

Investing in ASEAN

Association of Southeast Asian Nations

2018 | 2019



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A 3D topographical map of the ASEAN-UK corridor, showing the landmasses of Southeast Asia and the United Kingdom in a light tan color against a blue background representing the ocean. The map is oriented vertically, with Southeast Asia on the left and the UK on the right.

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For more information, please contact us at
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ASEAN offers access to the world's fastest growing economies



ASEAN economies are increasing at an average of 5% per year, a level that continues to outperform global rates. In 2017, their combined GDP reached US\$2.7 trillion and it is projected to reach US\$4.1 trillion by 2022, according to the IMF.

The World Trade Organisation (WTO) estimates that ASEAN countries experienced impressive growth in exports in 2017, with Vietnam recording the largest advance of 19% followed by the Philippines at 18%. Others at similar levels include Myanmar at 17%, Indonesia and Malaysia with growth of 15.3% and 12.9% respectively.

Growing prosperity means that member countries have become a large and growing consumer market in their own right. Wealth creation is driving and supporting private consumption, as they strive to achieve middle and higher income status.

Since its formation 51 years ago, ASEAN has seen an underdeveloped region grow into one of the most dynamic drivers of today's global economy. It's ten member countries are a significant focus of international investment. The formation of the ASEAN Economic Community (AEC) in 2015, will ensure further progress.

Expansion of intra-ASEAN trade has outpaced the growth of its trade with the rest of world in the past four years. This advance illustrates the benefits already of a more connected, more harmonised organisation.

The World Bank has stated that for 2018 "the economic outlook for the region remains positive and will benefit from an improved external environment as well as strong domestic demand." An OECD assessment also concurs that it is poised to maintain its growth momentum through to 2022, driven by robust domestic consumption and infrastructure initiatives planned by governments.

According to the UN Conference on Trade and Development (UNCTAD), FDI into ASEAN rose by a third in 2017, to US\$130 billion, with Singapore receiving 45% of the inflow. Investors recognise the potential in this vibrant economic region, which has consistently surpassed any other world region over the last decade.

ASEAN's industries increasingly feature high technology ventures including aerospace, automotive, pharmaceuticals and bio-scientific. In addition, more than half of the population of over 600 million is under the age of 30. This youthful demographic profile is reflected in an appetite to embrace new technology and the new industrial revolution that is due to update business models and drive fresh approaches to virtually every economic activity.

Member countries are working rapidly to further reduce tariffs on trade of goods and services in order to meet the ASEAN Trade in Goods Agreement (ATIGA) by the end of 2018. Indonesia, Malaysia, Thailand, Singapore and Vietnam have all signed up to the initiative which provides

secure IT architecture and a legal framework to allow trade, transport and commercial data to be exchanged electronically.

They are also working towards implementation of the ASEAN-wide Self-Certification Scheme by the end of 2018. The Scheme will allow exporters to issue declarations of origin, which will also serve to lower transaction costs. The Scheme, together with the AEC 2025 Trade Facilitation Strategic Action Plan, is aimed to double intra-ASEAN trade by 2025 and reduce trade transaction costs by 10% in the region.

ASEAN's economic vision is ambitious and stretches beyond the AEC accord. In addition to establishing a single market in a multitude of areas and sectors, the intention is to proceed with the integration of its many different free trade agreements into one group. The goal is to establish an umbrella trade deal known as the Regional Comprehensive Economic Partnership (RCEP).

Talks involving ASEAN members together with, Australia, China, India, Japan, New Zealand and South Korea, are aimed at creating a huge pan-ASIA free trade area. Singapore Trade Minister, Lim Hng Kiang, has said that there is a strong political will among participants to try and complete a deal by the end of 2018.

Meanwhile, the withdrawal of the US from the Trans-Pacific Partnership (TPP) has not led to that agreement being abandoned. The remaining countries, including Singapore, Malaysia, Vietnam and Brunei Darussalam, together with Australia, New Zealand, Canada, Peru, Chile and Japan, are working towards finalising the treaty. The TPP is intended to open up more markets to free trade in agricultural products and digital services, in addition to increasing intellectual property rights in some areas. According to Japan's Foreign Minister, Taro Kono, it will serve as a foundation for building a broader free trade area across Asia.



ASEAN is well positioned to take full advantage of the opportunities that arise externally as its economic integration process increasingly takes shape. This group of nations with such different ethnicities, cultures, languages, religions and political histories, each step towards integration has involved lengthy discussion and will continue to do so.

However, the evolving AEC is a powerful declaration of intent in its own right and promises to boost investment as well as increase prosperity. Integration of the member states is making the region a more powerful engine in the global economy. As Singapore takes the chair of ASEAN in 2018, the vastly diverse region of ambitious states has an opportunity to build on its economic and social advances to vastly improve its citizen's lives and consolidate itself as an integral part of global prosperity.



US-ASEAN Business Council

Alexander Feldman, President & CEO, US-ABC



Alexander Feldman

For more than 30 years, the US-ASEAN Business Council has been at the forefront of advancing business relations between the United States and Southeast Asia, and we are pleased to have witnessed the tremendous pace of positive change and development that ASEAN has undergone. ASEAN is America's 4th largest export market globally and is the #1 destination for U.S. Foreign Direct Investment in Asia. U.S. private sector has invested more in ASEAN (over US\$250 billion) than it has in China, India, Japan and South Korea combined.

Today, ASEAN is home to over 600 million citizens, making it the third biggest population in the world, with a combined GDP of US\$2.6 trillion, which makes it the 5th largest economy. ASEAN is one of the fastest growing regions in the world with an average 5% GDP growth per year projected through 2020. This growth is supported by a young, tech-savvy population, a rapidly growing middle-class, and significant urbanization.

ASEAN's digital economy is projected to grow by 500% by 2025 and generate an additional US\$200 billion in revenue in e-commerce alone. With Singapore serving as ASEAN's 2018 Chair, an even greater focus on realizing ASEAN's digital economic potential from Industry 4.0 to e-commerce is materializing.

The development of the ASEAN Economic Community is real and businesses are already reaping its benefits

– ASEAN Free Trade Area has enabled zero tariffs on Trade in Goods; six ASEAN Mutual Recognition Agreements pave the way for freer movement of skilled professionals; implementation of the ASEAN Single Window is underway, with live exchange of data between five member nations today; ASEAN regional Capital Markets are developing, with the ASEAN Trading Link already linking equity markets across the region; and deepening ASEAN Connectivity continued to strengthen ASEAN's positioning in global supply chains.

Four ASEAN member nations – Brunei, Malaysia, Singapore, and Vietnam – signed the 11 member CPTPP agreement which, when ratified, will become the highest standard free trade agreement in the world. Additionally, ASEAN is continuing to participate in the RCEP negotiations which has the potential to create a free trade area with 3.4 billion people and a combined GDP of US\$49.5 trillion.

As ASEAN grows and steadily fulfills its economic potential, opportunities exist across a wide range of industries. For example, ASEAN has over US\$2 trillion worth of infrastructure investment opportunities – not just traditional ports, roads, and bridges, but support in ICT, education, agriculture, and healthcare. I sincerely encourage you to take the time to learn more about the opportunities ASEAN has to offer. Visit our website at www.usasean.org to learn more.



EU-ASEAN Business Council

Donald Kanak, Chairman, EU-ABC



Donald Kanak

The global trading and investment climate has become more competitive. Despite continuing impressive GDP growth rates in Southeast Asia, it is unfortunately a fact that ASEAN's share of global trade has fallen in absolute terms, and the total FDI flowing to the region has now fallen for two straight years – though FDI from the EU rose by 46% in 2016, again making Europe the largest source of FDI to the region, by some distance.

Improving the trade and investment climate both within ASEAN and between the EU and ASEAN will help boost ASEAN's competitiveness and economic development and bring wider benefits to more people through job opportunities, greater consumer choices, and access to technology and innovation.

European industry still overwhelmingly sees ASEAN as an attractive region for growth and investment, as our 2017 Business Sentiment Survey showed. But that survey also showed a strong call for more progress on government initiatives to reach trade agreements, reduce barriers to trade, and realise the vision of the ASEAN Economic Community. We hope for faster progress on both Europe's trade deals with various ASEAN member states and, in particular, for some solid progress in the not too distant future on a much-discussed region-to-region trade deal.

Improving the trade and investment climate is not just about trade deals. In ASEAN it also means making

faster progress on the ASEAN Economic Community – moving quicker to harmonise standards across multiple sectors; removing non-tariff barriers; simplifying customs procedures to enable lower costs and faster movement of goods, to name just three areas.

ASEAN needs more investment in infrastructure and that means accelerating the development of capital markets, insurance and pension sectors to mobilise the region's high private savings rate to long term investments. The public purse simply cannot afford to fund all of the requirements. It means doing more to help MSMEs and others get paid quicker and more efficiently, and to ensure that the right skill sets are in place for the future more digitally-orientated economy, which in turn means a review of educational and vocational training systems and more flexibility for the movement of key labour.

Economic development is something that requires a whole-of-government effort, indeed a whole-of-society effort, not just politicians, but social groups and industry to work together to ensure a more equitable future. ASEAN will need to create something like 100 million new jobs in the next 10 years – those jobs will by necessity need to be very different from many of the traditional jobs we see today. And to find those jobs, ASEAN will need to mobilise more investment inside and from outside of the region.



UK-ASEAN Business Council

Kevan Watts, Chairman, UKABC



Kevan Watts

ASEAN is a region that continues to offer tremendous trade and investment opportunities for UK companies as one of the fastest growing regions in 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.

While the UK navigates Brexit, the need for a stronger UK-ASEAN relationship has never been greater. As the UK looks to develop stronger ties with regions beyond Europe, ASEAN is a natural fit. We can learn from each other and the stronger relationship will benefit the businesses and people of both regions.

In 2016, UK exports to ASEAN were worth £13.6 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.

'Resilient and Innovative' is the theme of Singapore's Chairmanship of ASEAN and its focus on the digital economy and smart cities is a perfect match for the UK's world leading expertise in these areas. The knowledge hungry citizens of the region 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 participate in and contribute to that growth. Join us, as we at the UK-ASEAN Business Council work to raise awareness of the opportunities in this vibrant community, provide insight and intelligence and assist UK companies in their ASEAN journey. Find out more about ASEAN and the work we do by visiting www.ukabc.org.uk.

Explore a new era of opportunities with the right expertise.

The vision and ambition of ASEAN have brought a whole new era of investment and trade opportunities.

Thanks to the combination of our global network and over 150 years' experience in the region, ASEAN could be much closer than you think.

We have built long-lasting relationships across 95% of ASEAN's GDP and trade flows, to help clients like you uncover a world of opportunities.

Find out more at business.hsbc.com/asean



Together we thrive

Resilience and innovation: Taking the driver's seat

Can ASEAN step up to the plate and whip up momentum to help the region realise its full potential?

HSBC

Resilience and innovation. That is the tagline for Singapore's Chairmanship of ASEAN this year. Both are very much needed if it is to achieve true integration in the form of a single market.

Here's the bottom line going in – while free trade in most goods and some services have been in place for over a decade, the seamless flow of corporate/trade payments and investments remains frustratingly elusive.

Businesses still face restrictions despite a 2015 blueprint mapping steps to eliminate barriers. Some tariffs continue to exist, and new non-tariff barriers have appeared even after the establishment of the ASEAN Economic Community (AEC).

The vision and the plan

Singapore's vision is to build on ASEAN's resilience, harness opportunities

from disruptive technologies to innovate and make the region more competitive.

The plan is to create an environment that is conducive to freer trade and regional interdependence and establish a network of smart cities. This will power the digital economy, improve trade facilitation, encourage the ease of investment and strengthen ties with external partners.

Underpinning all these dynamics are ASEAN's rapidly growing digital consumption market and the demands that come with it.

Building ASEAN's digital economy

Southeast Asia is the world's fastest growing internet region. Nearly four million new users will come online every month for the next five years¹. According to Deloitte, this translates into a user base of 480 million by

2020. Additionally, there are over 700 million active mobile connections in Southeast Asia. That's a large base, which is growing, is young (70% are under the age of 40) and increasingly middle class.

Yet these consumers only spend US\$30 billion online. Experts predict that spending could rise six and a half times or 500% to US\$200 billion by 2025², fuelled by consumption of electronics, clothing, household goods and groceries and by increased travel within the region.

Clearly ASEAN economies stand to benefit from the potential of this flourishing digital economy. But for that potential to become a reality, changes must be made.

