to Africa.

The BRI is taking shape. In 2018, China agreed to fund 70% of the cost of building a new deep-sea port at Kyaukpyu in Myanmar on the Bay of Bengal. Also a new railway linking Dali, in China's Yunnan Province, to Ruili on its border with Myanmar is due to be completed in 2019, which could eventually form part of a Pan-Asian railway network. Other Chinese sponsored high-speed rail links are underway in Thailand and Lao PDR.



There are other major players interested in ASEAN projects that are increasing their focus on the region's infrastructure needs. The EU, for example, has proposed a fund designed to attract investors into projects to improve the region's transport, energy and digital infrastructure. The fund would provide a guarantee to cover investors costs should an infrastructure investment venture falter.

According to the San Francisco based Asia Foundation, there is a trend towards more direct bilateral cooperation as donor governments including South Korea, India, Japan, Australia, the EU and US, seek to strengthen their ties with Southeast Asia, via development cooperation.



The Trans-Sumatra toll road is one of the projects arising from the Masterplan for Indonesia's Economic Development Acceleration and Expansion.



South Korea through its New Southern Policy launched in 2017, is expected to focus on increasing cooperation with countries in Southeast Asia. The strategy arose from a visit by Korean President Moon Jae-in to Indonesia in 2017, who has followed up this interest by visits to Singapore in 2018 and in March 2019 to Brunei Darussalam, Malaysia and Cambodia.

In October 2018, South Korea signed a memorandum with Vietnam to draw up plans for 34 port projects. It is also looking to help develop a dry port in Lao PDR and establish a national logistics system in the landlocked country.

Japan is financing road schemes in Cambodia, Lao PDR and Vietnam and it is helping to fund development of Cambodia's Sihanoukville port and the construction of railways in Thailand. These project investments follow the launch of the Japan-Mekong Connectivity Initiative in 2016, which seeks to fund an East-West Economic Corridor from the port of Da Nang in Vietnam through Lao PDR and Thailand and on to Myanmar.

Tokyo is also providing support for a southern economic corridor running from Ho Chi Minh City through Cambodia and the south of Lao PDR to Thailand and Dawei port in southeast Myanmar. In October 2018, Japan also agreed to provide up to US\$625 million for projects aimed at reducing traffic congestion as well as waste water projects in Yangon.

Private sector investment in infrastructure continues to be encouraged. After taking office in 2016, President Duterte's administration said it was open to unsolicited proposals. This has resulted in private sector offers totalling more than US\$60 billion to develop airports, toll roads and railways among other public infrastructure projects.

A number of firms, for example, have submitted proposals to expand and operate Manila's Ninoy Aquino International Airport. One of the country's largest corporations San Miguel, with an annual turnover of US\$13 billion, has reportedly made an unsolicited bid to undertake the entire work itself.

The Philippines is looking towards a hybrid PPP model to fund its programme. Under such an arrangement, the Government aims to break ground on the design and construction phases of projects, while leaving the procurement process for operation and maintenance of this model to take shape. A "Tax Reform for Acceleration and Inclusion" is intended to fund up to 25% of projects while overseas development assistance, bilateral government-to-government financial assistance in addition to private financing are being sought to provide the balance.

Vietnam is also looking at innovative applications of overseas development assistance through which the private sector could access funds and finance at preferential rates. This could prove an attractive proposition for private investors unable to access the very large capital requirements for major infrastructure projects.

The Asia Foundation notes that ASEAN governments are becoming development assistance donors and identifies Thailand, Indonesia, Singapore, Malaysia and Brunei Darussalam as such donor countries. While still a small percentage of overall funding assistance, intra-ASEAN is growing and gaining prominence. Moves by governments to create locally led platforms for investment strategies will help them more directly shape cooperation in their region.

New airports are helping tourism

Increasing airport capacity is a priority throughout Southeast Asia in order to meet the needs of a rapidly expanding aviation sector.

Singapore's Changi airport expansion is indicative of the scale of investment across the region. This is also seen in the recent opening of Vietnam's Van Dong Quang Ninh International Airport, 50km from the Halong Bay tourist resort area. The airport has been developed with help from Netherlands Airport Consultants on a build-own-operate basis. The three phase project, costed at US\$310 million, aims to handle up to five million passengers by 2030.

Cambodia approved plans in 2018 to build a new international airport. The US\$1.5 billion plan aims to develop the project in Kandal Province, 30km south of the capital Phnom Penh.

Lao PDR is also seeking to build a new airport to replace Vientiane's Wattay airport on a site 35km away from the capital. Lao PDR Public Works and Transport Minister, Bounchanh Sinthavong, says that existing international airports at Savannakhet, Luang Prabang, Pakse and Vientiane have limited room for expansion and all of them will exceed passenger handling capacity over the next decade.

Meanwhile, state-owned Airports of Thailand (AOT) plans to invest US\$2.6 billion to expand Bangkok's Suvarnabhumi International Airport to double its existing capacity to 90 million passengers a year. The airport is due to complete its second phase of expansion in 2020, bringing capacity up to 60 million passengers annually. A fourth phase would increase this figure by 50% says AOT Chief Executive, Nitinai Sirirattakarn.



Thai transport officials are also seeking to link Bangkok's Suvarnabhumi and Don Mueang airports with U-Tapao airport, located on the coast of the Gulf of Thailand via a high-speed railway network expected to cost US\$6.9 billion.

Infrastructure investments to develop connectivity are a priority in Thailand's efforts to extend tourism to less developed areas including Nakhon Ratchasima, Chalyaphum, Buri Ram and Surin. A feasibility study has been initiated to build a new airport in Surin Province while a masterplan is being drawn up to develop a new terminal and runway extension at Buri Ram airport, to allow larger aircraft to use the airport.

Indonesia has plans for development of ten new airports across the country and the Government is looking to engage the private sector in these projects, says Transportation Minister, Budi Karya Sumadi.

Urban development challenge relies on smart solutions

With expanding populations, the pressure on the abilities of infrastructure to cope in many cities in ASEAN countries is increasing. More than 30 of the cities now have populations of more than one million people including seven in Indonesia, four in the Philippines and five in Vietnam.

Jakarta, home to more than ten million people is the largest conurbation, while Ho Chi Minh City and Hanoi accommodate well over eight million people each. Singapore comprises 5.3 million. Yangon's population has reached 5.3 million. Cambodia's capital Phnom Penh have a population of 1.2 million.

Many other cities also have large and increasing populations. Myanmar's second largest city Mandalay, has seen its population rise to 1.2 million. Millions more are expected to move into cities over the next decade with the main thrust of the migration expected to be towards medium size cities rather than the main capital centres.

The toll on existing infrastructure is already severe in places such as Jakarta and other capital cities such as Bangkok, Yangon, Hanoi and Manila. The strain is likely to be felt increasingly in Indonesian cities such as Palembang and Makassar, with populations of 1.6 million and 1.4 million respectively, as well as in the Philippines in cities such as Davao, with a population of 1.6 million and Cebu City with nearly one million people.

The UN estimates that 84 million more people will live in Southeast Asia's cities by 2030, which will then mean that 56% of the region's entire population of some 650 million people will be urban dwellers.

This degree of urbanisation raises urgent concerns over sustainability given the historical tendency to prioritise economic growth at the expense of environmental and social deterioration. The Philippines, Indonesia and Thailand are among those countries facing serious traffic congestion problems and inadequate living conditions for many.

Traffic congestion, in particular, incurs a range of economic, environmental and social costs. An OECD 2019 report says that policy options to improve urban transportation systems while involving actions to minimise and curtail vehicle use require technological solutions. These tools are required to implement policies in a region where transport organisations and local authorities often lack the capacity or possess sufficient powers to manage urban transportation issues.

Bangkok wants to develop its public transport services so that at least 60% of residents of one of ASEAN's most congested cities will use public transport for commuting to and from work against 40% currently. The rewards for implementing successful strategies will be considerable. It has been estimated that Jakarta's economy could generate an extra US\$3 billion a year if the city could overcome its chronic traffic congestion.

In view of this, technological innovations are being deployed increasingly in cities to connect bus and taxi systems, improve real-time access to traffic information, increase the ease of access to various modes of transportation, make traffic signals responsive to the flow of traffic at differing times and facilitate road toll payments.

While there are challenges, cities across the region are ready to take advantage of smart solutions. Many cities now have ICT infrastructure in place and have started the process of digitising some government departments and public services.

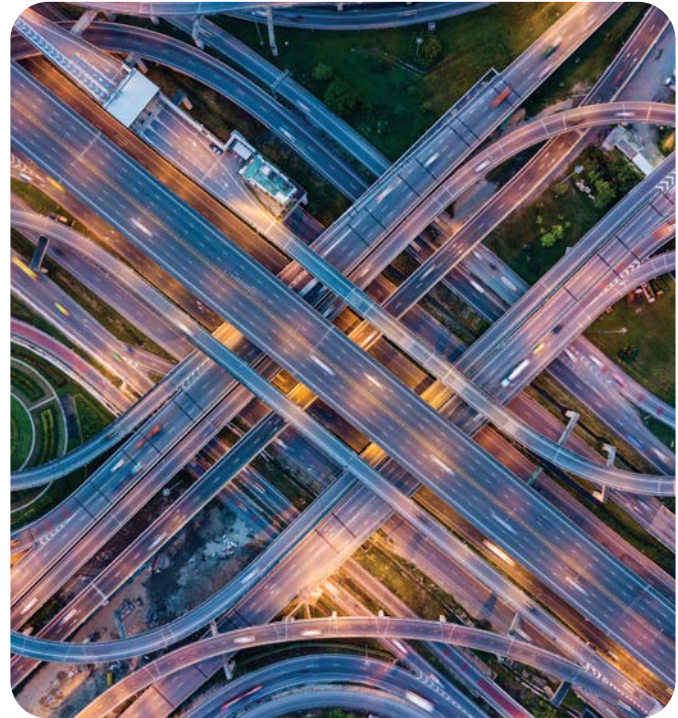
Hanoi plan to develop a series of hubs including a support centre for the city's ICT staff, as well as centres for data analysis, traffic supervision and policing. One of Jakarta's smart city projects involves developing an integrated cashless payment system across the public transit network. Kuala Lumpur is using vehicle tracking systems to address congestion during peak hours.

Meanwhile, the Asian Development Bank and France's International Development Agency are assisting Mandalay to improve wastewater treatment and improve the city's water supply system. Internet linked sensors are helping city officials to monitor water supply, and drones are being used to plan new drainage networks.

Makassar, a port city of 1.4 million, on Indonesia's Sulawesi is working with Singapore to develop digital service platforms and transport systems, smart cards, street light control and flood detection systems.

Thailand wants to establish digital networks throughout the country that will provide the means for smart cities to develop over the next 20 years. The country's principal holiday resort Phuket, has outlined a comprehensive Smart City Action Plan that covers healthcare, education, administration, economic management, environmental issues, safety as well as tourism. The aim is to help expand in a sustainable and efficient way.