Harmonising standards and an integrated payments system

Singapore's Foreign Minister, Vivian Balakrishnan, paints a vision of a single digital market that would have regulations to guard "cyber security and yet enable cross-border transactions at very much lower transaction rates³."

This brings us to the hot topic of integrated e-payments. A single interoperable payment system presents a huge opportunity to enhance intra-regional trade and business activity. Once operational, an integrated ASEAN e-payments system would allow for example, a Singapore corporate to be able to pay its Indonesian supplier in rupiah by making a cross-border payment instantly.

Removing cost and logistical barriers to international payments will be a major step towards unlocking ASEAN's growth potential. Furthermore, if standards such as ISO 20022 are adopted to support this network, the AEC will be globally connected, facilitating the flow of trade and FDI with the rest of the world⁴.



Digitising trade processes

Even greater benefits can be achieved if regional integration is paired with the adoption of disruptive new technologies (Industry 4.0, distributed ledger technology or similar). As with integration, adopting these technologies can potentially boost profits of between US\$25 billion to US\$45 billion by 2030⁵.

More needs to be done to digitise the supply chain process and reduce non-tariff barriers. Regional schemes like the ASEAN Single Window for customs facilitation and clearance and the ASEAN-wide self-certification scheme, are a start.

The same applies to their trade finance systems which are still heavily paper-based. The OECD estimates that the 'hidden costs' of trade – the manual processes underlying most transactions – can be as much as 15% the value of goods traded. That translates to approximately US\$100 billion a year⁶. Moving to a structured, transparent and fully digitised platform would cut costs and improve trade facilitation.

ASEAN smart cities network

In line with the digital economy, Singapore is proposing the development of an ASEAN smart cities network. The rapid pace of urbanisation across Asia means cities have no choice but to become more organised and efficient.

The strain on transport, housing, telecoms and IT networks is evident. Infrastructure development is at the heart of all of this. Roads, ports, airports and telecommunications grids need to be built or retrofitted to handle increased loads.

HSBC estimates that US\$2.1 trillion of infrastructure investment is required across ASEAN. Current budgets will cover only US\$910 million⁷.

ASEAN governments seem undeterred. Plans have been announced to increase infrastructure spending on large scale projects, including ports, power stations, high-speed railways and mass transit systems. Singapore alone has committed US\$1.7 billion of investment in Smart Nation and fintech initiatives.



The ties that bind us

ASEAN also looks to continue strengthening ties with its key external partners including China, the EU, India and the UK. In play are the Regional Comprehensive Economic Partnership (RCEP) and the Trans-Pacific Partnership (TPP).

RCEP is a trade pact involving all ten ASEAN member states and six countries with which ASEAN has free trade agreements. Negotiations have so far, been slow. Since discussions were launched six years ago, only two chapters on economic, technical cooperation and on support for SMEs have been concluded, out of 18 chapters listed in the outline.



Removing cost and logistical barriers to international payments will be a major step towards unlocking ASEAN's growth potential.



Meanwhile, TPP has transformed into the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTTP) after the US withdrew in 2017. Eleven countries including Malaysia, Brunei, Vietnam and Singapore signed the pact in March 2018.

Whether the accord has power or relevancy now that the US has withdrawn remains to be seen. The general consensus is that members will still be better off with the CPTTP than without it. Singapore seems philosophical when it comes to these partnerships. "Whether RCEP or TPP, to us they are just multiple roads that lead to a larger destination," Dr Balakrishnan said⁸.

In the driver's seat

Establishing smart cities, deepening external ties, digitising trade processes, building integrated systems ... that is a lot of priorities for Singapore to push forward on the ASEAN agenda. Ideally, ASEAN would

lay down a framework for all these initiatives to build on. But this isn't a perfect world. If one thing has to take precedence, it needs to be the digital economy.

Without investing in the region's soft infrastructure and harmonising systems, ASEAN will lose its competitive edge in the global economy. Smart cities can't be developed without embracing the technologies used to build the digital economy. Without a thriving integrated digital economy, the AEC would have less to offer to partners.

ASEAN's young population and burgeoning middle class is driving the growth of the digital economy. It is not an initiative. The transformation of our citizens into digital natives empowered to use technology to enhance their personal and professional lives is happening right now. It is far better to be in the driver's seat rather than watching from the sidelines.

¹ Advancing the ASEAN Economic Community; Pg 9; (<https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/about-deloitte/sea-about-aec-digital-economy-free-flow-of-data-2016.pdf>)

² <https://www.channelnewsasia.com/news/asiapacific/lee-hsien-loong-asean-e-commerce-frameworks-smart-cities-9404396>

³ <http://www.straitstimes.com/singapore/vivian-balakrishnan-sets-out-singapores-priorities-as-2018-asean-chair>

⁴ Payments in ASEAN Post AEC https://www.hsbc.com.my/1/PA_ES_Content_Mgmt/content/website/commercial/cash_management/PDF_141107/5-Payments-in-ASEAN-post-AEC.pdf

⁵ Advancing the ASEAN Economic Community; Pg 11; <https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/about-deloitte/sea-about-aec-digital-economy-free-flow-of-data-2016.pdf>

⁶ Trade Finance: A Market Eager for Disruption (<https://www.greenwich.com/corporate-banking/trade-finance-market-eager-disruption#simple-table-of-contents-2>)

⁷ HSBC Global Research: "Asean Perspectives: Can Asean fill its infrastructure potholes", Joseph Incalcaterra, July 2016

⁸ <http://www.straitstimes.com/singapore/vivian-balakrishnan-sets-out-singapores-priorities-as-2018-asean-chair>

Financial integration is a vital step for regional development

An essential element in the development of the ASEAN Economic Community (AEC) is the move to drive forward monetary and financial integration in the region. The process is vital for both economic and social improvement and the inclusion of many areas that have little or no access to financial services.

Financial integration will be key to maintaining strong economic growth and raising income levels. Asian Development Bank (ADB) estimates that by addressing financial exclusion it could raise GDP by 9-14%, even in relatively large economies such as Indonesia and the Philippines. The potential boost to GDP could be more than 30% in Cambodia's case.

An integrated banking sector will also mean greater competition and improved quality of services, which in turn will spur more trade and investment. In addition, SMEs and those without any form of banking will be provided with better access to financial services as the lending capacity of banks improves.

ASEAN's Strategic Action Plan 2016-2025 for financial integration is designed to facilitate much greater access to banking, capital markets and insurance. It is a bold initiative which calls for a range of reforms. These involve removing restrictions to the intra-ASEAN provision of financial services by its financial institutions.

The Plan calls for building capacity and infrastructure to develop and integrate capital markets, in order to liberalise the flow of capital across the region. Other elements include harmonising payments and settlements systems and mutual recognition of the professional qualifications of those working in different member states.

While the process is complex and time consuming, given the different stages of economic development among member states, the rewards are likely to be immense, in particular for the most disadvantaged communities. According to Ravi Menon, the Managing Director of Singapore's Central Bank, deeper financial integration in Southeast Asia will yield substantial benefits for ASEAN economies by helping to mobilise surplus savings more efficiently and channelling them to productive investment opportunities in the region.

Achieving common standards across Southeast Asia given the different maturities of individual countries' financial sectors is a necessary and long term endeavour. Financial liberalisation involves the balancing of regulatory standards, market conduct practices, disclosure requirements, and licencing conditions. This complicated process is ongoing and recognised as necessary in order to consolidate the broader economic progress achieved in the region.

Despite many challenges substantial steps towards financial integration are taking place. Thailand, Malaysia and Singapore have put in place concrete measures to expand Stock Market linkages and harmonise disclosure requirements through the introduction of ASEAN Disclosure Standards.

Investment procedures have also been streamlined by these three countries with the ASEAN Trading Link, which provides a single gateway to stock exchanges, allowing shares to be purchased through a local stockbroker in all the markets. Issuers can also sell their shares in these markets without having to follow different procedures in each country. An ASEAN Collective Investment Scheme also allows authorised fund managers to conduct a cross-border offering of funds.

ASEAN members are also moving to liberalise the cross-border supply of marine and aviation insurance, in addition to goods in international transit insurance. The move will allow companies to offer cover across ASEAN member states helping to reduce costs and encouraging intra-regional trade.

However, there are still only a few ASEAN banks, such as Bangkok Bank, Maybank and United Overseas Bank with region wide operations. In contrast, global commercial banks have a substantial presence in many parts of the region.

The imbalance could eventually change as a result of the ASEAN Banking Integration Framework (ABIF), which was agreed by Central Bank Governors at the end of 2014. The ABIF seeks to ensure a more stable flow of funds and increasing cross-border trade and investment. Under the ABIF, ASEAN banks can sign reciprocal bilateral deals to operate in a partner country on the same terms as domestic financial institutions.

“The ABIF creates a mechanism for greater regional access for well capitalised and well managed ASEAN banks, which will improve their long term competitiveness and support their expansion across the ASEAN region. This is an important positive step for the long term growth of



ASEAN banking institutions and is expected to improve their ability to compete with foreign banks,” says Rajiv Biswas, Asia Pacific Chief Economist for London based industry consultant IHS Markit.

Specific criteria for Qualified ASEAN Banks (QABs) are negotiable on a bilateral basis and focus on financial capacity, quality of governance, track record and the business plans of those banks seeking qualified status.

Under the ABIF, any qualified bank can be classified as a local bank across the ten ASEAN economies, allowing them to operate and compete more effectively with international counterparts. QABs have to meet certain requirements on capital and corporate governance and also need to be recommended by the financial authorities of their respective countries.

ABIF requires each of the ASEAN-5 (Singapore, Thailand, Malaysia, Indonesia, Brunei) countries to have at least one bilateral agreement with each other by the end of 2018, on QAB entries. It also states that all ASEAN members must have at least one bilateral agreement with each other by 2020.

The larger economies are already moving forward in negotiating bilateral agreements. Bank Indonesia, for example, and the Financial Services Authority of Indonesia and Central Bank of Malaysia, have signed an agreement outlining the measures the two countries will implement under the ABIF. The agreement also sets out the definition of QABs and identifies the market access and operational flexibilities which they can have.

The ABIF platform is seen as complementing the broader economic integration of member states. More importantly it is hoped that it will help expand a group of strong pan-ASEAN banks with the scale and the capability to compete alongside global banks.

The implementation of ABIF is also designed and expected to lead to stronger regulatory and supervisory arrangements, leading to more effective surveillance and supervision of QABs. Bilateral negotiations between various member states are expected to become catalysts for enhancing bank supervision and regulation in individual jurisdictions, in anticipation of an increasingly integrated banking system.

The integration process is expected to be accelerated by the adoption of high technology. Within the ASEAN community, and in many other markets in Asia, there is scope to accelerate the digital transformation of financial services and adoption of financial technology, to expand the reach and usage of financial services. In particular, FinTech can help reduce the costs involved in reaching underbanked populations

with cultural and language diversity and challenging regulatory environments. An integrated platform will help development and experimentation of innovative digital financial products and services.

The Monetary Authority of Singapore (MAS) signed a Memorandum of Understanding (MoU) in August 2017, with the International Finance Corporation (IFC), a World Bank affiliate, agreeing to cooperate in establishing and developing the ASEAN Financial Innovation Network (AFIN).

The IFC's Director for East Asia and Pacific, Vivek Pathak, comments: "The initiative builds on IFC's efforts to deepen access to finance for underserved segments of the population at a fraction of the cost and at a speed that was not feasible earlier. New business models resulting from digital transformation of financial services and FinTech adoption in the region can create new markets that will lead to a higher level of prosperity."

New collaborative approaches are also taking place in other areas. In December 2017, Bank Indonesia, Bank Negara Malaysia and Bank of Thailand, announced the launch of a local currency settlement framework. This follows bilateral MoUs signed in 2016, by their Central Banks. The initiative seeks to encourage a wider use of their local currencies, the Rupiah, Ringgit and Baht respectively, to facilitate and boost trade and investment in these currencies.

ASEAN is also aiming to reinforce the financial sector's global credentials by adopting ISO 20022, which is a standard for electronic data interchange between financial institutions, including payment transactions, securities trading and settlement information, credit and debit card transactions. This move is part of preparing for the domestic payment systems for bilateral multilateral linkages within ASEAN by 2025.

Message from Pierre Veyres

Regional Head for South East Asia and CEO Singapore, BNP Paribas



Pierre Veyres

This year, BNP Paribas celebrates its 50th anniversary in Singapore. And it is right here that we first established our presence in Southeast Asia. As the country has transformed from a new nation to global hub, we are humbled to have played a role supporting its development and that of the region.