For administrators in Siem Reap, which is the entry point to Cambodia's main tourism attractions, the focus is on creating a clean and safe environment and effective resource management. For Singapore the focus is on taking "a whole nation approach" to create smart nation and digital



government products and services, according to Ng Chee Khern, Chairman of the Government Technology Agency of Singapore.

The Government is keen to include civil participation in development of technology-based urban improvement strategies. One method is an Artificial Intelligence (AI) powered social media app allowing users to make suggestions and report problems directly to local government administrations and businesses.

Singapore is highly supportive of technology developing companies and is considered a world leader in the development of autonomous vehicles, AI and smart sensor platforms. Its Smart Nation strategy aims to harness digital networks, data and ICT to improve living, create economic opportunity and enhance communities' lifestyles.

The Jurong District in Singapore has become a test bed for innovations, ranging from driverless electric-powered vehicles to computer software that analyses TV footage to learn when public spaces require cleaning, or monitoring queues in stores to alert managers to deploy staff where needed.

Bangkok Cyber Tech District is also planning to act as a centre for digital innovation and will concentrate on supporting start-up firms engaged on developing technologies related to the Internet of Things, big data analytics, AI, creative content, gaming and FinTech among others. The Thai companies Magnolia Quality Development Corporation and True Digital Park, have committed US\$950 million to develop infrastructure to accommodate the new hub.

Close to the existing Clark City, 100km north of Manila, is the planned location for an entirely new green and high-technology community. It is due to be developed in a Special Economic Zone as part of the Government's ambitious "Build Build Build" infrastructure expansion strategy. Autonomous vehicles, drones and robotic applications are expected to feature in the city planned to accommodate two million people. The site is being designed and developed by Singapore consultant firm Surbana Jurong and Japan's Overseas Infrastructure Investment Corporation.

Regional cooperation is also due to play a bigger role in improving urban living. In April 2018, an ASEAN Smart Cities Network Initiative

(ASCN) platform was agreed at a ministerial summit. The collaborative project is aimed at facilitating intra-regional cooperation to promote development of technology based, environmentally friendly solutions to urban planning and management.

Some 26 cities within ASEAN have been selected as focal points for the initiative. A pilot project for the planned digitally twinned smart cities concept has already been launched between Singapore, Jakarta and the Philippines resort city of Cauayan.

The idea is that projects can be co-developed and perhaps jointly owned by partners from participating cities. The ASCN aims to facilitate cooperation on developing smart cities and best practices, to promote PPPs and to develop mutually beneficial partnerships with external and private funders and partners.

It is recognised that governments will require private sector involvement to progress their smart city projects. Apart from the finance that private firms can provide, it is anticipated that their planning and technical expertise can develop projects quicker and at less cost than state bodies alone.

There is also growing international support for ASEAN's smart cities strategy with Australia donating US\$22 million towards a joint smart cities programme, while US Vice President, Mike Pence, recently offered Washington's support for digital and urban infrastructure development in the region through a US-ASEAN Smart Cities Partnership.

Free trade strategies entice foreign manufacturing investment

A strong network of Free Trade Agreements (FTA) by ASEAN countries is establishing the region as a highly attractive location for international export-oriented companies.

Singapore together with Vietnam, are the leading countries in being party to bilateral and multilateral FTAs. A signatory to 16 FTAs, Vietnam has concluded bilateral agreements with the US, Japan, South Korea, the EU and the Eurasian Customs Union.

In addition to signing FTAs with many countries including China and India, ASEAN countries are also keen on extending existing agreements. Vietnam recently became a member of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which came into effect at the end of 2018. The treaty includes Malaysia, Brunei Darussalam, Singapore, Australia, Canada, Chile, Peru, Mexico, Japan and New Zealand.

Opening up to the global economy has brought immense benefits to ASEAN member economies. Vietnam's trade agreements, for example, have significantly reduced tariffs and helped to establish domestic reforms. The Brookings Institute estimates that more than 10,000 foreign companies, including major corporations such as Samsung, Intel and LG operate in Vietnam, mainly in export-oriented, labour-intensive manufacturing ventures, especially textiles, apparel, footwear and consumer electronics.

Vietnam's GDP grew 6.8% in 2017, the fastest level in ten years supported by accelerating the manufacturing sector, which grew by 14.4%. According to estimates the country's accession to the CPTPP could add an additional 2% to GDP over a decade.

Due to rising labour costs, manufacturers with high labour demands are seeking less costly locations. ASEAN countries have some of the lowest labour costs in emerging markets and less than half those of China in some instances. As labour intensive manufacturing seeks lower cost locations, ASEAN is well able to absorb capacity.

An Economist Intelligence Unit (EIU) report in 2018, predicts that trade friction between China and the US will witness a significant shift in export-oriented manufacturing from China to other markets in Asia. This move is already well-established in certain fields of mass production due to widening cost differentials, with China's salary levels being many times higher than in most ASEAN countries.

As these supply chains begin to shift, ASEAN countries will be a net beneficiary in terms of manufacturing processes for consumer products including cellular phones, laptop computers and apparel. Current trade disruptions between China and the US are making the region an attractive alternative or supplementary manufacturing base for foreign companies.

Vietnam's garment industry, which provides 5% of the country's GDP, is one of the sectors which will benefit from manufacturers shifting production out of China. It is already the world's third largest exporter of ready made clothing, selling goods valued at more than US\$12.3 billion to the US alone in 2017.

The move to lower production cost locations will likely assist development of local automotive, ICT and apparel sectors in both South and Southeast Asia, bringing in more advanced equipment and helping to develop technical expertise.

Important additional elements are also helping to make the region a competitive location for manufacturers. In Cambodia's case, companies can be 100% foreign owned. Other incentives include corporate tax holidays of up to eight years and a corporate tax rate of 20% after that period, duty-free import of capital goods, and no restrictions on capital repatriation. Accordingly, apparel, food processing firms and consumer electronics companies have been attracted to the country.

Manufacturing is also an increasingly important driver for the Philippines economy and the largest contributor to the country's rise in GDP. The Government's Manufacturing Resurgence Programme aims to increase the sector's contribution to GDP to 30% from just under 25% currently, and raise the sector's workforce to 15% from 10% over the same period. A lead element in this strategy, will be a series of incentives to stimulate domestic production of cars and commercial vehicles in addition to electronics, apparel, textiles, chemicals and plastics products.

A major factor which has helped manufacturing development has been the establishment of Special Economic Zones (SEZs). Such purpose built industrial areas provide the means for start-up companies to accelerate investments and bring their production ventures quickly on stream. Incentives to investors typically include government support to facilitate start-up and construction of manufacturing facilities. Essentially such areas offer logistics and connection to necessary utilities.

Vietnam has established 18 coastal located economic zones. There are also more than 300 state-supported industrial parks throughout the country. These offer a variety of incentives to investors such as tax breaks, reduced fees and rents.

Indonesia's SEZs employ an estimated four million workers and they are seen as the future direction of the country's development programme. An emphasis on seeking growth based on manufacturing rather than extractive industries, is seen as a key factor in raising GDP per capita and providing sustainable jobs.



Batam, for example, is now the largest shipbuilding region in the country and has attracted more than 150 international and local maritime companies to the Province. Manufacturers such as Sony, Philips, Siemens, Sanyo and Panasonic have also set up SEZ production there, which has flourished due to its proximity to Singapore, only 20km away by ferry.

While resource-based industries involving mining, oil & gas extraction and plantations have traditionally been the cornerstone of Indonesia's economic wealth, it is towards manufacturing that the country is turning. Such investment will provide the jobs and rising incomes that the population seeks.

The country with its young expanding population of 250 million people is ASEAN's greatest economy and on track to become one of the world's largest economies. It is beginning to realise its vast potential. The World

Economic Forum 2017-2018 Global Competitiveness Index lists Indonesia as 36th out of 137 economies globally, five places higher than the previous year.

Infrastructure improvement is the key to Indonesia drawing in high-value manufacturing investments. However attractive the potential market is, tightly-organised modern supply chains are intolerant of disruptions to logistics and breakdowns to utilities. This means buildings, power supplies and transport being able to withstand natural disasters and the necessary investment in proven technologies and designs.

Installation of adequate and reliable infrastructure such as ports, roads, railways, airports and utilities will be essential if these ambitious projects are to succeed in attracting international firms to set up manufacturing ventures.

Indonesia's President Joko Widodo, has announced plans to build 15 new industrial estates and 11 SEZs, mainly outside Java in order to provide more balance to the country's economic development. The scale of Indonesia's SEZ plans also implies substantial construction of housing and social infrastructure as well as development of attractive environments for foreign residents.

Employment creating manufacturing projects are also high on Myanmar's agenda. A number of initiatives are being processed including the Patheingyi Industrial City project in the Irrawaddy Delta. Chinese state-owned firms have also agreed to build a major new industrial area in a SEZ at Kyaukpadaung, located on the Bay of Bengal.

In another major venture, Myanmar's New Yangon Development Company has signed an agreement with the state-owned China Communications Construction Company to build an entire new city

close to the Yangon River and Myanmar's capital city. The New Yangon City will be transformational.

The planned city has been described by Myanmar officials as their country's version of Shenzhen, a reference to the giant mainland manufacturing city next to Hong Kong and an iconic symbol of China's economic expansion. A first phase, costed at US\$1.5 billion, is expected to be developed under a PPP model and has attracted investment interest from major neighbouring countries.

Modern infrastructure, advanced logistics combined with a highly reputable legal and commercial system are among the elements which have already made Singapore a location of choice within Southeast Asia for many leading global companies.

Some 4,000 UK companies including major production ventures have been drawn to the country. They include companies such as Rolls-Royce, who employ 2,300 people locally and GSK with 1,600 in three production plants plus another 800 people in its Singapore based Asia regional centre.

Leading British company Dyson, which has a production plant making electric motors in Singapore as well as manufacturing hubs in Malaysia and the Philippines, recently announced its intention to relocate its corporate headquarters, as well as the manufacture of its planned electric car to Singapore. The latter's expanding high-tech port is a factor because it will facilitate the company's links to the automotive supply chains of Malaysia, Japan, Thailand, South Korea and China.

Dyson's move reflects the growing importance of ASEAN as a manufacturing powerhouse of the future serving markets in Europe, North America and increasingly within the wider region.

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Plastic and the environment - An ASEAN perspective

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Chukiat Wongtaveerat

On average, each Thai citizen uses more than 60kg of plastics every year – about as much as the typical person weighs. This is the equivalent of more than 670 plastic bags every year, and much of this amount goes unrecycled, remaining in the environment for generations.

Plastics make up an important part of our daily lives – especially plastic packaging. Around five trillion plastic bags are consumed worldwide per year, or more than 700 bags per person (UNEP, 2018). Southeast Asia accounts for almost 20% of global plastics consumption, with high usage from Malaysia, Thailand, and Singapore leading the region.

The convenience of plastic comes in large part from its durability, yet this quality is also the cause of major concern. When plastic waste is poorly managed, it piles up on land, in sewers and canals, and finally as marine debris, resulting in critical damage to the environment. In Thailand alone, just 23% of plastic waste is reused or recycled (PCD Thailand, 2019), while the rest is thrown away. Improper disposal of plastics results in plastic waste leaking out into the environment.