An international banking institution, BNP Paribas has its beginnings in Europe, but it also has strong roots in Asia Pacific where we have been serving the business and wider community for more than 150 years.

We have evolved alongside Southeast Asian companies and the local communities, and have built a strong and long-standing franchise across Singapore, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. Today, we help individuals, corporates and institutions to achieve their ambitions with diversified offerings across capital markets, corporate and institutional banking, private banking, asset management and insurance.

We continue to bring the depth of our global network, on-the-ground local expertise and integrated business solutions to connect our clients in ASEAN with opportunities within the region, our home markets in Europe and beyond, enabling strategic investment and the flow of capital into and through the region.

At BNP Paribas, we see sustainable finance as a strategic enabler of growth not only for our own business, but for businesses everywhere – both established and those innovative areas that are building tomorrow's world. As ASEAN faces a period of rapid transition and economic development, we are proud to act as a bridge, connecting sources of capital with corporates who require it to finance their sustainable growth.

With more than 2,500 employees in the region serving our clients, our staff are also making a real difference to communities through our long term partnerships that see our employee volunteers work directly with hundreds of economically disadvantaged children and families every year.

We've come a long way over the past 50 years and are excited about what the future holds. We look forward to continuing the "BNP Paribas Story" here and to playing our role in building the ASEAN of tomorrow.

Yours sincerely,

Pierre Veyres, Regional Head for South East Asia,
Chief Executive Officer, Singapore, BNP Paribas

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Interview with Sanjay Ahuja, CFO and Director of Indorama Ventures



Sanjay Ahuja

1| With its beginnings in Southeast Asia, Indorama Ventures is now a major global intermediate petrochemicals producer. How does a banking partner like BNP Paribas help you achieve your aspirations?

Banking relations are crucial when acquiring assets as we have done in Asia, the Americas and Europe. In ASEAN, we have assets in Indonesia, the Philippines and Myanmar. BNP Paribas has been our banking partner since the acquisition of our Denmark FiberVisions plant in 2012, and we hold the bank in high regard for our finance needs, especially acquisitions in Europe. We are now the world's largest PET producer, with major shares of the North American and European markets, and a substantial position in Asia. Naturally, BNP Paribas' global network ensures that we have both a central contact point and an abundance of local experience. The "Indorama Ventures' way" of seeking long term strategic partnerships thrives with BNP Paribas, which offers one-stop solutions regardless of geography, which sets it apart. Over time, the bank has developed a deeper understanding of what we do and offers a seamless and uniform approach to doing business.

2| Indorama Ventures' relationship with BNP Paribas started in Thailand. How has your banking relationship evolved?

As we developed a rapport, BNP Paribas has partnered us in arranging factoring and financial services in China, the UK, Denmark, Spain, Turkey and Thailand. The bank understands our business requirements and provides

solutions which fit well with our needs. As a global player, BNP Paribas supports us and our subsidiaries on the world stage.

3| To better partner you in your ambitions, what would you expect from a global banking partner such as BNP Paribas?

Our strategy is to grow our business geographically to create customer intimacy as a go-to vendor in all regions. While we are always seeking to achieve our vision of being a world-class company making great products for society, we also target one day being in the top 20 of the world's largest chemical companies. Our strategy is to use acquisitions to achieve this, requiring regular investment, which BNP Paribas supports. By partnering with a trusted, global bank, we are assured of access to funds and financial services that support our global aspirations.

4| Sustainability has been a big theme for Indorama Ventures. How is it important to your business and strategy?

Sustainability means being an ethical and a positive contributor to society. We will reduce our carbon footprint over time following the Paris Accord, increase recycling of PET and hope to create a sustainable economy. To achieve this, we want partners who are passionate about sustainability. BNP Paribas has recognised expertise in this space and is contributing to the development of sustainable finance in this region, including through a recent interesting breakthrough in the project bond space in Indonesia.



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Building a partnership for success in the ASEAN-UK corridor

John Carroll, Head of Product & International Business, Santander Corporate and Commercial
Sam Cheong, Managing Director and Head of Group Foreign Direct Investment Advisory, UOB



John Carroll



Sam Cheong

The Association of Southeast Asian Nations (ASEAN) region represents a huge business opportunity for British companies, including small and medium-sized enterprises (SMEs), looking globally for new customers. Similarly, the United Kingdom (UK) market provides an excellent base for ASEAN businesses to expand into Britain and the rest of Europe.

In 2016, exports from the UK to Belgium amounted to £15.9 billion compared with £11.8 billion of total exports to Indonesia, Malaysia, Singapore and Thailand combined¹. However, by 2025, ASEAN is expected to be home to nearly 125 million middle-class consumers. By 2030, the forecast is 66% of the world's middle-class, up from 28% in 2009². Critically, ASEAN is predicted to be the world's fourth largest economy after the US, EU and China by 2030³. If UK businesses don't capitalise upon this potential now, the missed opportunity could be apparent in the future⁴.

The launch of the Santander UK and United Overseas Bank (UOB) joint initiative, the ASEAN-UK corridor, could offer customers access to bank and non-bank connections to help them seize such opportunities. UOB and Santander

have a long-standing relationship and could help companies at both ends of the corridor expand their business.

Charting the challenges

Some British SMEs considering ASEAN may be concerned about taking their first steps for several reasons:

- Understanding language, cultural and diversity issues – while many business dealings can be conducted in English, each of the 10 ASEAN countries have their own local languages. Similarly, the cultural, political and economic mix of ASEAN varies extensively.
- Establishing a reliable supply chain management – geographically, managing logistics both within the region and between the UK can be extremely challenging. Building robust supply chains throughout ASEAN requires local expertise and significant resources.
- Finding trusted local partners – using on-the-ground expertise and experience may overcome many business expansion challenges in ASEAN, but identifying the right and trusted connections to build strong relationships with them is not straightforward.



Global and Asian companies will need to embrace internationalisation to improve competitiveness. The Santander - UOB relationship offers local expertise to global SMEs looking for opportunities within the ASEAN-UK corridor.

Sam Cheong, Managing Director and Head of Group Foreign Direct Investment Advisory Unit, UOB



- Navigating sector-specific regulations – businesses in different industries operating within ASEAN can face local and sector-specific regulatory restrictions, with an inconsistent approach to the regulation of products and services and foreign direct investment (FDI).
- Managing regional cash – exporters need services to facilitate payments and manage currencies. Without such services in place, it will be challenging to operate effectively in the region.

Identifying the solutions

These hurdles sound daunting, but the expertise within the Santander and UOB ASEAN-UK corridor could offer ways to overcome them. Santander's International Desk network covers 15 key markets worldwide with multilingual teams offering tailored support. In 2011, UOB established a dedicated FDI Advisory unit to assist global and Asian businesses in expanding their operations beyond their home country. Since its inception, UOB's FDI Advisory unit (comprising of nine FDI centres in Asia) has provided financial solutions to close to 1,600 companies as they expanded regionally.

For UK exporters, the initiative provides an entry point to UOB's ASEAN banking franchise and market expertise. It also offers an introduction to trade and investment government departments, trusted business associations, chambers of commerce, and specialist law and accounting firms. This ecosystem of strategic partners could provide an invaluable support structure for businesses with ambitions to tap into new growth markets.

The initiative represents an important step towards developing a global network for SMEs as they explore sector-specific opportunities and trade with other leading economies. The Santander and UOB ASEAN-UK corridor looks to enable SMEs to seize the best of those opportunities in ASEAN, the UK, and the EU.

For more information, visit us at:

UOB: www.UOBGroup.com/FDI

Santander: www.santandercb.co.uk

¹ Office for National Statistics: see <https://visual.ons.gov.uk/uk-trade-partners/>

² UOB Global Economics and Markets Research: see <https://www.uobgroup.com/assets/pdfs/investor/financial/2017/uob-presentation-feb-2017.pdf>

³ Ministry of Trade and Industry Singapore: see <https://www.mti.gov.sg/NewsRoom/Pages/Speech-by-Minister-Lim-Hng-Kiang-at-the-Singapore-Business-Federation-ASEAN-Conference-2017.aspx>

⁴ KPMG: see, <https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/09/forging-ahead-asean-report.pdf>

Driving progress through partnership in **ASEAN**

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Trade liberalisation in ASEAN

Barry Stimpson, Managing Partner, Reed Smith, Singapore



Barry Stimpson

Sustained economic growth over the last several decades has fuelled ASEAN to become one of the world's most dynamic regions. Investing in ASEAN speaks to Barry Stimpson, Managing Partner at international law firm, Reed Smith, Singapore, about trade liberalisation in the region.

Can you briefly talk about Reed Smith's background, particularly in the Southeast Asian region?

We are a global law firm with 1,700 lawyers working across 27 offices, four of which are in APAC. Our Singapore office is strategically positioned to enable us to advise clients conducting business in Singapore and elsewhere in Southeast Asia.

In 2016, we launched a Formal Law Alliance (FLA) with Singapore law practice, Resource Law LLC. This has significantly expanded Reed Smith's offering in Singapore and our ability to service our clients' legal requirements in handling multi-jurisdictional transactions, disputes, and cross-border work involving Singapore law and the Singapore courts.

As a firm, globally, we believe in driving progress through partnership; with our clients and with the Reed Smith offices

around the world. For our clients in Southeast Asia, we aim to provide them with a seamless and bespoke service that benefits from culturally adept legal collaboration across geographies. Our Singapore office offers particular strength in international trade and commodities, dry and wet shipping, trade and ship finance, energy and natural resources, corporate, international arbitration, dispute resolution, and regulatory and investigations work. Many businesses involved in international trade and shipping have chosen Singapore for their regional headquarters and are now adopting Singapore as their chosen arbitration forum. Our location on the ground enables us to act efficiently and effectively on behalf of clients who are conducting business in APAC, including arbitrations taking place in Singapore and across the region.

In your view, will China's new "Belt and Road" initiative and ASEAN's Masterplan for Connectivity be a synergy for infrastructure development?

Both of these are aimed at creating the largest platform for trade, connecting Asia with Europe and Africa. This will need large infrastructure investments and it is projected that potential projects in areas such as railways, highways, ports,

airports, power, and communications will grow as part of these initiatives. This may also promote greater competition in the region and as a result, further collaboration and mobility in human resources, skills and innovation as demand for infrastructure development increases.

In relation to China's "Belt and Road" initiative, how would you advise companies to resolve disputes?

With the growth of trade liberalisation in Asia and this initiative, cross-border transactions are becoming increasingly more common and the number of disputes arising out of these transactions will also increase accordingly. The countries involved have different legal systems, but most of them are signatories to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the "New York Convention"), which should facilitate the recognition and enforcement of arbitration awards. As a result, international arbitration is likely to be the preferred dispute resolution method in these transactions. Singapore and Hong Kong are two of the most developed and established arbitration centres in Asia and globally, and are ideal arbitration venues to resolve the disputes arising out of these matters. Our firm is well-positioned and has a strong track record in assisting clients on various international trade matters, commercial disputes and arbitration cases in Singapore, Hong Kong and Mainland China.

How would you advise companies managing risks arising out of pre-contract agreements?

Before entering into any joint venture or sale and purchase agreements with foreign enterprises, PRC enterprises often execute pre-contract agreements in order to deal with the costly due diligence arrangements and the negotiation process. The common pre-contract agreements include heads of terms, memoranda of understanding, comfort letters, and pre-contract protocols, among other things. Even before a final agreement is reached, legal disputes and risks may arise out of these pre-



contract agreements. Reed Smith has extensive experience in preparing and reviewing various such agreements for our clients to protect their interests against the legal risks referred to above, including exclusivity agreements, breakup fee agreements and standstill agreements.

How might the legal and regulatory landscape of ASEAN countries evolve as a result of improved global trade flows?

With liberalisation and the opening of barriers, policies that make an economy open to trade and investment from the rest of the world and ASEAN would be needed for sustained economic growth. How countries in the region (especially economically developing ones where the rule of law is also still developing) respond to accommodate these policies, may result in some robust development of jurisprudence and regulation.

At times Southeast Asia can seem like a patchwork of regulatory requirements for fund managers and investors. Is the integration of ASEAN capital markets a realistic goal?

Yes, governments across the region understand that in order to succeed, they must make progress towards improving capital flows between their



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member countries and increasing opportunities for investors. But to do so requires regulatory harmonisation. There is a recent success story on this front. Back in 2009, the ASEAN Finance Ministers endorsed a broad plan for regional capital markets integration. Four years later, financial regulators in Malaysia, Thailand and Singapore launched the ASEAN Capital Markets Forum to study cross-border offers to investors. The years of study are finally bearing fruit and on 23 February 2018, the Collective Investment Schemes (CIS) took effect. The three-country system allows fund managers to offer a wider range of fund products to investors, lowers the qualifying criteria so that smaller funds (US\$350 million) can participate and shortens the time-to-market launch of funds by requiring action on authorisation within 21 days. It is a true success story and an important step towards broader regulatory harmonisation of ASEAN's capital markets.

Corporate Overview

About: Reed Smith is a dynamic international law firm, dedicated to helping clients move their businesses forward. Its long-standing relationships, international outlook and collaborative structure make it a go-to partner for speedy resolution of complex disputes, transactions, and regulatory matters.

In 2016, Reed Smith in Singapore entered into a Formal Law Alliance with Singapore law practice Resource Law LLC.

No. of offices: 27 globally, four in APAC

Employees: +1,700 lawyers

Specialist sectors and practice areas in ASEAN: shipping, energy & natural resources, corporate, litigation, global regulatory enforcement and international arbitration.

Barry Stimpson, Managing Partner, Singapore has more than 23 years' legal experience and is recognised for his work in the shipping, international trade, and offshore energy sectors. He has been based in the Far East since 1999 and has worked in London, Hong Kong, Singapore and Sydney. He was a founding partner of Reed Smith's Singapore office when it was established in 2012, and became the Office Managing Partner in 2016.

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Immigration and an employer's duty of care

Sandip Bhandal, Director, Asia, Berry Appleman & Leiden Asia Pacific



Sandip Bhandal

“Duty of care” is a hot topic these days among corporate watchwords, but has typically only been considered in terms of the duty toward workers in their home country. The increase in global travel and operating a mobile workforce raise new questions about the corporate duty of care for employees placed in far-flung destinations. The nuances of immigration rules that differ widely from country to country even within the Asian region, pose unique risks for mobility managers and C-suite executives implementing travel and mobility policies. This article highlights a few salient immigration trends that can trigger not only a duty of care toward employees but also broader liability concerns for employers.

The risky business of business visas

The misuse of business visas, visas on arrival and tourist visas are common violations that companies are only beginning to realise can lead to serious consequences. Almost all countries strictly limit the activities that are allowed on business visas and anything outside of those designated activities are considered “work” that require a

work permit, sometimes called an employment pass, work pass or work visa. Due to business schedules or urgent travel needs, companies and employees might be reluctant to complete the lengthier work permit process and rely instead on business or tourist visas which typically take only a few days to obtain. Human Resources (HR) managers too often incorrectly assume that just because an employee will be visiting a country for a short stint, such as under 30 days, they are in compliance with the legal terms of their visa.

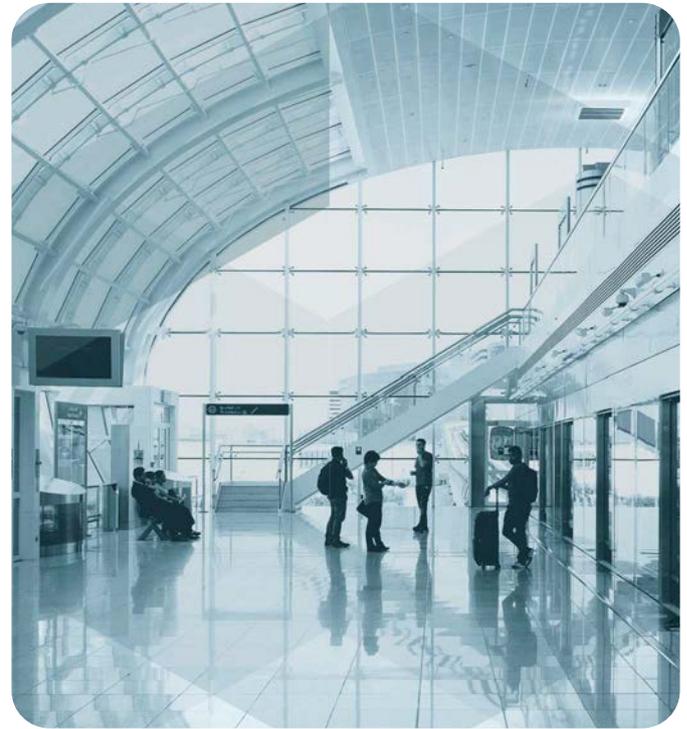
Business managers who have become complacent about relying on business or tourist visas for work activities without repercussions should think again. “In many Asian countries where regulations can quickly change and the judicial system can be unpredictable, immigration compliance is an absolute must,” says Christina Karl, Managing Director for BAL’s APAC practice.

Many countries are focusing much closer scrutiny on business travellers and whether they are skirting work permit regulations. According to a recent survey co-conducted by BAL, in the past year, 90% of companies

surveyed say their employees have seen increased scrutiny at borders, and 37% of companies report that their employees have been turned away at the border. India and Indonesia are two examples of Asian countries that carefully curtail the definition of permissible business activities, yet government agencies and consular missions can provide inconsistent information about which activities are permissible on a business visa. Changes to rules often occur at the ground-level in the form of stricter border inspections or discretionary decisions rather than through well-publicised policies, and companies should stay well-informed of changes on the ground in any country to which they send employees. The consequences can entail more than simply a fine and sending the employee on their way. Travellers may not only be denied entry and forced to take the next flight out – they can also be detained for conducting impermissible activities in violation of their visa terms. In some Asian countries, such as Indonesia, Malaysia and Singapore, legal penalties can be harsh. Civil lawsuits have been brought against companies by employees who have been detained and threatened with caning for overstaying their visas or working without the proper documentation.

Unauthorised work

Immigration is a notoriously complex area of law and the procedures for obtaining work authorisation require a high level of expertise. Employees who are left to navigate a host country's rules on their own can quickly run into legal trouble. Working without a valid and appropriate work authorisation can subject an employee to being banned from re-entering the country, and the company may be restricted or entirely stripped of their privileges to sponsor foreign workers. Additionally, immigration policies and procedures often vary across jurisdictions within the same country. In China and India, authorities at the provincial or state level often



set their own immigration requirements based on local needs, and the eligibility criteria, application procedures and local police requirements can differ widely between, for example, Shanghai and Hangzhou or Chennai and Bangalore.

Employees may be tempted to begin work as soon as they land in the country – and companies may pressure expatriate workers to do so – but some countries have mandatory in-country procedures to be completed before a foreign employee is authorised to work. A foreign national who arrives in China on a work visa, for example, might be under the false impression that they can work immediately based on their visa status, but in fact they must finalise their work and residence permit formalities and be granted the permit before starting work. Foreign

employees who are visa-waived to the host country owing to their nationality may also be lulled into thinking that they may begin work once they enter the country, but across Asia (and most of the world), work activities are generally prohibited on a visa-waiver, and the employee must be issued a work permit or approval letter before working, even if they are in the last stages of work permit procedures.

Many countries also have strict registration requirements for foreign workers and are stepping up efforts to track the whereabouts of foreign residents. India requires that foreign workers (and all foreigners intending to stay longer than 180 days) register with the Foreign Registration Office within 14 days of arrival. In China, foreign employees must register their address and BAL has recently observed stronger enforcement around verifying that employees have registered and are indeed residing where they indicated on their registration. There has also been an uptick in worksite visits and surprise audits, especially in Shenzhen, where authorities check identity documents and permits for all employees.

Stronger localisation regimes

An undeniable global trend in immigration policy is the protection of local workforces through various regulations aimed at restricting foreign workers and encouraging or requiring companies to hire local labour. Singapore is a prime example of this trend. Increasingly, the Ministry of Manpower (MOM) is placing a heavy focus on the number of foreign workers, the ratio of local to foreign employees, the hiring and recruitment practices of companies, and protecting the Singaporean “core” of the workforce. Employers who sponsor foreign workers in Singapore are now required to answer detailed questions about whether

they gave “fair consideration” to Singaporean job candidates before hiring a foreigner.

Global mobility managers need to be mindful of their compliance obligations regarding hiring practices and be able to document their recruitment procedures. This may include, for example, documenting the number of Singaporean candidates the employer considered for a position, whether they were contacted or interviewed, and why they were rejected for the position. MOM recently announced that 500 companies have been put on its watchlist of noncompliant companies, though some have since been removed. Companies that violate “fair consideration” hiring rules may be prevented from applying for work passes unless they improve their ratio of local to foreign workers.

In addition to tightening the rules around job advertising and hiring local workers, MOM has significantly ramped up enforcement action, including prosecutions, for misstatements that employers make on work pass applications. Employers and their employees face significant fines and criminal prosecution for violations such as providing false salary declarations on work pass applications or providing misleading information about the type of work or other terms of employment.

Conclusion

The scope of companies’ duty of care has widened dramatically as the global economy has expanded and dispatched employees into remote corners of the world. Immigration rules are particularly complex and subject to local political winds, making it imperative that HR managers stay up-to-date on the immigration laws of host countries and seek counsel by experienced immigration professionals at every stage of the process.

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Tapping into ASEAN growth through innovative mergers and acquisitions

Wolfram Hedrich, Marsh & McLennan Companies Executive Director at the Asia Pacific Risk Centre



Wolfram Hedrich

Rapid economic growth in ASEAN and the nascent nature of many of its industries make the region an enticing investment destination for foreign companies; and mergers and acquisitions (M&A), is emerging as a commonly used route to enter the ASEAN market.

This is because M&A can offer foreign companies a smoother entry, with local players instrumental in helping disentangle the complexities of launching an ASEAN strategy. However, proper preparation and planning are required to implement this strategy successfully.

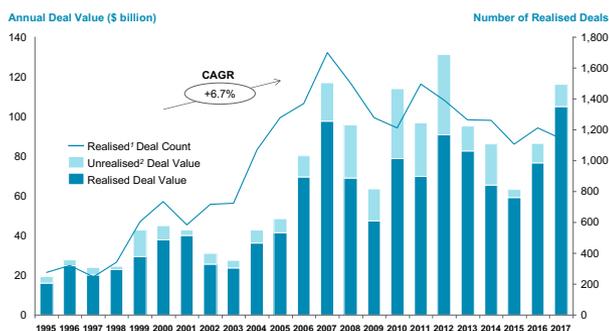
The ASEAN Attraction

For companies seeking growth, ASEAN is an attractive destination. With a population of 650 million and a combined GDP of US\$2.7 trillion, the region's increasingly interconnected economies continue to grow. ASEAN is home to a swelling population of affluent youth – one-third of the population is aged below 34 – and the region's per capita GDP has been growing at a CAGR of 3.5% since 2012.

Direct greenfield entry by foreign companies into ASEAN, however, is not without its challenges. ASEAN's regulatory environment is layered and complex, and is often further clouded by local idiosyncrasies in business relationships, distribution models, and brand preferences. These uncertainty drivers often frustrate and slow down market entry, pushing firms to look for newer methods to access the region.

Fueling the appetite for quicker growth in the region, the outlook for cross-border and intra-ASEAN M&A transactions is positive (Figure 1).

Despite being a strategic tool for entering the growing ASEAN market, M&A have their own set of inherent risks, often relating to regulations, inconsistency of bureaucratic processes, possible foreign ownership restrictions and the heterogeneity of ASEAN markets. As such, achieving strong returns on investment is not always easy for foreign investors. In 2012, for instance, the value lost to unrealised transactions made up more than 30% of all potential deal value in ASEAN (Figure 1).

Figure 1: Growth trends of M&A investments in Southeast Asia

Source: Asia Pacific Risk Centre (APRC) analysis of Dealogic dataset
 1. Realised deal refers to M&A transactions that are completed, pending, or already under preliminary discussions
 2. Unrealised deal refers to transactions that are rejected, withdrawn, offer expired, or simply not pursued for various reasons

Implementing a successful M&A strategy in ASEAN

Despite the risks, M&As in ASEAN can still be an extremely high-yield investment if managed correctly. We see three key success factors through which companies and investors can make M&A deals work.

1| Partner right

Finding the 'right' partners is crucial in a cross-border M&A transaction. Partnering with reputable local partners, and ensuring alignment across long term growth objectives, values, and professional passion, are key. Strengthening partnerships in the region by expanding local relationships beyond the conventional pair to a three-party agreement has also proven to be a powerful strategy.

A recent example of a 'right' relationship is the Ayala-Globe partnership with Ant Financial, closed in September 2017. Apart from tapping into the scale and expertise of Ant Financial, and Ayala being one of the Philippines' largest conglomerates, all three partnering organisations also share a common vision to promote financial inclusion among underserved Filipinos.