ASEAN consumers are increasingly aware of the waste problem (and plastic waste in particular), as revealed by a 2019 Ipsos online survey of 3,928 people in three ASEAN

countries (Malaysia, Singapore, and Indonesia). Survey results show 49% of respondents believe that dealing with waste is now the most important environmental issue needing government attention. Solving this problem requires a great collective effort to bring about more responsible plastic production and use, as well as careful management of plastic waste.

Plastic waste management in ASEAN's public and private sectors

Barriers to the responsible management of plastic in society are political as well as technical. A recent initiative to address this problem came from China, which had been the world's largest importer of waste for decades. China started banning the import of 24 types of plastics and other materials in January 2018, a move which led to increased awareness of the need for improved waste management systems – particularly in countries that depend heavily on the export of waste.

ASEAN has also seen an increase in governmental efforts to address plastic pollution. Some of the most common policies are levies and bans aimed at reducing the prevalence of single-use plastics. Malaysia's government has already banned plastic bags, plastic straws and polystyrene containers in some states (e.g., Selangor); while in Cambodia major supermarkets charge KHR400

PLASTIC POLLUTION: 3 POINT ACTION PLAN FOR SOUTHEAST ASIA

Consumers expect that government, manufacturers, brand owners, and consumers, will each do their part to solve this shared environmental problem.

GOVERNMENT

Must bring forward policies and regulations which promote effective and efficient sustainable pack practices across the entire value chain.

BRAND OWNERS

Must incorporate sustainability within the complete packaging lifecycle and put in place waste management processes that maximize recycling

CONSUMERS

Must practice responsible purchasing and consumption patterns, taking care to recycle at every opportunity and to minimize their use of single-use packaging

Source: Ipsos Business Consulting, April 2019

Ipsos Business Consulting

(US\$0.10) per plastic bag to reduce wasteful use. Indonesia and Myanmar have also banned plastic bags. In Vietnam, the government imposes an environment tax of VND40,000 (US\$1.76) per kg of plastic bags. Singapore started banning plastics (e.g., plastic lids and straws) for dine-in customers at new hawker centres in 2018.

On the other hand, the Philippines, Lao PDR, Thailand, and Brunei Darussalam have not yet placed bans on plastic packaging. Instead, they have each launched campaigns aimed at encouraging the public to stop using disposable plastic bags in favour of recyclable alternatives.

In addition to reducing the use of plastics, ASEAN countries have made efforts to improve their solid waste management systems. Relevant

policies have gone into effect across ASEAN, with the exception of Lao PDR, which plans to include waste management in its National Environment Strategy in 2020.

In partnership with the public sector, some private companies are already taking voluntary approaches to manage their packaging waste. Singapore in particular is a step ahead in encouraging producers to reduce packaging waste. In 2007, the Singapore Packaging Agreement (SPA) between the Government, industry associations, NGOs, and private companies was first established. Its objectives are to reduce packaging waste, raise community awareness of packaging waste minimisation, and introduce supply chain initiatives that foster sustainable packaging. By July 2018, 229 signatories (e.g., Nestlé, Tetra Pak, and LHT Holdings) are reported



Issues surrounding plastic manufacture, use and disposal offer excellent opportunities for leadership at every level of society.



to have reduced nearly 46,000 tons of packaging waste and saved over SGD100 million (US\$73 million) in the process.

Private companies in some ASEAN countries have taken a similar approach, cooperating and launching original environmental programmes without formal encouragement from the government. For instance, 2017 saw the launch of the Packaging and Recycling Alliance for Indonesia Sustainable Environment (PRAISE), consisting of a group of private companies (e.g., Coca-Cola, Danone, and Unilever) in Indonesia. The Philippine Alliance for Recycling and Materials Sustainability (PARMS), a multi-sectoral coalition composed of top consumer goods companies (e.g., Coca-Cola, Nestlé, and Procter & Gamble), was also founded during the same year.

How stakeholders in ASEAN can take the initiative

Although many public and private entities are at last beginning to address the need for greater responsibility surrounding plastic consumption and waste, further action is urgently needed. All sectors of business and society, from governments to manufacturers, brand owners, and consumers, must do their part to solve this shared environmental problem in a cooperative way.

Several factors have thus far delayed the necessary changes, and one of these is regulatory. Regional governments need to provide strong support for responsible behaviour, by pushing through policies and

regulations which promote effective and efficient practices across the entire packaging value chain.

By the same token, private companies in the region (e.g., brand owners) must honour their responsibility to incorporate sustainability within the complete packaging lifecycle. All relevant associated waste management procedures should be given priority – from design to manufacture and distribution, as well as collecting and recycling. Such practices will greatly enhance their public relations while also benefiting the environment.

ASEAN consumers have a key role to play as well. As one of the important stakeholders in the value chain, consumers can practice responsible purchasing and consumption patterns, taking care to recycle at every opportunity. Promoting sustainable consumption practices among consumers can thereby lead to a reduction in single-use packaging, while increasing waste segregation for efficient recycling.

History shows that collective goals can be met when widespread awareness meets a will to take action. Issues surrounding plastic manufacture, use and disposal offer excellent opportunities for leadership at every level of society. ASEAN stakeholders can deal with plastic waste issues by coordinating up and down the value chain, starting with optimising their own practices for maximum sustainability.

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Renewable energy strategy takes centre stage

Robust economic growth resulted in ASEAN's electricity consumption almost doubling between 1995 and 2015. Demand for electricity continues to rise rapidly and is predicted to grow by an average 4.7% a year through to 2035.

Rapid economic development though has come at a cost, impacting on the environment with policy makers increasingly having to adapt to the challenges of climate change. The Asian Development Bank says that the negative effects of the latter phenomenon are likely to be felt strongly where low lying major cities and the abundance of agricultural activity along coasts and floodplains will make the region particularly vulnerable to rising sea levels, increased heat-related illness, and extreme weather events.

According to the International Energy Agency (IEA), coal-fired generation accounts for about 30% of the region's power mix with natural gas also providing one third and oil roughly 4%. Most of the balance features hydro resources notably in Cambodia, Lao PDR, Myanmar and Thailand.

In 2016 under the Paris Agreement, most countries agreed to set goals to limit global temperature to rise by under 2°C, with an aspirational target of 1.5°C. The ASEAN Cooperation on Environment working body has been established to examine ways and means to curtail greenhouse gas emissions. Indonesia, for instance, has pledged to reduce emissions by 29% by 2030.

The focus is now clear to reduce the role of fossil fuels in generating electricity, since ASEAN is committed to meeting targets for carbon emissions in line with the Paris Agreement. In achieving this, renewable energy is seen as playing an increasingly important role. The move towards clean energy is also driven by other considerations, not least an

urgent need to address increasing air pollution, especially in major cities, and by concerns over future energy security, as much of the region moves towards becoming a net importer of both crude oil and natural gas.

According to the IEA analysis, renewable options are becoming increasingly attractive as their costs continue to come down and projected fossil fuel prices edge higher. Providing universal, affordable and secure energy is not incompatible with the pursuit of cleaner energy.

The International Renewable Energy Agency (IRENA) estimates that the cost of photo-voltaic technology fell 45% between 2012 and 2016, the biggest reduction among all renewable energy sources. Over the same period, the cost of setting up onshore wind systems has also seen an 11% cost reduction.

It is an encouraging trend that has seen ASEAN countries pledge to raise renewable energy's share of the electricity supply to 23% by 2025, from 13.6% currently. Malaysia's aim is for 10% of generation from renewable energy by 2040, up from 7%. The Philippines meanwhile is calling for 35% renewables by 2030.

Thailand's solar capacity amounts to 60% of the total installed and it represents the region's largest solar market. It's solar energy accounts for around 3,300MW, which has more than doubled since 2014, and is halfway towards a target of 6,000MW set for 2036. The aim is to generate 20% of electricity from renewable energy sources by then.

The investment environment is positive and is encouraging innovative investments. In Bangkok, Power Ledger, an Australian Blockchain technology company, and Thailand's Government-backed renewable firm BCPG are partnering Thai Metropolitan Electricity Authority in a pilot

scheme that allows for excess renewable energy to be sold directly within the community rather than via state utilities.

Solar powered micro-grids are also being looked at elsewhere. While Lao PDR has exploited the country's hydropower potential, the Government is aware of a need to improve energy security. Hydropower is vulnerable to seasonal river flow variations and climatic events such as a prolonged dry seasons or floods. In view of this, the Lao PDR Government is exploring and developing other energy resources with the aim of raising the share of non-hydro renewable energies to 30% of total consumption by 2025.

The country has up to 300 days of sunlight a year and has identified solar power as an important component for developing off-grid electrification, as well as a means to create sustainable new incomes and reduce poverty.

Its abundant hydropower resources mean that 90% of Lao PDR's population have access to electricity. As hydropower plants are positioned along rivers, the power they generate has to be transferred via national transmission and distribution networks to reach the rest of the country.

A key advantage of solar power installations is they can be situated much closer to consumers. Some of the country's most attractive solar resources are located in the southern provinces of Attapeu, Champackack, Saravane and Savannakhet as well as Vientiane in the north. The country's first significant solar power project began by generating 10MW for Vientiane in 2017, and further projects are due to raise the solar contribution to 100MW by 2020.

Some countries are already using renewable energy in the form of distributed systems, such as solar rooftops in Singapore's SolarNova programme. This is deployed to generate electricity for state-owned buildings including public housing, schools, and government buildings. In Indonesia, solar mini-grids are being introduced in rural communities helped by non-governmental organisations and private investors.



Throughout ASEAN there are prospects for providing rooftop PV systems both for manufacturing and other industrial users as well as commercial buildings and private dwellings. However, large scale solar power investments are highly sensitive to the payments made for producing renewable energy. Known as Feed-in-Tariffs (FiT), these need to be high enough for investors to recoup their costs of development.

The Philippines, which already derives just over 25% of its energy from renewable sources, mainly geothermal and hydro, is also promoting generous FiT policies to accelerate solar ventures in the country. A new 150MW plant in Tariat, for example, was commissioned in 2019 to supply power to the Manila area.



Some countries are already using renewable energy in the form of distributed systems, such as solar rooftops in Singapore's SolarNova programme.



In Vietnam, Government incentives and an attractive FiT scheme have led to proposals for 20,000MW of solar projects with a similar amount of wind power projects due. Some 40 large scale solar power plants are expected to be connected to the grid in 2019, according to Norway's research and consulting firm Rystad Energy.

Vietnam has huge solar energy potential with up to 30% of solar irradiance experienced over a year on average in the south of the country. Wind power is also an attractive option. Doan Van Binh, Director of Vietnam's Institute of Energy Science, estimates that the total potential of wind power in the country is 200 times that generated by the largest hydropower plant in the country.

Parts of Vietnam, Thailand, Indonesia and Myanmar offer average wind speeds between 6m and 7m a second, making wind generation a viable proposition. Companies including South Korea's Doosan and Norway's DNVGL are among a number of foreign firms investing in wind projects in Vietnam.