2| Overcome risks early

• Strategic risks

M&A is risky business. It is best to begin with an aligned and well-developed inorganic growth strategy, with clarity on the unique values which each partner can bring. The following are three key questions that should be addressed early among all involved parties:

- How will capital contributions (for example, money or assets, upfront and subsequent) and expertise (such as technical and professional) be shared?
- How will the governance structures and principles (for example, board membership, daily management and decision-making, transparency and periodic reporting and the like) be defined?
- Are the collective objectives and incentives well-aligned (like financial compensation packages, management KPIs and time horizon)?

• Transactional risks

The entire M&A deal process, from strategising to planning and execution carries complex risks. Hence, an in-depth risk and insurance due diligence review should be undertaken to determine the type and scope of existing risks and liabilities, thereby allowing the respective parties to outline and prioritise the risk exposure early in the transaction phase.

For each risk type, mapping out plausible options to either reduce the risks (like contractual terms and flexible timing) or transfer them to insurance companies or capital markets (such as Transaction Risk Insurance) is recommended. This is especially necessary in cross-border transactions across ASEAN where counterparties tend to be individuals or less-sophisticated companies. The complexity of the legal, finance, and tax systems across ASEAN also makes getting the appropriate and adequate protection on M&A warranties in the region particularly crucial.

• **People risks**

According to research from Mercer on people risks in M&A transactions globally, employee retention and cultural fit are the top two perceived risk issues in M&A transactions.

In a recent case where a Japanese Multinational Company (MNC) acquired an engineering and construction firm in Southeast Asia, the main challenges identified by the Japanese MNC were retention of key management staff of the target company, and contrasting national and corporate cultural differences, which resulted in significantly different compensation packages and designations.

With these people risks identified early in the M&A transaction process, the Japanese MNC immediately worked on practical human resource interventions, such as a transition plan to bring all employees across both organisations into a consistent salary structure, as well as appropriate retention bonus schemes for key employees from the target company. Harmonisation of cultures is often the most challenging dimension, and it began with getting the leadership teams aligned around a shared vision and mission, coupled with a series of ‘culture and performance’ sensitisation interventions, both in-person and virtual, to bring the workforce of the two entities together around a shared purpose. A long term change management roadmap and people-risk mitigation plan was drawn-up using predictive analytics to address the longer term impact of the transaction.

3|Think long term

As a strategy enabler, M&A provides massive opportunities depending on what the various objectives are: growth for economies of scale, deeper market penetration, or new market entry, to name a few. However, foreign investors need to think beyond these short term quick wins – often thought to be maximising efficiency gains or managing the people risks within the target company – to fully integrate it into the global business to increase overall competitiveness and improve profitability.

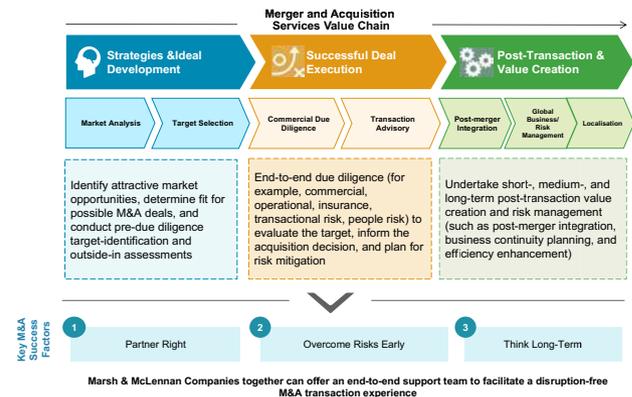
As such, besides looking to address the near term business continuity and stability immediately after the transaction is completed, such as that expressed in a 100 day plan, M&A target companies will also require action plans towards aligning business models, strategies, and talent management with that of the foreign investor, to ensure successful integration and sustainable growth.

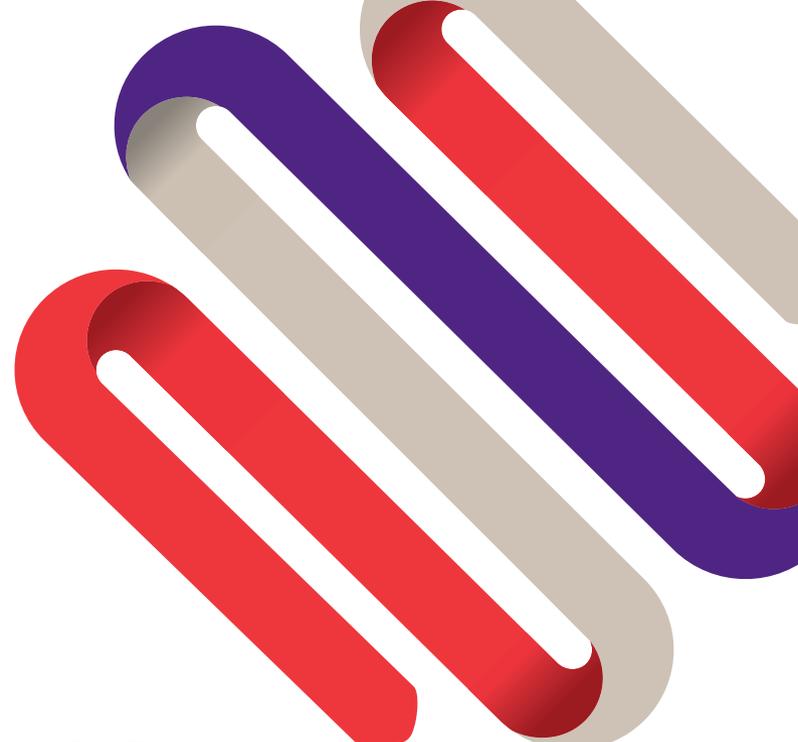
Cross-border M&A forays into ASEAN must therefore be cognisant of two requirements: localisation with respect to the domestic market, and an inorganic integration into the foreign entry organisation. Both fronts must be given equal energy for ASEAN M&A synergies to be maximised.

Enabling growth strategies with the right team

From finding the right partners and overcoming risks early in the M&A process, to providing the long term perspective to fully localise and integrate with the global business, the Marsh & McLennan Companies together offer an end-to-end M&A support team. Our M&A leaders offer expertise across the transaction lifecycle and can facilitate a disruption free experience, while tapping into the developing growth market of ASEAN.

Figure 2: End-to-end M&A value creation





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(2017 revenue)



50,000
people



700+
offices



135+
countries

NB: 'countries' refers to where Grant Thornton has a physical presence

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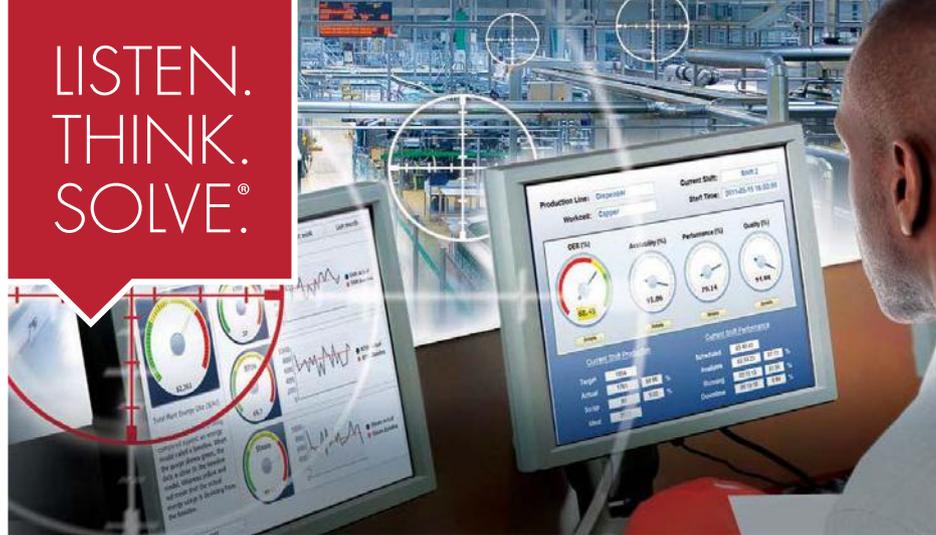
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Manufacturing is focusing on high technology ventures

Southeast Asia has become the world's fifth largest manufacturing economy, which until recently has been founded on a low cost production environment that has attracted thousands of foreign companies.

In recent years, this lure has been illustrated by a growing transfer of labour-intensive manufacturing activities from higher cost locations in Asia to ASEAN countries, particularly from multinationals seeking a lower cost base than China for example, where labour costs can be four times as high. This movement has especially benefitted Cambodia, Lao PDR, Myanmar, Vietnam and Indonesia and has served to boost domestic production networks in these countries.

Vietnam in particular, has made great strides as a manufacturing hub, with a growing number of producers relocating from China. Manufacturing now accounts for 25% of Vietnam's GDP, with the country emerging as a regional leader in low cost ventures.

During the first half of 2017, most ASEAN countries experienced double digit growth in their merchandise exports. Vietnam saw an increase of almost 19% in its total merchandise exports, the Philippines 18%, Myanmar 17%, Indonesia 15.3% and Malaysia 12.9%.

Economic integration is a factor that is helping development of the manufacturing sector. There has been almost a complete elimination

of tariffs between Indonesia, Malaysia, the Philippines, Singapore and Thailand, which is a major incentive for long term investment in the region.

As a consequence, regional supply chains are becoming well established. In Cambodia, Japan's Denso opened a US\$19 million second factory in 2016, to produce magnetos and oil coolers for its subsidiary in Thailand which supplies the motorcycle and automotive sector. In the same year, Sumitomo also set up a joint venture to supply components to its Thai based electronics plant, producing digital security cameras.

Intra-ASEAN investment rose to a record US\$24 billion in 2016, and accounted for a quarter of total FDI. This investment is underpinned by the growing financial strength and cash holdings of ASEAN firms and their increasing drive to build competitiveness and to access international markets.

Cross-border trade flows are set to deepen and accelerate as the ASEAN Economic Community (AEC) is successfully implemented. This will provide an opening for ASEAN members to become much larger manufacturing hubs, McKinsey believes.

Their Global Connectedness Index (MGI), ranks 131 countries tracking their inflow and outflow of goods, services, finance, data and

communications relative to the size of their economies and illustrates where ASEAN members stand in terms of integration into the global economy.

The MGI shows Singapore in first place worldwide. Several other ASEAN countries are in the top 50 with Malaysia at 20th, Thailand 22nd, Vietnam in 37th.

Many of the Fortune Global 500 companies are present in the region. A number of these have also opened R&D facilities in ASEAN states. These include Nestle, Panasonic, Nissan, Honda, Osram Opto Semiconductor, Apple and Samsung. GlaxoSmithKline (GSK) is the largest healthcare products provider in Vietnam while Singapore hosts its largest global facility for the production of amoxicillin.

In 2017, the Netherland's De Heus opened its seventh animal feed plant in Vietnam including a new R&D facility. Nestle also expanded its presence there by opening a sixth factory. Procter & Gamble also opened a US\$100 million plant to manufacture razors for export. The country is fast becoming a regional electronics manufacturing hub too, with a range of other leading technology firms located there, which include Nokia, Intel, Wintek Corporation and Foxconn.

The rise of its now extensive and growing automotive industry epitomises the region's development as a significant manufacturing location. "Thailand has been the automotive production hub for the Asia Pacific region, but it is now growing into a global hub," says Morio Owaki, Vice President at Toyota Asia Pacific Engineering and Manufacturing.

Thailand accounts for 55% of ASEAN members' vehicle production, with around 2.5 million units per year. Indonesia is seeking to reach an output of 2.6 million by 2020, more than double existing volumes. Malaysia currently produces around 500,000 vehicles a year.



Around 14 companies and joint ventures in the country employ nearly 100,000 workers. An additional 250,000 are employed by an estimated 600 companies in the components supply chain, and a further 175,000 are estimated to work in smaller scale manufacturing operations serving the country's automotive industry.

Global manufacturers such as General Motors, Toyota, Honda, Ford, Nissan, Daihatsu, Mitsubishi, BMW and Mazda are among leading companies which form the automotive industry. Indonesia is the second largest manufacturer and the Government is eager to emulate Thailand's success and become an independent car manufacturing country.

Currently the Philippines and Vietnam have low unit assembly operations measured at around 50,000 vehicles a year, but both country's are keen



The rise of its now extensive and growing automotive industry epitomises the region's development as a significant manufacturing location.



to expand production to serve their local markets, which are increasing as incomes rise. BMI Research estimates that by 2021, some 84,000 cars a year will be assembled in Vietnam as a result of new ventures from France's Groupe PSA and Korea's Hyundai.

In Myanmar, Japan's Nissan and Malaysia's Tan Chong opened a US\$50 million vehicle assembly plant, while Ford and a local partner have started assembly in a new facility with an initial US\$10 million investment. Suzuki Motor Corporation is building an assembly facility in Yangon where the company already produces mini trucks. Mitsubishi Motors has also expressed an intention to develop after-sales service centres, while Ford and Toyota are also thought to be considering entering the country.

The development of Special Economic Zones (SEZs) is already making a significant contribution to the region's industrial and manufacturing development. In particular, they are helping to provide links between domestic manufacturers with foreign investors. There are now more than 1,600 of these zones in ASEAN member states.

Thailand's SEZs have been the key to developing major export industries, especially in electronics and vehicles. The same formula is being followed in Myanmar. After two years of operation, Thilawa SEZ near Yangon had by May 2017, attracted 81 companies employing 15,000 people.

Cambodia's 16 SEZ's have generated more than 300 investment projects valued at US\$2.4 billion. In Malaysia, Free Industrial Zones that focus on export activities were estimated to have attracted US\$37.3 billion of foreign investment by the end of 2016. KLIA Aeropolis was opened in 2016. The development is located within Kuala Lumpur's International Airport area and includes a manufacturing free zone. Senai Airport City in Johor is also developing a manufacturing zone that is due to open in 2023.

Indonesia, the Philippines, Thailand and Vietnam have also developed Export Processing Zones (EPZs). These provide a specialised industrial estate outside the customs territory of the host country and are mainly oriented to export manufacturing. Vietnam, Thailand, Cambodia, Lao PDR and Myanmar also have SEZs located in border areas. Indonesia has plans

to develop 13 new industrial estates over the next seven years, in an effort to facilitate job creation and boost regional development throughout the archipelago.

The region is experiencing a steady expansion of ICT production, reflecting that it now accounts for more than a tenth of the world's electronics manufacturing. In Vietnam, ICT ventures comprise 25% of FDI and in Malaysia 20%.

Malaysia is seeking to enhance development through its Economic Transformation Programme to encourage an innovation based expansion. Malaysian output is already expanding from electrical and electronic components to high end consumer goods, photovoltaic cells, modules and ICT products, which now make up a third of the country's total exports.

This route is also favoured in Singapore, as both countries strive to accelerate manufacturing along the value-added chain. It's advanced infrastructure and high quality human resources have attracted more than 30 of the world's leading life science companies. GSK, Abbott, MSD (Merck), Novartis, Pfizer and Sanofi Aventis have invested more than US\$4 billion, making it a global manufacturing base.

The number of international companies establishing a base continues to rise. The US' Amgen has set up a US\$142 million bio-medical facility

at Tuas Biomedical Park (TBP). Another US company, AbbVie, is investing US\$320 million in a manufacturing complex there, to be completed in 2019. The Jurong Innovation District is due to be completed in 2022, and will be home to advanced manufacturing, robotics, clean technologies and smart logistics.

According to a World Economic Forum analysis, the "Fourth Industrial Revolution" is re-writing the rules of manufacturing with "disruptive technologies such as artificial intelligence and big data analytics transforming global production systems." The impact will be felt by ASEAN countries, which it says "will need to quicken the pace of their transformation or risk losing manufacturing investments. As automation gathers pace and its costs plummet, cheap labour will no longer remain a sustainable and effective strategy for attracting investment in manufacturing."

The stakes are high for the region since a continuing expansion of manufacturing will have beneficial effects on employment and living standards. A study conducted by the Asian Development Bank and International Labour Organisation, estimates that up to 14 million new jobs could be generated within ASEAN by 2025. A sound industrial strategy will be key, focused on technology transfer or capacity development in terms of product design, engineering and development in promising industries.



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The battle for automotive supremacy in ASEAN - A perspective on Indonesian domestic policy

Douglas Cassidy, Country Head - Indonesia, Ipsos Business Consulting



Douglas Cassidy

Asia 2030: many more cars...but quiet, clean and efficient

In a future world – maybe not too far in the future – driverless vehicles with electric power trains will whizz around the great cities of Asia, picking up passengers who book via retina scan or a swipe of their thumb from apps embedded in their personal communication devices. Some people in these cities will continue to desire actual personal ownership of a car. Some might even still use the internal combustion engine, in the same way some people still buy vinyl ‘records’ for listening to music: because they like the sound.

What remains constant?

In this very different automotive world, some things will stay the same. As the industry grapples with the fundamental changes in their business models created by the need to fully integrate technology into how cars work and behave (instead of just adding an engine management or sound system), and as automotive companies morph towards being technology companies

and vice versa... one thing remains constant: they will need to build the vehicles. They will need to build lots of them. They will need supply chains, economies of scale and supportive state structures.

Indonesia: the trend is your friend...for now...

Indonesia has made steady progress over the past decade in building its automotive production capacity. It is now the main challenger within ASEAN for Thailand’s crown as ‘automotive hub’, and could conceivably overtake Thailand in the 2020s, although indications are that the production gap between the two countries will close rather slowly. Given that ASEAN aspires to being a true single market, which in theory would make manufacturers choose location without concerns about trade barriers, and given that automotive production is an activity best achieved in large centralised facilities, Indonesia cannot be complacent.

Policy drivers

The key areas where supportive policies are crucial, relate to labour and skills supply, export infrastructure, ease of importation for supply chain materials and technology,

stability of the political environment and the overall ease of doing business. For the latter, Indonesia has been making some headway, rising from 120 in 2014 to 72 in 2018, in the World Bank's 'ease of doing business' index. It still lags a long way behind Thailand's 26 ranking.

A further key element is the role of government in stimulating demand in the economy, and in particular the demand for vehicles. A key competitive advantage for Indonesia over Thailand with respect to potential domestic demand is the sheer size of the country's population: around 40% the residents of ASEAN are Indonesian. For any manufacturer with a production base in the country, therefore, there is a huge local market in which to build baseline volume. Also, the current ownership statistics indicate substantial growth potential, at 76 motor vehicles per 1,000 people compared to Thailand's 221. This low current level of penetration is attributable to several things, but per capita income is undoubtedly a factor: with Indonesia at US\$3,600, well below Thailand's US\$5,900, many Indonesians simply cannot afford the acquisition and maintenance of a car. In the larger cities, motorcycles remain a more practical choice for many not only for reasons of cost, but because simply getting around Jakarta in a car can be extremely difficult due to the inability of the road system to cope with current vehicle volumes.

Income – and disposable income – is expected to rise substantially in the medium term, with the 'consuming class' population in Indonesia forecast to rise from 67 million people in 2015, to 88 million by 2020. As Indonesians increasingly move up the affluence curve they will expect the comfort of car transport rather than motorcycles.



Public policy and stability as a source of competitive advantage:

How can government play a role in ensuring the growth of demand for new vehicles? One scheme, the Low-Cost Green Car (LCGC) initiative, has had some success but questions have been raised as to whether the impact could have been much greater if it had been specifically targeted at achieving a desired price/taxation outcome, rather than the other aspects brought within its remit such as the proportion of locally-sourced parts. Could the government influence price at the greener end of the spectrum in a simpler way? Also, are LCGCs practical outside the cities, given road conditions? Could the overall cost of car ownership be lowered, with policy directed more towards controlling car usage and congestion?

Indonesia benefits from a stable political climate, with the post-Suharto consensus continuing to favour economic decentralisation, national unity, democratic elections and, particularly recently, sustained and coordinated attempts to improve the infrastructure of the country. Corruption remains a problem, but at least it has become 'normal' in the political discourse

to describe it as such, and the KPK, the anti-corruption commission, has had some notable successes in recent years. Similar issues exist in many countries with automotive manufacturing capability, such as China, Brazil, India and Russia, so Indonesia is not alone.

A lot is written about improving export infrastructure and capability in Indonesia, and this is certainly important, but it is equally important to support domestic demand: this being a key differentiator between

Thailand and Indonesia in terms of growth potential. Supportive policy adjustments to this end should be a key aim of policymakers.

To read more about the ASEAN Automotive industry and download complimentary research reports, visit www.ipsosconsulting.com/asean-automotive

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Heinrich Jessen, Chairman & Per Magnusson, Executive Vice Chairman,
Jebsen & Jessen SEA



Heinrich Jessen (HJ)



Per Magnusson (PM)

1|Jebsen & Jessen SEA (JJSEA) has a long history in this part of the world. Tell us a bit about today's principal business activities of the group.

PM: We are an ASEAN focused industrial enterprise spanning manufacturing, engineering and distribution. We have seven core business units in Southeast Asia, namely:

- JJ-Lapp Cable which specialises in the manufacturing and distribution of leading German cable technology. Equipping multiple industries with innovative cable solutions and timely access to more than 3,000 cables and accessories held in stock across a network of warehouses in ASEAN countries.
- Jebsen & Jessen Ingredients which distributes 165,000 tonnes of specialty chemical and life science ingredients per year to multiple industrial and manufacturing applications. Serviced through a network of world-class, certified warehouses in nine countries, a regional hub in Thailand and eight technical laboratories, the team provides technical expertise and extensive product portfolios to help companies in creating better products and solutions to meet market demand.
- JJ-Lurgi Engineering which offers up-to-date relevant technologies and engineering services in the oil & fats, oleochemicals and biodiesel industries through design solutions and optimising resource utilisation to create efficient processes that factor in the impact of the plant on people and the environment.

- MHE-Demag which engineers, manufactures and services material handling products, including cranes, hoists, explosion proof lifting equipment, warehouse trucks, dock levellers, rail systems, car park systems, electrification systems and building maintenance units.

- Jebsen & Jessen Offshore which specialises in electrical products and solutions for the international energy sector and is one of the world's largest stockists and distributors of offshore and marine cables.

- Jebsen & Jessen Packaging which designs, manufactures and supplies a wide range of total packaging solutions from a variety of materials including foam, polypropylene, paper pulp, wood and PET

- Jebsen & Jessen Technology which engages in the distribution of a range of industrial equipment and provides complete turn-key solutions for the dry bulk, industrial services, pumps, scientific equipment and turf & irrigation industries.

2|Does JJSEA's ranking as a long-standing family-owned business in the region give the group any advantages in the traditional societies that constitute so much of Asia?

HJ: I think because JJSEA is a unique family-owned business, which brings together the best of private management and family values, we are able to position ourselves as a sustainable and environmentally focused company that takes a long term approach in its activities.

We are focused on embedding our corporate values of Trust, Entrepreneurship, Prudence, Commitment and Partnership into the company culture – and this has served us well.

As with doing business in any part of the world, people must trust a company and business partner – and our history and the reputation we have built has helped us form strong and rewarding partnerships.

Our exceptional abilities to establish generation-long partnerships gives us the advantage. This is reflected in many of our 50:50 joint ventures, such as MHE-Demag (with Demag Cranes and Components), JJ-Lurgi Engineering (with Air Liquide Global E&C Solutions) and JJ-Lapp Cable (with Lapp Group Asia).

3|What characteristics have led to JJSEA's business longevity and success in the region?

HJ: We have an unrivalled understanding and appreciation of ASEAN markets and are able to leverage both back office and frontline economies of scale in our operations. We are able to deliver the same high value to our customers regardless of where they are located across the highly diverse markets of ASEAN.

A commitment to maintain a flat organisational structure and decentralised decision making, also ensures that all our businesses in the region can adapt to the diverse and different market needs quickly. We have invested in human capital and tools to develop our sales effectiveness, while building and sustaining a high performance corporate culture. We constantly work to enhance our back-office platform to ensure efficiency and effectiveness.



Broadly speaking we are focused on ensuring that a growth-oriented entrepreneurial spirit is allowed to thrive, while concurrently maintaining sound, conservative financial discipline.

4|The company has a long history of undertaking manufacturing, engineering and distribution activities in joint ventures with firms such as Lurgi, Demag, Lapp Cable and Muntons. Is the company looking at any new diversification within the region? If so, which areas are of interest and what parts of Southeast Asia?

PM: We are not a private equity firm and have a different approach.

Opportunities usually emerge within the industries that our companies are already active in and will typically have complementary characteristics. It is generally not in new industries.



In terms of countries, ASEAN remains our priority and Indonesia is currently our key investment and growth country.



However the objective remains clear, we aim continuously to move up the value chain, focusing to evolve our capabilities from agency distribution to local design, manufacturing and servicing.