While renewable energy derived from wind, solar and hydropower can play a significant role in future energy supply, development of effective energy storage systems will also be vital in this process. Most technology until recently has focused on hydro-electricity storage, however battery

storage is fast evolving. The Philippines subsidiary of AES Cooperation in 2016 completed a 10MW installation representing the first grid-scale lithium-ion battery energy storage facility, the largest in Asia.

"Battery-based energy storage will play a critical role in tomorrow's grid, helping to improve stability, lower total system costs, and incorporate higher volumes of renewable energy projects," says AES Philippines Managing Director, Neeraj Bha. In particular this can help the 70 million ASEAN people without access to a reliable power supply through the development of stand-alone small-scale grids for isolated communities and inaccessible parts of the region.

Clear legal frameworks and bankable project conditions, including guarantees on payments when energy sources are cut off for reasons beyond the control of operators, will underpin future renewable energy development in the region. Supportive price mechanisms can serve to speed up projects and make much larger scale installations commercially viable for private investors.

The huge potential for cost-effective renewable energy applications in heating and cooling as well as in transport sectors is immense. Pursuing a renewable driven energy transition can reinforce economic growth in the region with a positive impact on GDP and job creation.

Innovative solutions address the healthcare challenge

Providing healthcare in an area stretching over 4.5 million km², featuring thousands of islands and many isolated rural communities is an extremely difficult task.

The region also has far fewer physicians and nurses compared to the more developed economies. Indonesia, Thailand and Vietnam, for example, have 0.36, 0.44 and 0.88 doctors for every 1,000 people, respectively, compared with an Organisation for Economic Cooperation and Development (OECD) average of 3.30.

Previous decades have been characterised by a relatively low level of government spending on healthcare when compared with other countries, ranging between 1.1% to 3.8% in Indonesia, Malaysia, the Philippines and Vietnam. While Singapore and Thailand have higher levels of expenditure at 4.9% and 4.1% respectively, this is still lower than the 6% to 7.7% average among OECD countries.

Despite budgetary constraints, considerable progress in raising standards of care is now being made. Indonesia, with a population of some 265 million people, continues to roll out its universal health coverage system. Almost three quarters of the population are now covered by its JKN (Jaminan Kesehatan Nasional) insurance programme. With over 200

million people now covered since its introduction in 2014, the programme is one of the world's largest state-sponsored medical insurance projects.

In February 2019, the Philippines President, Rodrigo Duterte, signed off the country's Universal Healthcare Act promising equitable access to quality and affordable healthcare services for all and enrolling them into a National Health Insurance Programme. Officials have indicated that this may be implemented in stages, given the estimated US\$4.9 billion cost of the programme in its first year.

ASEAN countries have little option but to seek maximum efficiencies in providing healthcare to populations that are not only increasing but also becoming older and more vulnerable. A report by Singapore based consulting firm Solidance, suggests that the total combined healthcare expenditure of the largest economies comprising Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam, estimated at US\$420 billion in 2017, will increase by 70% over the next 20 years.

A significant number of private hospitals and clinics are involved in providing services and more than 40% of healthcare services are paid for by patients themselves. Such out of pocket expenditure is the norm throughout Southeast Asia.

The private healthcare sector provides advanced treatments and care to both a domestic and foreign clientele with countries such as Thailand and Indonesia home to some of the most successful internationally accredited private hospitals.

The sector is highly competitive and leading practitioners such as Siloam Group, which operates around 40 hospitals in Indonesia, the Bumrungrad and Dusit hospitals in Bangkok, Raffles Hospital in Singapore, IHH and KPJ Healthcare in Malaysia, are investors in the most advanced available medical technologies and IT systems available.

There is a rising middle class demographic in Southeast Asia that will comprise 65% of the population by 2030, an almost threefold increase from 2010, according to the Asian Development Bank. Improved levels of disposable income are likely to be reflected in greater demand for quality health services and medical products.

Another factor is the ageing population. In 2016, the elderly made up just under 10% of the total population. However, this figure is predicted to rise to 21% by 2050. Early diagnosis of chronic disease and effective treatments are seen as essential in mitigating the costs of providing healthcare for the older population.

There is an awareness that innovative approaches to healthcare are essential if standards of delivery and efficiency are to be raised. In this strategy an increasing adoption of advanced technologies hold the key.



This is increasing opportunities for a wide range of new services in areas such as patient fitness and monitoring. Singapore is looking towards technological healthcare solutions and is particularly supportive of digital innovators, allocating US\$2.95 billion for R&D in health and biomedical sciences for the period 2016-2020.

Among the Government backed initiatives is the Licensing Experimentation and Adaptation Programme. This was launched in 2018, with the aim of working with telemedicine providers to stimulate innovation and shape the legal framework that will govern how data is



Improved levels of disposable income are likely to be reflected in greater demand for quality health services and medical products.



managed and individuals' confidentiality protected as digitally-provided services are deployed. A National Electronic Health Record was introduced in 2011, for example, that allows patient healthcare records to be shared across its whole healthcare system.

Singapore has established advanced research infrastructure in its universities and technology institutes including its Agency for Science, Technology and Research (A*Star). In addition, the Government has promoted robust intellectual property protection coupled with state support in the form of tax relief and training grants to attract investors.

According to a report by PwC, more than 30 medical technology companies and seven of the world's top biopharmaceutical companies have set up operations and R&D facilities in the country. The biomedical manufacturing industry is said to be now the second largest contributor to Singapore's manufacturing sector, contributing around 20%. A*Star has set up a US\$46 million Diagnostics Development Hub to align expertise from clinicians, researchers, innovators and entrepreneurs in order to accelerate innovations.

For the delivery of healthcare, the main potential lies in the increasing digitalisation of medical services, which can provide the means of providing basic and diagnostic medical services to large numbers of

people at far lower cost than at present. Investment in a range of emerging technologies are resulting in areas such as cloud computing to handle medical data and telemedicine including digital tracking of patients in rural areas and their treatment.

The latter trend has the potential to transform healthcare standards where most major hospitals and clinics are located in major urban areas. In the Philippines, for example, 38% of physicians and 27% of the country's nurses are employed in the greater Manila area, Calabarzon and Central Luzon. The effect is that many patients in the Philippines are obliged to travel long distances for specialist treatment and care.

Application of ICT based technologies could help eliminate the need for travelling, at least for initial medical assessments. In view of this, the Philippines has established a roadmap for adopting technology in healthcare through its eHealth Strategic Framework and Plan, which gained legislative approval in 2019.

In the Philippines and Singapore, the US-founded Lifetrack Medical Systems is already providing a digital radiology platform through cloud technology. This is enabling X-ray data and scans to be sent abroad to specialist radiologists for diagnosis far more rapidly and at less cost than in the past.

Singapore has become an attractive location for health-tech start-ups. There is therefore a fast developing niche market for mobile based healthcare services and telemedicine that deploys use of wearable devices, app-based diagnostics and which provides for remote consultations.

Whitecoat was set up in 2018, for example, with in-house doctors providing consultations, prescriptions or referral letters through a mobile platform able to provide video consultations through the company's digital application. Connected Health is another recent entrant that offers an e-health platform providing for remote monitoring of patients.

The size of the potential market has encouraged Galen Growth Asia, a specialist digital medicine consultancy, to establish its regional headquarters in Singapore where numerous innovating firms are engaged on utilising digital and Artificial Intelligence (AI) technologies for medical requirements. Elsewhere, Bookdoc, a Malaysian start-up is connecting patients with healthcare providers and has built an online platform that now extends to include Indonesia, Singapore, Hong Kong and Thailand.

The medical devices sector comprises another field ready for development. It is an area that covers a very wide spectrum of products, ranging from basic consumables and equipment to the most advanced manufactured items used in complex procedures. The market is huge with ASEAN spending on medical devices projected to reach US\$8.5 billion by 2020, from US\$5.3 billion in 2016.

The medical device manufacturing sector is as yet undeveloped in the region, making ASEAN a net importer with countries such as Vietnam importing more than 90% of their medical device requirements.



Malaysia is seeking to move up the value chain through medical device contract manufacturing. Along with other countries such as Thailand, Malaysia is keen to make development of the sector a national economic focus.

The ASEAN Medical Device Directive that requires member states to adopt uniform classification criteria for registering and assessing medical devices is likely to help create the economies of scale in production that will help in this process.

The region is developing as a global biomedical sciences hub

ASEAN is established as a leading area for the conduct of clinical trials leading to new drugs and due to become a global hub for biomedical research. Much of this is arising out of the region's fast expanding pharmaceutical sector. Sales of pharmaceuticals in Vietnam alone are forecast to rise to US\$7.2 billion by 2020, an expansion of 70% in just five years.

Thailand's pharmaceutical market is also expanding rapidly and predicted to grow at an annual rate of 6.2% to reach US\$6.3 billion by 2021 and US\$8.4 billion by 2026. In addition to drugs, it's flourishing medical tourism sector is contributing to a growing market both for pharmaceuticals and for medical nutrition products, formulated and intended for the dietary management of diseases and conditions.

Thailand's national health, wellness and biomed economic growth strategy emphasises development of biotechnology, biofuels and biochemicals among the industrial sectors it has targeted for expansion over the next 20 years.

Increasingly governments and manufacturers are looking beyond local production of generic drugs to research and the production of new medicines. Indonesia's Kalbe Pharma recently commissioned the country's first biopharmaceutical production facility, designed to manufacture both drug ingredients and biological products.

As part of the five year Research, Innovation and Enterprise 2020 plan, Singapore has pledged around US\$2.4 billion to advance manufacturing and engineering in the pharmaceutical sector. Its Agency for Science, Technology and Research (A*Star), the National University of Singapore together with major foreign companies, including GSK, Pfizer and Merck Sharpe & Dohme (MSD), have signed a memorandum to set up a Pharma Innovation Programme for future manufacturing.

In 2018, Merck opened a US\$15 million laboratory in Singapore to test product safety, while California based Amgen inaugurated a manufacturing support office in the country's Tuas Biomedical Hub, which has raised the company's total investment in Singapore to US\$291 million.

There are now more than 50 biomedical science companies located in Singapore generating almost US\$20 billion a year to the economy. A key factor in the expansion of the sector, apart from an accelerated approval process for start-ups, is a sound legal environment which protect the Intellectual Property Rights (IPR) of companies.

In a 2018 survey of 50 countries, the US Global Innovation Policy Centre (GIPC) lists Singapore in tenth place for the robustness of its IPR protection systems, giving it similar status as Japan, Western Europe and the US.

Other countries in the region aspiring to advance biomedical science development, including Malaysia, Indonesia, Thailand and Vietnam, are striving to improve their IPR environments, which are a vital consideration for potential foreign investors and local start-ups. Thailand, for instance, is hoping to stimulate R&D activity in the medical sector through the creation of an Intellectual Property Innovation-Driven Enterprise Centre.

Singapore is already becoming a regional hub for biomedical development. International companies such as GSK, Proctor & Gamble, Novartis, ES Cell International, John Hopkins Hospital, Waseda-Olympus, Paradigm Therapeutics and Vanda Pharmaceuticals are among those that have set up operations there in the Biopolis hub.