We have been investing and acquiring companies that leverage our existing platform and competencies. We have acquired 14 businesses between 2010-2018. The most recent being a 50% stake in the ingredients business of our sister company Jebsen & Co in China and taking over the Phoenix Contact distribution activities in Thailand from ZI-ARGUS Ltd.

We also seek opportunities to grow organically. For example, we've invested in an Indonesian cable factory that we upgraded to produce not only for the Indonesian market, but for the whole region. Our ingredients business unit recently moved into manufacturing of malted ingredients, by forming a 50:50 joint venture with UK firm Muntons. The factory, located in Thailand, is serving customers throughout the region.

This is something MHE-Demag, our material handling business unit, has done for many years already. We are deeply involved in the whole value chain, and we also manufacture some products for our JV partner globally.

In terms of countries, ASEAN remains our priority and Indonesia is currently our key investment and growth country. We continue to focus on the ASEAN markets and constantly keep an eye on emerging opportunities for us to participate in.

5|How do you view the economic integration process in ASEAN and what effect is this development having on JJSEA's activities in the region?

HJ: We have come a lot further in terms of integration and connectivity within the region than if the ASEAN project had not started and while there is still a lot of work to be done, the AEC as it currently stands is already bringing benefits to all countries in the region. There are several examples in our own business where efficiencies have been created as a result of significant regional economic integration. Today, thanks to the AEC, we can produce our dock levellers, cables and malted ingredients in just one country and then efficiently and cost-effectively ship them to the other countries in the region.

Because each individual market can be small, but the region is big, we can share product specialists across regional markets – and leverage frontline competencies that companies without a regional presence are unable to do.

6|How does the company view the current economic environment within the region?

HJ: We believe there is a lot of opportunity in the region. All of ASEAN's economies are growing individually and the respective governments follow growth-oriented pro-investment economic policies. Given the

diverse nature of our business portfolio we are able to seize specific opportunities in each country as well as common opportunities that span the entire region.

7|There is much talk of a fourth industrial revolution driven by new digital technologies. How is this new world playing into JJSEA's corporate business plan within the region?

PM: The fast technological changes open up for a range of new business opportunities that our entrepreneurial spirit is well suited for.

We are already building automated cranes, robotic carparks and other advanced solutions for our customers. We are also keeping a close eye on AI, Internet of Things and machine learning.

Internally we have been investing in automation across our various businesses. For example, our malted factory in Thailand is almost fully automated and run by just a handful of specialised staff. We also leverage digital technology to drive our back-office efficiencies to enhance and drive our sales and support effectiveness.

8|The bulk of the company's business is located in Malaysia, Indonesia and Thailand but how are other parts of ASEAN such as Myanmar shaping up for future investment?

PM: Indonesia is a strategic focus and we are currently focusing much of our investment efforts in that country. For example, our Technology business unit recently started an ambitious Dry Bulk Handling business in Indonesia.

In the Philippines and Vietnam we see positive and strong growth markets and we are growing in these countries as well. In fact, we have started to build a new MHE-Demag factory in the Philippines, expected to be operational in 2019, in order to have the capacity available to

maintain our #1 market position there. Meanwhile in Hanoi we invested in a second factory for Jebesen & Jessen Packaging, so as to support our continuing strong growth in Vietnam.

During the past couple of years Myanmar has been the fastest growing market for us, but it is starting from a small base and we are taking an opportunistic view here that allows us to invest in activities that go beyond our regional portfolio. This is done in partnership with our partner there, the SPA group.

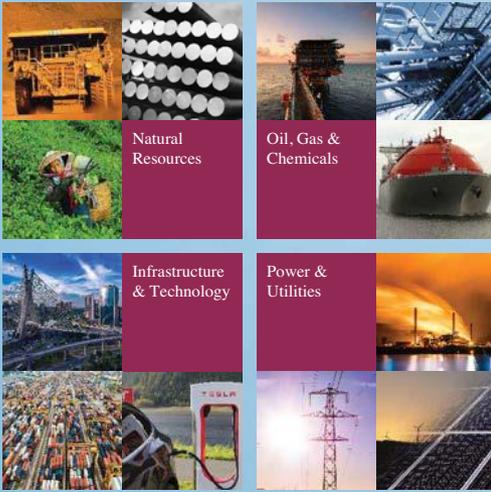
When the conditions are right, we will occasionally seize opportunities that go beyond our home region of ASEAN. For instance, JJ-Lurgi has been supporting customers in China from a Shanghai based engineering office for more than two decades and we have built oleochemical plants in countries such as Turkey and the United States. Similarly, a few years ago, our MHE-Demag business unit entered Taiwan and Australia and our ingredients business became active in China earlier in 2018, in partnership with our sister company Jebesen & Co.

9|What do you consider the main drivers for the region's development are going to be over the next few years?

PM: The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), also known as TPP11 will be a big boost for the region, along with China's One Belt One Road initiative.

The middle classes of ASEAN will continue to grow and this will drive consumption and construction.

Technology will play a big part as well, bringing more people into the financial system which will help break the poverty cycle and drive economic growth.



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Alexander Wood, Vice Chairman & CEO, AWR Lloyd



Alexander Wood

Southeast Asia is on the threshold of a wave of infrastructure and resource sector investment providing a strong platform for accelerated economic growth. To support the ASEAN region's rapid urbanisation and development at least US\$7 trillion will be needed for the infrastructure sectors alone by 2030.

Alex Wood, CEO of AWR Lloyd, a specialist strategy and corporate finance firm, explains why the region is so important: "Southeast Asia is absolutely pivotal. It is the cockpit of the world demographically, economically and geo-politically. It is where the ancient civilisations of China and the Indian Sub-Continent converge. It hosts the world's third largest labour force. And within the next ten years, Bangkok, where I am sitting now, will be within an hour or so's flight from more than half the world's consuming class."

The region's maritime heart, the South China Sea, is at the crossroads of world trade with over 50% of the world's merchant fleet tonnage already passing through it. The physical oil trade through the Malacca Strait is 3x more than the Suez Canal and 15x more than the Panama Canal. Regional ASEAN economic integration is also set to expand with intra-regional trade currently at much lower levels than in Europe and North America.

Unprecedented opportunities are opening up for international companies and investors in the oil & gas, mining and metals, power generation, renewables, ports, satellites and smart cities sectors in ASEAN. AWR Lloyd has been on-the-ground in the main ASEAN countries working with these industries for nearly 20 years. Alex Wood explains the approach: "Our focus is simple – we make sure our clients only make investments and acquisitions which generate sustainable returns to their shareholders. We provide a realistic assessment of risks and strategic insights. We are proactive in helping our clients push deals through to successful completion. Then we work to manage local stakeholder relationships to ensure results are delivered and that international standards of governance and reporting are met."

Bart Lucarelli, AWR Lloyd's Managing Director for Power & Utilities advises on investment in the power, renewables, water and smart city sectors: "The per capita consumption of electricity in ASEAN is half the world's average with an electrification rate of under 80%, leaving millions of people literally in the dark. We work with our clients to build projects that will close the gap over the next decade or so."

Southeast Asia's giant infrastructure projects begin to gain traction

ASEAN countries will need to spend US\$950 billion by 2020, if its economies are to grow and develop, according to Stephen Groff, Regional Vice President of the Manila based Asian Development Bank (ADB). Greater effort is being made to mobilise the required capital investment, allowing project starts to gain momentum over the next few years.

The commitment to spend more on infrastructure is vital to boost economic and social development through the improvement of key utility services such as power, water and transport. The IMF believes that each dollar spent on capital spending raises a country's output threefold. In particular, the need to complete transport projects is increasingly important to enhance the economies of isolated rural communities.

The Philippines President Duterte, has announced a commitment to an intensive infrastructure programme over his six year term and has declared that it will be entirely state funded. This moves away from a previous strategy of seeking PPP agreements which were seen as taking too long to implement.

A number of major schemes have been announced, including an overhaul of Manila's international airport, ports, new railways, roads and

irrigation. Flagship projects include six airport ventures, nine railways and 32 roads, bridges and four new seaports as well as power stations and flood control systems.

Construction of the initial phase of the Manila Subway Project, the Philippines first Mass Rapid Transit (MRT) system, is expected to begin towards the end of 2018. The first phase will feature 13 stations over a 25km track and connect with the capital's Ninoy Aquino International Airport. The venture, partially financed by the Japan International Cooperation Agency, is expected to cost an eventual US\$6.8 billion.

More projects moving towards commencement including a US\$240 million expansion of Clark International Airport, the Kaliwa Dam Project and Cavite Industrial Area Flood Risk Management Project, as well as the Mindanao Railway project and Luzon's planned 1,000km north-south expressway. A six lane highway is also due to be built southeast of Manila to link the heavily populated areas of Taguig and Quezon City's.

Grace Karen Singson, Head of the Philippines Department of Finance Privatisation Office, has said that the Government intends to spend around US\$158 billion, meaning that expenditure on infrastructure is targeted to

reach 7.3% of GDP by 2022. The aim sets the country's economy on a trajectory to attain upper middle income status by 2022, and high income by 2040.

The Philippines Government wants to accelerate progress in a country where a quarter of its 103 million population live in poverty as it seeks to emulate the economic and social improvements witnessed in other parts of the region.

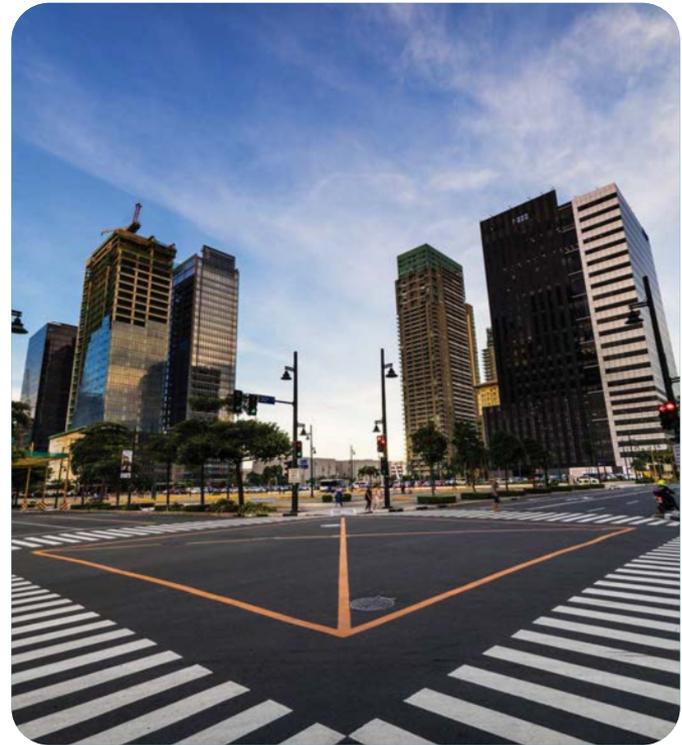
Vietnam has made considerable strides. However, having graduated to middle income status, the country with a population of 92 million, and a GDP of US\$204 billion, is no longer eligible for many of the low cost loans it previously qualified for, as a low income country from the World Bank and others. This means finding alternative financing sources for its many outstanding infrastructure requirements. In order to continue its modernisation drive, Vietnam is spending 5.7% of its GDP on infrastructure, currently the highest in the region.

The ADB says Vietnam's infrastructure requirements will need US\$480 billion up to 2030. Some of the largest projects include a 1,370km, US\$14 billion expressway running north to south. A long awaited new airport to serve the country's main commercial centre, Ho Chi Minh City, is expected to cost up to US\$16 billion.

However, some major improvements are already visible. Hanoi and Ho Chi Minh City are due to complete the first phases of their MRT systems, with a combined cost of US\$8 billion.

According to the G20 Global Infrastructure Outlook 2017 report, Vietnam will be able to meet 83% of its infrastructure needs by 2040, if it maintains current investment trends but this will still leave a US\$102 billion shortfall.

International assistance on preferential long term loans is helping accelerate improvements for ASEAN's less advanced members.



Infrastructure development in Cambodia, Lao PDR and Myanmar is likely to continue to depend on multilateral assistance.

The Philippines has decided to embark on a new route to increase infrastructure investment. An accelerated programme is supported by tax reforms that the Department of Finance expects to generate US\$15.5 billion over the next five years. As part of this, the Tax Reform for Acceleration and Inclusion (TRAIN) has raised taxes on fuel, vehicles, tobacco and sugared beverages. The Government is also expected to raise bond issues in China, Japan and South Korea.

Singapore has said it intends setting a US\$5 billion fund and examine borrowing options for state-owned companies and statutory boards such



Flagship projects include six airport ventures, nine railways and 32 roads, bridges and four new seaports as well as power stations and flood control systems.



as its National Environment Agency and Land Transport Authority, to finance waste management projects and railway infrastructure ventures.