Massachusetts based Thermo Fisher Scientific has set up a laboratory there. The company's Vice President, Ravi Shastri, says that design firms, universities and research institutions are playing significant roles in the development of the company's products in areas that include synthetic biology tools, cancer biomarkers as well as cell line optimisation for drug production.

In 2018, Singapore launched the Licensing Experimentation and Adaptation Programme (LEAP) as a regulatory sandbox to help telemedicine providers to develop new projects while also shaping new laws needed to govern the new forms of healthcare delivery now emerging.

A*Star is providing US\$43 million support for research over the next five years to develop bioprinting, with the aim of establishing Singapore as a leader in the field, vying with South Korea and Japan in advancing the possibilities created by bioprinting.

While 3D printers hitherto have been used to construct objects made of tangible materials, it has been found that similar processes can also use



biological materials including cells, bacteria and proteins. As a consequence, the National University of Singapore for Additive Manufacturing was established in 2017, to develop 3D printing applications for the biomedical and healthcare sectors.

Creating human skin and functioning livers are a few of the possibilities that can arise from bioprinting. It is already viable to use bioprinting techniques to replicate blood vessels, lymph nodes and hair.

In future, scientists could use the technology to determine how cells interact with bacteria and other biological materials in lab settings, or bioprint replica body parts to assess how complications can occur in surgery. Pharmaceutical companies could also be able to test drugs on living human tissues or cells.



Increasingly governments and manufacturers are looking beyond local production of generic drugs to research and the production of new medicines.



In its drive to attract FDI in life sciences, particularly pharmaceutical producers, Singapore has targeted those capable of manufacturing high value-added products within the limited area of land space available. According to Dr Benjamin Seet, A*Star's Executive Director, "biomedical is a good fit."

Amgen's latest biomanufacturing facility, for example, is 75% smaller than a conventional biologics plant and uses 80% less water and energy but can produce a similar volume of products. The plant was also developed in just 15 months at a quarter of the investment needed in the past for plants manufacturing a comparable quantity of products.

Thailand also has considerable potential to develop as a biopharmaceuticals hub in the region. It's universities, medical schools and pharmaceutical firms are being encouraged to increase efforts in research and clinical trials, in particular those derived from biological processes such as protein synthesis.

The aim is to make biological sciences manufacturing a future pillar of the economy, with production contributing 5% to the country's GDP by 2020. Government incentives include corporate tax exemptions of up to eight years with additional exemptions for companies locating there.

The Thailand Centre of Excellence for Life Sciences is the principal funding agency for biotechnology research. The focus is on development

of regenerative medicines to help repair or replace damaged human organs or tissues and pharmaceuticals created from natural products to cure tropical diseases such as malaria.

Thailand has set up three regional science parks dedicated to offering incentives to businesses involved in the development of applications from research into stem cells, enzymes as well as food safety and cryogenic technologies. A fourth hub dedicated to high technology and life science firms is also being established in Chon Buri in the east of the country, following a privately-led initiative by Amata Corporation.

While the provision of infrastructure and generous fiscal incentives and financial help for R&D are important factors in attracting new ventures, ASEAN countries are also working to improve and develop administrative and regulatory capacity to approve new drug applications.

There are opportunities for consultancy and training to meet the requirement for new skills and to provide a steady supply of scientists and well qualified personnel. Singapore Management University, for example, has set up courses to train people for modern healthcare management, specifically focusing on biomedical technologies. All of this and more will be required for a burgeoning sector that while posing challenges also offers unlimited scope for the advancement of new innovative industries in ASEAN countries.

Education overhaul opens up major investment opportunities

ASEAN countries are transforming how they deliver education to keep pace with the growing requirement by business for personnel who are both technically and linguistically qualified to work in expanding economic areas.

This is necessitating an overhaul of traditional educational methods in which rote learning has predominated and where students have been passive recipients of information and knowledge. In order to achieve the transformation, teachers will also need to acquire new skills and methods of instruction.

The Philippines spent US\$13.2 billion on education in 2018, an annual increase of 27.2%, in a growing effort to focus on Science, Technology, Engineering and Mathematics (STEM) subjects in school curriculums.

Myanmar has recognised that only by improving STEM competencies can the country proceed on a modernising path for its economy. A National Education Strategic Plan is seeking to redesign and launch a new basic education curriculum by setting up a QA system, to raise standards of teaching and learning.

Cambodia is carrying out plans to improve the quality and provision of education in STEM subjects. The main task is to improve training of teachers and introduce staff appraisal systems.

The Asian Development Bank is involved in supporting projects to improve the quality of secondary school tuition in Cambodia, while the Government, in conjunction with UNESCO and the Netherlands' Sigar Foundation, is expanding a literacy programme for adults employed in Cambodia's large garment industry.

There is a growing requirement for curriculums to include analysis, critical thinking, hypothesis building, decision making, promotion of project based learning and research. This is opening up opportunities for providers of learning methods that can help develop creativity, administrative capacity and leadership skills in senior staff and for the supply of new educational technologies.

In the Philippines, most higher education institutions are privately operated and the main opportunities for international education providers lie with universities in areas such as robotics engineering, sports science, food technologies, oceanography, public health, meteorology and architecture.

Malaysia invests heavily in education with a budget that amounted to US\$14.6 billion in 2017. This is in line with a government target for 40% of the population to have a tertiary education by 2020. The aim is that there will be a 60% to 40% ratio in future between those graduating in science subjects and the arts.

The country's progress in establishing high standards has proved attractive to students from other parts of the region with more than 135,000 international students from 100 countries studying there in 2017, typically for UK qualifications.

Singapore, the region's leading hub for higher education, consistently ranks education as one of its top spending priorities, accounting for around 12.8% of Government expenditure in 2018. It has also committed to spending almost US\$1 billion annually up to 2020, on its Skills Future Council and Continuing Education and Training Masterplan.

Vietnam is seeking to develop its capacity to develop STEM based curriculums in its schools in parallel with its urgent need to extend and develop Technical, Vocational Education and Training (TVET). This is essential if the country is going to meet its target for trained and skilled workers to constitute 55% of the labour force by 2020, compared to 30% at present.

The accelerated push for more TVET courses is reflected in Cambodia where the Ministry of Tourism is planning to set up vocational training schools in Phnom Penh and Sihanoukville, while the local ACLEDA Bank has opened its own training institute for a projected 3,000 students a year.

TVET is also a key priority for Indonesia with the Government seeking to improve skills training and English language training. Even with an overall national educational budget of more than US\$30 billion annually, this is a huge task since there is expected to be an additional 7.8 million students in higher education by 2020, a 30% increase over 2017.

A fast developing middle class with rising disposable income levels is also driving demand in the region for improved schools with good infrastructure and high quality teaching. There is considerable scope for an increasingly prominent role for the private sector in providing educational services within ASEAN countries.



Vietnam, for example, hopes to expand K-12 international school options to encourage families to retain their children in the country rather than send them to be educated in the US, UK, Australia, Singapore and Malaysia.

Vietnam's Minister of Education and Training, Phung Xuan Nha, said that the country had attracted US\$4 billion of investment in education projects involving foreign companies. The Government had also approved 530 joint training programmes involving Vietnamese and foreign universities of which, 80 of these were with UK schools.

A need for TVET Courses is reflected in a growing demand for a wide range of courses delivered, directly or through online distance learning, covering areas such as business administration, construction, manufacturing, ICT, agriculture, tourism and English language training.



There is a growing requirement for curriculums to include analysis, critical thinking, hypothesis building, decision making, promotion of project based learning and research.



ASEAN countries are also seeking to develop their higher education systems and increasingly are open to international education partnerships. Michael Peak, Head of Higher Education Systems Research at the British Council, says “International higher education is of clear national and regional importance within ASEAN. The region, although diverse in many ways in terms of the relative maturity of higher education systems and size of economies, is united in a desire to engage further in international higher education.”

English speaking countries are favoured with 65% of the 28,000 Thai students who travelled abroad in 2016 for instance, opting for the US, UK and Australia for their higher education. At the same time, Thailand is ranked third largest host of foreign students in the region after Singapore and Malaysia. Australia’s Raffles College, the UK’s St Regis College and the US’ Webster University are among institutions that have campuses in Thailand.

There are estimated to be more than one million expatriates living in Thailand, creating an educational demand that has seen some 170 international schools being established offering British, US, Australian, Chinese and Japanese curriculums together with the International Baccalaureate. Brighton College International School, for example, has capacity for 1,500 pupils on its campus in Bangkok, developed in collaboration with the local family owned Ocean Group.

Thailand and the UK signed an MoU establishing an education partnership in 2016, covering areas such as standards of assessment,

English language training, STEM education and vocational education. The UK has longstanding educational links with other countries, especially Singapore, Malaysia and Brunei Darussalam. UK based company CfBT has been delivering courses in English, mathematics and teacher training in Brunei for more than 30 years.

Nottingham University opened a campus in Malaysia in 2004, which now has some 5,000 students. Since then, other UK universities including Newcastle, Reading, Southampton and Heriot Watt have also opened campuses, in addition to school franchises established by Epsom and Marlborough Colleges and King Henry V111 school. Indonesia, the Philippines, Thailand, Vietnam and Malaysia are members of the UK’s Newton Fund, launched in 2014, to develop research and innovation partnerships.

In 2018, Nottingham University became the first Western university to establish courses in Lao PDR. The British Council has also assisted the Lao PDR Ministry of Education and Sports to set up a strategic framework to develop the teaching of English as part of a new national curriculum for primary education, which is being rolled out during 2019. As part of this process English is to be made a mandatory subject from Grade 3 onwards.

School age children constitute a third of the population in ASEAN countries, with an estimated 130 million under 14 years of age. This offers a large and increasing market for education providers at all levels.

Changing aspirations of the growing middle class create new markets

The population of ASEAN countries are becoming increasingly wealthy, this is reflected by retail sales in Indonesia, Malaysia, Thailand and Singapore, which combined have reached a trillion US Dollars annually and continues double digit growth.

Much of this expansion is being accelerated by the strong economic trends, which in turn are reinforced by an expanding outward looking young population, eager to embrace global consumer trends and a fast emerging base of middle class consumers.

ASEAN countries are estimated to generate over 26% of GDP on consumer goods, the third largest globally after the Middle East, Africa and Eastern Europe. Disposable income rates are predicted to grow generally to 2030, with the highest levels of expansion expected to be seen in Vietnam, Indonesia and the Philippines, according to estimates by the data collection company Euromonitor.

Rising disposable incomes, changing consumer demands, increased levels of tourism and the substantial youth demographic are factors that are stimulating the markets for imported Western-style food and drink.

Rapid economic development is changing dietary requirements. Almost a quarter of people in ASEAN countries are now estimated to be middle class, offering an attractive consumer market for food and beverage suppliers. The Washington based Pew Research Centre defines those having disposable incomes of between US\$16 to US\$100 a day as middle class.

Rice is still the staple food in ASEAN countries. However, there is a growing market for imported dairy products, farmed meat and seafood. The market particularly respects suppliers with a reputation for quality sustainable methods and high health and hygiene standards.

Foreign visitors are also stimulating consumerism. Thailand's vital hotel and tourism sector has seen a growing international presence. This has led to a strong focus on imported food and drink to cater for the large influx of visitors. Singapore, with its large population of high net-worth individuals, are willing to pay a premium for international food and beverage products.

The less developed parts of the region are also competing with established tourism destinations. Myanmar is considered the largest growth potential for food and drink exports, driven by an influx of foreign investors and a fast expanding tourism industry. Fiona Murray, Project Manager of UBM Allworld Exhibitions, stated, "there is a huge surge of interest in Western products and brands, something denied to the population for many years, and this is helping drive the market."

Young consumers are often well acquainted with Western products through online food and drinks branding and travel and tourism. ASEAN has become highly internationalised resulting from its increased volumes of tourism and expanding expatriate communities.

Changes in shopping patterns, with more of the population using supermarkets, is driving the Indonesian food market, for instance, which is leading to greater spending on Western food products. New markets are emerging as a result of increasing consumer awareness of health and well-being issues, with food and drinks products linked to health benefits becoming more popular.

Strong consumerism is particularly evident in Indonesia. Robust income growth and greater access to credit facilities, coupled with a desire to improve living standards, is leading to substantial demand, especially for

lifestyle products including personal electronics, watches, domestic appliances and fashion.

The boom has stimulated retail property developments, new shopping malls and department stores. This process has seen a number of foreign owned investments, including Frances's Galleries Lafayette, Thailand's Central Group, South Korea's Lotte Corporation and Japan's Aeon and Sogo.

Growing employment levels have added to consumption, while urbanisation has driven demand for development of much more organised and sophisticated retail outlets, particularly in major economies such as Indonesia and Malaysia.

The largest expansion is expected to be seen in cities such as Jakarta, Kuala Lumpur, Manila, Singapore and Bangkok, though small and medium size cities will also experience strong expansion. The most promising markets for specific Western products are likely to be lesser known urban centres such as Cebu, Davao and Cagayan de Oro in the Philippines and Bien Hoa in Vietnam.

Indonesia's retail expansion is also fast extending from Jakarta to other cities, including Surabaya in East Java, Bandung in West Java and Medan in North Sumatra, where visiting shopping malls increasingly have become places to spend leisure time.

The expansion has seen fast growth in new consumer on-demand logistics and payment methods, including the state-owned postal and logistics service company Pos Indonesia and the privately owned Go-Jek. The latter started up in 2010, with 20 motorcycle riders and now employs more than 200,000 riders. Valued at US\$1.3 billion, the company operates in more than a dozen Indonesian cities.

A World Economic Forum study says that to compete in ASEAN, companies will need to be much more experienced, precise and strategic in their growth strategies, to keep pace with urban demographics.



The introduction of 5G phone networks over the next two years is expected to act as a further stimulus to sales of consumer products. Given such an extensive adoption of smartphone technologies and usage, consumer companies can look to extend their traditional business-to-business model, to include direct-to-consumer marketing and sales through digital platforms.

All of the countries, have populations well versed in the internet and the use of smartphones that are helping to vastly expand consumer sales. Research firm Forrester, estimates that Indonesia accounts for 40% of the region's online retail market and since its e-commerce environment is flourishing, there is substantial untapped potential for retailers.

Expanding retail market focuses on luxury goods

ASEAN countries have worked hard to propel their economies into some of the fastest growing globally. Their hard working and enterprising people are now enjoying the fruits of their efforts and they are spending accordingly on a wide range of consumer goods in addition to travel, lifestyle and luxury products.

An increasing number of the populations are spending more on leisure activities, health and cosmetic items as well as fashion, which is one of the fastest growing spending categories.

Much of the future promise lies in its economic fundamentals. ASEAN's population of over 630 million is characterised by a fast developing middle class and is forecast by New York based research firm Nielsen, to reach 400 million people by 2020.

However, there are substantial income variations with Singapore, a country of 5.8 million enjoying a per capita income level of some US\$94,000 a year and Indonesia, a population of 267 million recording a per capita income of US\$3,877 in 2017. With such disparities, consumer priorities, preferences and buying habits vary.

Vietnam, for example, is estimated to be spending almost US\$750 million on wine alone each year. To a large extent this demand is being met by local vineyards. There is production in many areas including Dalat and Ninh Thuan. Myanmar has seen production start by the lakes area of Inya and Inle and in Shan state, where Red Mountain Estate and Aythaya Vineyard are prominent producers.



The emergence of new local wine producers has helped develop interest in products from more traditional producers. Singapore, though not a producer, is a wine storage and distribution hub, with UK wine merchants such as Berry Brothers & Rudd and Corney & Barrow setting up headquarters there.

According to Singapore Wine Vault, which operates a substantial wine storage facility, there was a time when the tropical climate posed a problem for wine production. Development and adoption of modern viti-cultural practices and storage techniques have helped combat these difficulties.

ASEAN countries are witnessing increased demand for products, ranging from designer apparel and footwear, jewellery, watches, beauty and

personal care items. The passion for design and innovative products transcends the luxury fashion and retail spaces and stretches to demand from the wealthiest for prestigious automobiles and yachts. In the main, luxury purchases reflect electronics, travel and fashion.

The majority of the region's population can access Instagram, Facebook and other social media and be influenced by promotions for clothing and other products. It is unsurprising that both local and foreign fashion brands are making increasing use of digital media to target consumers. The young demographic is a key consideration for foreign brands seeking to enter the market.

China's digital giants including firms such as Alibaba, DiDi, JD.com and Tencent are reported to have already invested heavily in the market through mergers and acquisitions while Amazon has launched Amazon Prime in Singapore.

Singapore's population accounts for an estimated 50% of ASEAN's luxury market. This status reflects its GDP per capita, which is the third largest in the world after Qatar and Luxembourg. Brands such as Louis Vuitton, Prada and Rolex are well established with newcomers such as London based Jo Malone and Paris based Laduree also prominent names.

There is also a significant contribution generated by foreign tourists including weekend visitors, especially from neighbouring Indonesia and Malaysia and travellers from China who account for 25% of purchases at Changi airport. It ranks in the top five of global destination countries by value of tax-free shopping (after France, Italy, the UK and Germany).

The Singapore Yacht Shop now in its ninth year, is an annual showcase for products catering to the region's super rich, which apart from motor cruisers and yachts features fine art and supercars. The event is one

image of the dynamic decade upon decade economic growth of a region of more than 600 million people.

Rolls-Royce CEO, Torsten Mueller-Oetvoes, identifies new sales hotspots in Asia including the Philippines, Thailand and Vietnam. The prestige car maker which has launched its first luxury sports utility vehicle "the Cullinan" in Southeast Asia, is opening its first showroom in Manila "because we see quite good potential in this market, particularly when you look at the projects of ultra-high net worth individuals in the country," he says.

Similar enthusiasm about market prospects is expressed by Aston Martin's Chief Marketing Officer, Simon Sproule. He says the Sussex based UK manufacturer's customer base as a percentage of sales is less focused on traditional markets and is starting to diversify into Southeast Asia.

"More women are becoming owners and primary drivers in the luxury car market. In China and Southeast Asian economies, the high net-worth market is both growing and youthful – we are talking about the mid-30s or 40s age range, compared to Western Europe's typical buying age of the mid-40s and 50s," he observes.

There are significant opportunities for collaborative ventures to market quality international products. The positive sales environment is underpinned by a large number of international residents and visitors. Expanding tourism is also seeing considerable development of the region's hospitality sector.

At the highest end of the luxury market Singapore maintains a leading position with the ASEAN region, though markets such as Indonesia, Malaysia and Vietnam are also gradually catching up as a result of growing urban middle class populations with increasing disposable incomes.

The creative economy is new engine of growth

ASEAN economies are evolving to embrace advanced ideas and concepts. This means that new entrepreneurial driven enterprises are fast emerging. National networks of creative professions are being established and like-minded people, engaged in various creative industries are connecting and collaborating actively in diverse areas. These range from high-tech application developers, AI, animation, architecture and design, advertising to fashion related industries.

Japanese media, digital and creative communications company Dentsu Aegis, has located its Global Data Innovation Centre in Singapore. Video game developer and art outsourcing company Streamline Studios, moved its headquarters to Kuala Lumpur from Amsterdam almost a decade ago. The firm works closely with Japan's video games specialists Square Enix and Capcom.

The UN Conference on Trade and Development (UNCTAD) highlights the role of creative industries in stimulating economic growth through enterprises that hinge on creativity and intellectual property rights as primary inputs. The concept includes areas such as software, new media, digital content and functional design as well as cultural pursuits such as performing arts, literature and music.

According to Rhea Matute, Executive Director of the Design Centre of the Philippines "we think the creative industry has a lot to gain with ASEAN

integration because it's a movement of people and ideas. Integration will open up borders and really open up the creative economy."

The term creative economy was coined by Professor John Howkins, a member of the United Nations Development Programme (UNDP) Advisory Committee on the Creative Economy. In his 2001 book "The Creative Economy: How People Make Money from Ideas", the book's main thesis is that a creative economy places and measures value on ideas and other imaginative qualities, rather than traditional economic indicators such as land, labour and capital."

ASEAN countries have adopted this thesis in a big way, with them now manifesting the fastest growing start-up and technology market in the world. Levels of internet use and mobile connectivity as well as social media penetration are among the highest worldwide, comparable to the US, Europe and China.

ASEAN has one of the world's youngest populations that is showing itself highly adept in using digital technologies and exploiting their use for business development. Its take-up of e-commerce platforms, for example, is expanding an estimated 40% a year.

Creative hubs such as California's Silicon Valley illustrates the powerful force that creative economies have in shaping development of industries

and nations. A local creative economy typically consists of several interconnected industries that are based on individual creativity, skill and by producing outputs and services, usually under the protection of intellectual property rights.

Former ASEAN Secretary General, Le Luong Minh, has pointed out the importance of South Korea's creative economy in promoting the country's broader reputation and its image abroad, especially through trends in fashion and music, seen through the Korean cultural wave known as Hallyu, which is seen as having contributed substantially to the development of tourism, entertainment and cosmetic industries.

Indonesia has taken up the challenge and is actively seeking to create a framework to nurture the country's potential to develop a flourishing creative economy. Indonesia Creative Incorporated (ICINC), has been set up to provide a comprehensive branding strategy for the country's creative products in international markets.

Indonesia's Creative Economy Agency (BEKRAF) was established in 2015, to facilitate development and coordination of creative economy ventures in the country. The aim is to raise the contribution of the creative economy to 9% of GDP by 2020. Its remit covers a wide range of sectors. These vary from architecture, fashion, film and video animation, interior design, visual communication design, publishing and advertising, electronic games development to TV and radio, music, performing arts, crafts and cuisine.

The Agency is charged with preparing incentives and supporting measures involving regulatory procedures to make entry easier for interested investors. A key focus is on SMEs, because young entrepreneurs are seen as the most active in the creative economy.

It has been set up to address several areas. These include research, education and development, infrastructure needs for creative firms,



marketing, intellectual property issues, the regulatory environment for creative companies and institutional and regional relations.

It also recognises that one of the most challenging issues for SMEs entering the field is access to capital. Sectors involving digital applications as well as film and music are seen as areas that could be developed into attractive propositions for FDI.

Several other countries are also focusing increasingly on developing their creative economies. Four ASEAN cities are members of the Creative Cities Network set up by UNESCO. Bandung (for design) and Pekalongan (for



ASEAN has one of the world's youngest populations that is showing itself highly adept in using digital technologies and exploiting their use for business development.



crafts and folk art) in Indonesia, Phuket in Thailand (for cuisine) and Singapore (design) are among the 116 members of the Network which embrace design, film, music, media arts, crafts, gastronomy and literature.

Thailand has indicated its intention to support the country's creative economy by showcasing its film making, design and brand creation.

It's Creative and Design Centre is part of the Chiang Mai Creative City Project, a networking platform in the largest and most culturally significant city of northern Thailand. The centre is a cooperative venture managed by members of the education, private and government sectors and local community groups. It embodies a long term vision for promoting and developing the city.

It is an initiative which aims to make the city more attractive as a place to live, work and invest in, and to market the city as a prime location for investment, businesses and creative industry. In all, ten creative cities are being promoted by Thailand's Ministry of Commerce Department of Intellectual Property.

Beyond its music and audio-visual content production, the Philippines is looking to capitalise on its existing pool of digital talent in its well established Business Process Outsourcing (BPO) sector in order to forge a creative BPO industry. The aim is to nurture high-value activities

such as graphic design, online marketing and web development and in game development.

Various creative services in the Philippines, such as the animation industry are being promoted extensively in the global market. "The country is teeming with rich talent in various creative fields, including product design, fashion and graphic design," Rhea Matute says.

Development of technology applications is one of the most promising areas. The region is witnessing a significant increase in research into AI applications, with a particular focus in Singapore, Thailand and Malaysia. With Singapore, for example, reportedly accounting for more than 75% of AI focused patent applications.

Another area still with growth potential is the digital gaming market that has taken root, particularly in ASEAN countries such as Malaysia, the Philippines, Singapore, Thailand and Indonesia, with electronic games incorporating virtual reality.

Shanghai based research company Niko Partners, estimates gamers will total 400 million and generate revenues of US\$4.4 billion by 2021. In October 2017, Singapore based gaming and e-commerce company SEA in an IPO raised more than US\$800 million becoming the first ASEAN technology firm to be listed on New York's Stock Exchange.

ASEAN strives to become global sports hub

Over the last decade a wide range of major sporting events have been hosted in the region. This has required large investment in the necessary infrastructure to attract competitions ranging from Formula One motor racing to multi-sports events such as the Asian Games and Southeast Asia Games.

The cost of the 2018 Asian Games, held in Indonesia at venues in Jakarta and Palembang in South Sumatra, for example was estimated at US\$3.2 billion. Some 75% of this amount was spent on infrastructure projects associated with event's, including refurbishing the capital's 76,000 seat main stadium. Thailand and the Philippines have also acted as host countries for previous Asian Games, which are held every four years.

The biennial Southeast Asia Games have been hosted by most ASEAN member states with future events planned to be held in Vietnam and Cambodia. All such events involve significant investment in providing venues that meet international competitive standards.

Singapore Sports Hub, built over a 35 hectare site, costing around US\$1.87 billion, opened in 2015. The venue is ranked as the world's largest sports facility infrastructure project to be developed on a PPP basis. The hub

comprises a 55,000 seat stadium, able to host football, athletics, cricket and other entertainment events. In addition to the main stadium there is an aquatics centre and a 12,000 seat multi-sports indoor arena.

While spectacular multi-sports events can be a big draw for sponsors as well as an international audience, the focus in ASEAN is increasingly on the development of sports in a more pervasive way to promote participation at all levels of society. There is a growing awareness and belief that taking part in sports can help unify people and communities. This has been one of the motivations for countries in the region seeking to host major sporting events over the last decade.

The cultural diversity of the region is reflected in the range of sports that are historically popular in different countries from basketball in the Philippines, volleyball and badminton in Indonesia to martial arts in Thailand. There is considerable scope for development of many other types of recreational and competitive pursuits, including the huge interest now building for participation in e-sports gaming.

As income levels continue to rise, there is likely to be a growing trend towards leisure activities including joining fitness clubs as populations

become more aware of good health pursuits. The largest potential lies in populous parts of the region such as Indonesia, Thailand and the Philippines, where the number of members of fitness clubs is low.

Recreational pursuits are also proving useful to draw tourists. Vietnam, for example, is making strides in promoting the country as an outdoor activities destination. In addition to trekking in the mountainous north, a range of water sports are developing with Mui Ne a surfers choice. Da Lat is also emerging as an adventure sports destination for activities such as white water rafting and canyoning.

Thailand believes it has the potential to become a sports hub within the region. Buriram, located 410km northeast of Bangkok, hosts one of the country's major football teams as well as a Formula One grade motor racing circuit. The city's privately-led recreational investments and their ambitious scale have led to Buriram being called the country's first Sports City.

The country's overall sports development strategy envisages building partnerships between the public and private sectors. This means creating a conducive investment environment, which could propel sports-related businesses, such as sporting goods manufacturing, international events organisation services and infrastructure development.

Thailand's sixth National Sports Development Plan (NSDP) 2017-2021, recognises the role that sports can make to the country's economic and social development and recommends a range of initiatives to develop basic exercise and sports education. The NSDP says that children will be nurtured with sports skills with physical and health education developed and standardised throughout the country.



A key consideration is making participation in sports available to all sectors of society young and old. Initiatives will be launched to provide adequate and proper sports infrastructure. New national training centres are to be developed and existing facilities renovated, it says.

Thailand reflects a trend. In 2017, at a meeting in Myanmar's official capital city Nay Pyi Taw north of Yangon, Sports Ministers endorsed a set of initiatives to advance cooperation in sports development. These include moves to promote the participation of women in sports and helping to leverage sports for the development of skills amongst the young. There is also a desire to revitalise traditional sports and games.

This strategy includes promotion of sports such as Sepak Takraw, a mix of football and volleyball stressing high jumping skills as players kick a

ball over a net. The sport is widely played in Southeast Asia and traces its roots to Indonesia, Thailand, Vietnam and Lao PDR. The name is derived from Sepak the Malay word for kick and takraw, the Thai word for a woven ball.

The largest development is being seen in a surge, within the whole of Asia, of a relatively new competitive pursuit known as e-sports. According to Amsterdam based research company Newzoo, Southeast Asia is the fastest growing region in the world for the various screen games which comprise e-sports. The study predicts that the numbers of players could reach nearly 20 million in 2019, double the number in 2016.

ASEAN countries are keen to promote e-sports. Syed Saddeq, Malaysia's Minister for Youth and Sports, has said that the Government is to invest US\$2.4 million into e-sports development in 2019, through the Malaysia Digital Economy Corporation as part of a focus on youth and millennials. Meanwhile, the first of four planned dedicated e-sports competition venues has opened in Kuala Lumpur.

E-sports became a demonstration event at the 2018 Asian Games in Indonesia. Participants from 18 countries displayed their skills in titles chosen by the Hong Kong based ASIAN Electronic Sports Federation. E-sports will be included as a full medal event at the 2022 Asian Games in Hangzhou, China and there are suggestions that it be included as a test event at the 2024 Paris Olympic Games.

The Southeast Asian Games, which are supervised by the International Olympic Committee and Olympic Council of Asia, will include e-sports



for the first time when the Games featuring 59 different sports competitions comes to the Philippines at the end of 2019.

Meanwhile Indonesia's Minister for Youth and Sports, Imam Nahrawi, says that the Government intends to encourage sporting communities to foster development of e-sports. In March 2019, an international championship was hosted as an exhibition and test event in Jakarta, during the Asian Games, with a number of participating teams including those from Thailand, Vietnam, the Philippines, Malaysia and Singapore. Triawan



While spectacular multi-sports events can be a big draw for sponsors as well as an international audience, the focus in ASEAN is increasingly on the development of sports.



Munaf, Head of Indonesia's Creative Economy Council (BEKRAF), believes that e-sports, as well as being categorised as a sporting activity, is also an industry which has great potential.

While e-sports has massive development potential more traditional sports are also ready for expansion. With the exception of the Philippines, where basketball is the country's most popular sport, for most of the region football is a principle focus of interest. The young population has a passion for the sport and shown by the fervent fan base that exists for leading European football clubs.

Much of the local appetite for the sport is satisfied by coverage of competitions from abroad. English clubs, in particular, have attracted large scale sponsorship and investment from the region, with Premiership club Leicester City, for instance, owned by Thailand's duty-free retail group King Power International.

Nevertheless, the region itself still remains relatively unknown in world football. However, this situation looks likely to change as the game attracts investment and countries become more focused on developing the game and producing leading players to become household names.

Growing economic wealth and private sector investment into football teams and new stadiums is helping the sport to develop on stronger foundations. Both Thailand and Malaysia established national leagues in 2007 and 2004 and Vietnam's football league became professional in 2000. The Philippines is also planning to develop the game on a national basis rather than it being centred on clubs mainly in the Manila area. Myanmar Football Federation has recently opened a national football academy in Yangon.

Widening the appeal of the sport could be helped by FIFA's decision to expand the World Cup competition from 32 teams to 48 from 2026. The move is seen as likely to help countries such as Thailand and Vietnam aspire to qualification and in time emulate countries elsewhere in Asia like South Korea and Japan that have hosted the tournament. Indeed, Indonesia and Thailand are pursuing a bid to jointly host the FIFA World Cup in 2034.

Thailand's Minister for Tourism and Sport, Weerasak Kowsurat, believes that his country, in common with others in the region, is experiencing a developmental moment that could enhance its place in the competitive world of sports.

Spending to improve defence capabilities accelerates

The maritime and mainland countries comprising ASEAN, encompass more than 4.5 million km² of territory and feature more than 100,000km of coastline. The responsibility of governments to protect the integrity and defend the airspace of such vast aggregate areas pose many formidable challenges.

Piracy concerns, especially the interception of merchant vessels in the Malacca Strait, have highlighted a need both for greater surveillance and more rapid response to incidents. This and other security concerns is necessitating greater investment in a range of defence related sectors including training, facilities and equipment.

While not on the fault lines of superpower global tensions, ASEAN countries have come to recognise that any dilution of military capabilities and lack of investment in equipment can over time create vulnerability to new technologies, unforeseen events and situations.

Over the last 15 years the total defence spending of countries in ASEAN has doubled in real terms, with Thailand and Indonesia, for example, showing military expenditure levels growing 10% annually. Vietnam has become one of the world's top ten largest military equipment purchasers in the last decade.

Singapore had a defence budget allocation of US\$9.7 billion in 2018. Indonesia's allocation for military related expenditure was US\$6.9 billion. Thailand spent US\$5.7 billion and Vietnam US\$3.4 billion. The Philippines defence budget totalled US\$3 billion and Myanmar's US\$2.4 billion. For several decades, Singapore has allocated some 6% of its GDP to defence, resulting in it possessing well trained armed forces equipped with advanced equipment on a par with NATO countries.

In terms of its major equipment investment, ASEAN countries have made the modernisation and expansion of their airforces a priority. This involves acquisition of multirole combat aircraft, fixed and rotary wing transport and surveillance aircraft.

The aim is not just to deter military threats but also prepare for relief operations needed after extreme climate events such as major hurricanes and cyclones. Over the last decade, providing help to affected communities has relied heavily on international assistance. More transport aircraft and sealift in addition to command and control capabilities will help mitigate this dependence.

Naval modernisation is another key investment area. Germany's ThyssenKrupp company, for example, is supplying two of its Type 21 submarines to the Singapore Navy for delivery in 2020 under a US\$2.2 billion contract. Thailand is also acquiring three Yuan-class submarines from China under a US\$1 billion deal.

Such major expenditure is moving ASEAN defence establishments to increasingly focus on developing and expanding local defence industries to help reduce the amounts being spent on acquisition of foreign made equipment. This will mean a number of countries are seeking help to develop domestic defence manufacturing including R&D to extend from just assembly of foreign designed equipment.

Proposals to enter into collaboration agreements in the production of defence equipment will play a key role in foreign companies winning defence procurement orders. Germany's Rheinmetall, for instance, is collaborating with Malaysia's Etika Strategi and Turkish firm BMC to manufacture armoured vehicles.

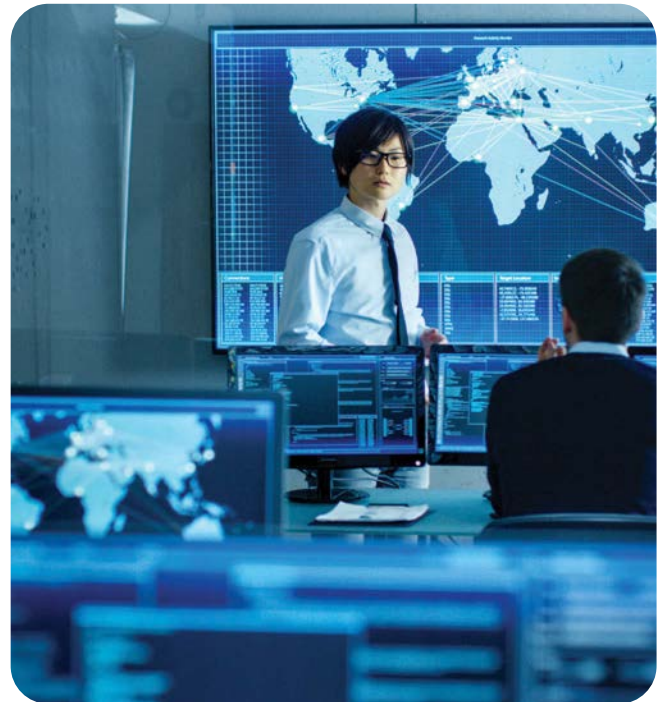
Thailand's state-owned Defence Technology Institute has established a joint venture with China North Industries Corporation, in the northeast province of Khon Kaen, to assemble, produce and manufacture Chinese designed weapon systems ordered for the Thai army.

One of the most diversified defence manufacturing companies already established is Singapore Technologies Engineering. They produce munitions and components and structures for warships, submarines and aircraft. It has built five of six frigates under a technology transfer agreement with France's DCNS.

Indonesia intends to establish a comprehensive domestic defence manufacturing facility by 2029. As part of this strategy it is seeking to develop a joint venture with South Korea to manufacture an advanced fighter jet to meet the future requirements of airforces. This move represents a major step forward for Indonesia's nascent aerospace industry.

The region is one of the world's most open markets for military equipment. Singapore has purchased frigates from France, and submarines from Germany and Sweden. ASEAN has become a large and highly competitive market for military equipment and services and includes suppliers from a wide range of countries.

Apart from the foremost providers of military equipment such as China, Russia, France, the US and UK, military items are bought from South Africa, Israel, Germany and Sweden. The Malaysian Government for example, has been active in extending its purchases, opting for Sukhoi fighter aircraft from Russia, submarines from France and tanks from Poland.



While aircraft, warships and armoured vehicles are the attention focusing symbols of military strength, growing attention is being placed on enhancing the skills and capabilities of defence forces, in a range of areas particularly, intelligence gathering and analysis. This is creating market opportunities for firms able to provide technology and applications involved in a range of security areas.

There is demand throughout the region for services and equipment focusing on protection of critical national infrastructure, policing and counter terrorism, security for major events, border security, consultancy, training and risk analysis in addition to cyber security. Singapore launched an initiative during its ASEAN Chairmanship in 2018, to build the cyber security capabilities of other member states.



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The success of CS thrived in April 2019 due to a joint venture scheme with a prominent H.K. construction company, when they were awarded the tender in provision of security services contract for the H.K. International Airport Third Runway Construction Project scheduled for 2019-2023. This stands out as a remarkable achievement for such a young company and represents an important milestone for CS.

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ASEAN countries widens tourism appeal

The unique and diverse range of recreational activities, cultural attractions and travel options is making the region the world's fastest expanding tourism sector. During 2018 the number of international tourists rose 10%.

Vietnam hosted some 15.5 million international visitors in 2018, an increase of 20% over 2017. According to Nguyen Ngoc Thien, Vietnam's Minister of Culture, Sports and Tourism, the sector contributed 12.4% to the region's GDP, a contribution forecast to reach 15% by 2025. The World Tourism and Travel Council (WTTC) projects that the sector will contribute around US\$222 billion to ASEAN's economies by 2027, compared to US\$131 billion in 2017.

Myanmar recorded 3.5 million tourists in 2018, in only six years since opening up to international visitors, with Yangon, Bagan, Inle Lake and Mandalay being places of attraction for hotel investors and visitors. According to World Bank estimates, the sector accounts for 2.7% of the country's GDP with earnings contributing around US\$2.1 billion annually.

The region is an attractive destination for a global clientele offering a huge range of cultural diversity, tourism activities, year-round warm weather as

well as nearly 40 UNESCO world heritage sites. These attributes combined with multiple destinations within short sailing distances are also making it an increasingly popular cruise destination.

Assisted by visa exemptions for major European markets, the sector's expansion reflects a vast range of new attractions, resort destinations and a significant growth in direct air routes giving greater connectivity to a global market.

For the top destination countries, tourism represents a vital earner of hard currency. In Thailand the sector contributed US\$36.4 billion in 2017, a level of income from tourism receipts only surpassed globally by the US, Spain and France. In Indonesia the figure was US\$28.2 billion. In the same year Vietnam earned US\$12.7 billion, Singapore US\$13.9 billion and Malaysia US\$13 billion.

The sector, which is ready for more development, continues to extend its appeal to a global market. However, Weerasak Kowsurat, Thailand's Tourism and Sports Minister, has said there is urgency in ASEAN's efforts to enhance competitiveness. In order to further this plan, tourism ministers

have approved the creation of a permanent secretariat in Jakarta to improve and unify tourism industry standards across member countries.

Fully implemented standards in the tourism industry across the region and the introduction of mutual recognition arrangements for tourism professionals, will allow for a free flow of skills and improve quality standards of service.

Another aim is the introduction of a common visa system for the whole region. This will ultimately lead to an electronic platform being created that will permit online applications to be completed in minutes.

A collaboration with the European Union has enabled technical and operational expansion of secure communication systems to 26 major transport hubs and provided training in specific areas such as coordinated border screening operations in Cambodia, Indonesia, Lao PDR, Myanmar, the Philippines, Thailand and Vietnam.

Cambodia's expanded runway at Siem Reap is expected to attract more direct long-haul air traffic from both across the region and North Asia to raise the number of international arrivals from the six million recorded in 2018.

Brunei has recently completed an expansion and overhaul of its international airport. The Sultanate traditionally focuses its tourism promotion on cultural and Islamic elements but it also has a wider range of attractions including its rainforest and mountainous areas located in Ulu Temburong National Park, while its offshore areas feature many historic shipwrecks for diving.

Increased air connectivity is helping Malaysia to raise its visitor numbers. It is now seeking to promote niche activities such as deep-sea fishing in areas off Port Dickson, Penang, Sabah and Sarawak. More airlines as well



as new international airports, such as Bohol-Panglao, Mactan Cebu and Cagayan North, are also helping the Philippines to draw more international visitors.

Singapore is progressing improvements to the city's Pulau Brani and Tanjong Pagar waterfronts to include new hotels and attractions, while its Sentosa Island resort off the southern coast received considerable international focus after hosting the historic US-North Korea summit in 2018.



The unique and diverse range of recreational activities, cultural attractions and travel options is making the region the world's fastest expanding tourism sector.



Vietnam is also focusing on improvements to infrastructure. Previously rarely visited coastal destinations such as Phu Quoc are now increasingly accessible following completion of a highway from Hanoi to Sapa.

ASEAN Tourism Ministers hope to see up to 4.5 million passengers taking cruise vacations by 2035, a tenfold increase on the number recorded in 2016. The trend extends to rivers as well as the coast.

Myanmar and Vietnam are becoming established on the inland cruise tourism map. The latter's Upper Mekong River is seeing development of increasing cruise options, with vessels transiting from Chiang Rai in Thailand to Vientiane in Lao PDR and from Vientiane to Jinghong in Southwest China.

ASEAN Tourism Strategic Plan (2016-2025) seeks to promote greater quality standards. In this, governments have committed to responsible, sustainable, inclusive and balanced tourism development, so as to contribute significantly to the socio-economic well-being of the region's people.

As the number of visitors to ASEAN grows, new infrastructure will have to be enhanced to accommodate the increasing volume. Sustainability aims will also mean the development of initiatives to promote and focus on new destinations to relieve pressures on the most visited historical

and cultural sites, such as Cambodia's Angkor Wat, and to spread the economic benefits of tourism to communities.

Issues of sustainability sometimes call for drastic action. The Philippines closed Boracay Island for an extended period in order to address basic infrastructure problems caused by overcrowding in 2018. Thai authorities also imposed a short ban on tourists visiting the country's popular Maya Bay featured in the film *The Beach*. Thailand is seeking to develop tourism in rural areas outside the main visitor circuit of Bangkok, Chang Mai and the southern islands and beaches.

A responsible attitude to sustainability issues and attention to spreading economic benefits of tourism to wider communities in Southeast Asia will help promote a positive global perception of the region. At the annual meeting of ASEAN Tourism Ministers in Vietnam's resort city of Halong in January 2019, officials were keen to promote the theme of "The Power of One" to sharpen ASEAN's efforts to be seen as a single tourist destination.

According to Vietnam's Tourism Minister: "ASEAN member states together can build a stronger and more powerful position on the world stage with meaningful initiatives that boost tourism growth while preserving our unique and collective heritage, identity and culture for the next generation to experience."

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