More than US\$50 billion of Thai infrastructure projects are expected to begin in 2018, with financing from a variety of sources including Government borrowing and PPPs, according to Transport Minister, Arkhom Termpittayapaisith.

In 2016, Thailand awarded a US\$920 million contract for its elevated Red Line project in Bangkok, to a Japanese consortium of Mitsubishi, Hitachi and Sumitomo. There is a particular focus on the country's Eastern Economic Corridor (EEC) initiative, which envisages creating new economic zones in the provinces of Chon Buri, Rayong and Chachoengsao, served by new railways, airports and seaports.

Most of Cambodia's new roads have been constructed with concessional loans and grant aid from China, who have funded 2,000km of road development and seven major bridges. The Minister of Public Works and Transport, Sun Chanthol, anticipates further Build-Operate-Transfer (BOT)

contracts being signed. These would include a 190km expressway, connecting to the country's southwest coastal province of Preah Sihanouk, in addition to power and agricultural projects.

China is a major contributor to infrastructure development in Lao PDR. Projects include building a four-lane highway and a US\$1.3 billion expressway on a BOT basis by Yunnan Construction Engineering Group, as part of the first phase of a new road system to upgrade links between the two countries.

Bolstering infrastructure spending is a key Indonesian Government objective and aims to cut the costs of logistics to the economy to 19% of GDP from 26% currently. These high costs are blamed for a lack of competitiveness of local products against imports, given the vast distances between communities in the country's thousands of islands.

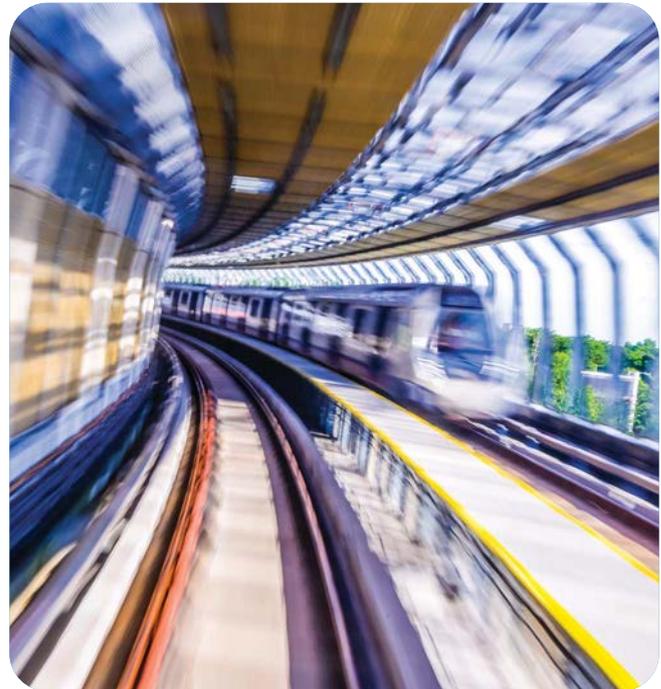
Poor quality roads and an absence of alternative modes of transport mean that rural communities are denied equitable distributions of primary goods and cannot easily move their agricultural produce to markets. Indonesia's

many islands also lack adequate dock facilities to accommodate larger vessels. Modern dams and irrigation systems are also priorities.

An additional 35,000MW of electricity generating capacity is also being installed, which is aimed to meet 96.6% of demand within the next three years. The plan includes building more than 30 new dams and hydropower plants. The infrastructure strategy includes building 2,850km of new roads and 3,200km of railways, together with new seaports and airports.

In carrying out its infrastructure strategy, Indonesia has pledged to focus on the east of the country. Around 60% of the Ministry of Works and Public Housing's US\$3 billion budget in 2017, for instance, is allocated to projects in Kalimantan, Bali, Nusa Tenggara, Sulawesi, Maluku and West Papua. Transportation improvements are a key element.

Malaysia's strategy also emphasises public transport improvements. These include building over 2,200km of railway across its territory in Borneo to increase connectivity in Sabah and Sarawak. The largest current project involves building a "wheel and spoke" MRT railway system around Kuala Lumpur to include several new interconnecting stations. Malaysia and Singapore have also agreed a high speed Kuala Lumpur-Singapore City rail link. Upgrading existing transport links as well as building new roads and railways are priorities in a drive to help propel the country's economy to Developed Nation Status by 2020.



The first section of Malaysia's MRT Line, covering 9.5km between Sungai Buloh and Semantan has been completed, while contracts are due to be awarded for construction of a second MRT line, a 56km section linking Sungai Buloh with Putrajaya in the first half of 2022. A third line is also expected to be built in the Klang Valley, which connects Kuala Lumpur and cities and towns in the adjoining state of Selangor.

Each ASEAN member state has its own priorities, though transportation features prominently for all. Other key Asian economies including Japan, South Korea and China, are also seeking to assist in building connectivity in the region. China, in particular, is seeking to promote road and railway connections to its southern provinces and Vietnam, Thailand, Myanmar, Malaysia and Singapore as part of its Belt and Road Initiative (BRI).

New age of railways will transform regional economies

New railways are set to play an increasingly influential role in transport infrastructure development throughout the region. It is a long overdue development. For most of their existence, the region's railways have been mainly restricted to freight haulage on single-track lines at speeds of 20-70kmph.

The overhaul involves huge investment. The construction of additional lines, double tracking, and the electrification now taking place, will increase the networks and boost economic activity in the region for decades to come. In addition, the pending projects for High Speed Rail (HSR) envisage speeds in excess of 250kmph.

The ultimate concept is for a series of HSR lines radiating through mainland Southeast Asia as far as Singapore and connecting with China's own high-speed network at Kunming in Yunnan Province.

China's Belt and Road Initiative (BRI) is part of a vast programme to expand freight and passenger routes from China to the rest of Asia and beyond that will revolutionise transportation in the region. Apart from a rail service between Hanoi and Beijing, a distance of 2,326km, with journeys taking more than 37 hours, and a privately operated tourist train between Bangkok and Singapore, there are no international train services in the region other than a few cross-border shuttles between Malaysia, Singapore and Thailand.

The BRI strategy is a modern twist on the ancient Silk Road and has a particularly strong emphasis on railway developments in Southeast Asia to connect with the region's ports. Three major rail routes are envisaged from Yunnan in southern China eastwards through Vietnam, a middle route via Lao PDR and a western track through Myanmar, with the latter connecting onward to Thailand, Malaysia and Singapore.

A track linking China to Thailand through Lao PDR involves an estimated US\$6 billion project to build 412km of track with bridging and tunnelling required along more than 60% of the route. Another new line being considered is a 220km double track electrified railway to connect Lao PDR's north and west and to form part of a link to Vietnam.

Few of these ambitious long term, capital intensive railway projects are likely to be met solely from national budgets. As a result, PPP models are seen as the most viable means of reviving long dormant, and increasingly necessary, transportation ventures throughout the region.

In 2018, Singapore and Malaysia are due to announce tender arrangements for their respective legs of a planned 350km HSR between Kuala Lumpur and Singapore City. Land acquisition for the venture has reportedly already begun. The estimated US\$15 billion venture is targeted for completion in 2026, and will allow passengers to journey between each city in 90 minutes.

Malaysia has a very strong focus on national railway development with the bulk of its planned US\$85 billion of transport infrastructure development dedicated to railways. The US\$5.2 billion electrification and double tracking of the 329km railway, linking Ipoh in Perak State with Padang Besar in the north of Peninsular Malaysia, opened in 2015 and ranks as one of the country's largest ever projects.

In August 2017, Malaysia started work on its even larger US\$13 billion standard-gauge East Coast Rail Link project. This is designed to link Port Klang on the Strait of Malacca with Kuantan Port on the South China Sea. Prime Minister, Najib Razak, envisages that the project will see Malaysia become an alternative maritime trade route in the region.

Thailand's railway development plans are essential to ease the strain and congestion on its roads and improve logistical efficiency aiming to increase the share of rail in freight transport from less than 2% to 8% by 2020. The authorities also want to see trains accounting for 40% of public transit compared to the current 6%.

The strategy includes 767km of double tracking on existing routes as well as the construction of new lines to connect major provinces in the centre, north and northeast. The latter would provide direct connections between regions rather than routing through the capital.

Bang Sue Central Station is also being constructed in Bangkok. The new 24 platform station will replace the older Hua Lamphong Station and serve the region surrounding the capital as well as future national and international services.

Arkhom Termpittaypaisith, Transport Minister, sees the implementation of the country's first HSR venture as pivotal to increasing industry and tourism in the northeast.

Approval for the project was given in August 2017, and construction has started on the first section of the 253km railway, which will eventually



connect Bangkok and Nakhon Ratchasima. Bidding for further phases of the overall project is expected in 2018, and due for completion by the end of 2023, at a cost of US\$5.5 billion.

There are also plans for four HSR lines covering 1,447km at an estimated investment of US\$26 billion. These projected routes include a line between Bangkok-Pitsanulok reaching to Chiang Mai, which is viewed as the country's major logistics hub and a tourism destination.

Provision of funding arrangements is on the agenda for Vietnam. The rail network needs an estimated US\$9 billion of investment over the next 15 years, to improve 2,237km of line. The system consists of seven lines, all of which are single track and mostly in need of modernisation. According to state-owned Vietnam Railways, the focus will be on the 1,726km north-south railway linking Hanoi with Ho Chi Minh City.



New railways are set to play an increasingly influential role in transport infrastructure development throughout the region.



Myanmar also needs to develop efficient networks between its rural hinterland and the principal urban centres of Yangon and Mandalay. It currently takes almost twice as long to travel by train between Yangon and the capital Naypyidaw than by road.

An upgrading of track between Yangon and Mandalay began in 2017, and should be completed by 2025, according to Myanmar Railways. The estimated US\$1.7 billion project is led by Japan International Cooperation Agency.

Indonesia's railway system covers 5,000km, all of which is narrow gauge track. Most of it is operated by the state through PT Kereta Api (Persero). A few freight carrying railways are privately owned and operated in Sumatra and Kalimantan.

The Ministry of Transportation has allocated a US\$17.3 billion budget to build railway infrastructure in Java, Sumatra, Kalimantan (Borneo), Sulawesi and Irian Jaya (West Papua). This budget was originally to be disbursed up to 2030. However, the Government now wants railway developments outside Java to be accelerated.

The first 146km section of the Trans-Sulawesi railway is under construction between Makassar and Parepare. This link will form part of a 1,700km track extending from Makassar in South Sulawesi to Manado in the north of the island.

The country has also embarked on construction of a US\$3.24 billion trans-Sumatra railway, covering over 2,000km to connect Aceh in the north to Lampung in the south. The northern section of the line which will connect Medan and Aceh is scheduled for completion by the end of 2019.

Indonesia is poised to begin building a 140km HSR to connect Jakarta and Bandung. The project, which could eventually be extended another 740km to Surabaya, is due to receive backing from China Development Bank for the estimated first phase US\$5.5 billion cost of the project.

A feasibility study is being carried out in the Philippines for a 2,000km railway on the southern island of Mindanao. Other projects under consideration include revival of a railway on Panay Island and a five-track system on Cebu Island. Meanwhile construction is due to start on a railway from Manila to Clark International Airport later in 2018. Another development is a 900km track to connect La Union, Manila and Legazpi on the country's Luzon Island.

With the development of HSR across mainland Southeast Asia, the potential long term benefits are recognised throughout the region. The main challenge is to mould viable economic proposals and financially engineer the feasibility of some of the costliest infrastructure projects ever undertaken.

Southeast Asia's planned new ports will enhance global trade

A modern and well managed maritime sector is crucial to Southeast Asia's economic progress and to expanding global trading routes. Development of the ports infrastructure is therefore a growing priority in such an extensive archipelagic region of some 24,000 islands which span 5,200km east to west and 3,400km from north to south.

However, possessing access to the world's oceans is of little advantage without modern ports, sound logistics and effective management of maritime facilities. There are many areas which require improvement in order to promote a safe, modern, efficient and competitive shipping sector that demands faster turn-around times and is increasingly deploying mega container carriers.

The World Bank's Logistics Performance Index (LPI) measures the efficiency of a country's customs, transport infrastructure, efficiency of trucking and freight forwarding operations, delivery times, and tracking and tracing consignments. The 2017 Index, ranking 160 countries, shows Singapore placed as the fifth most efficient globally, with Malaysia at 32. Thailand and Vietnam are ranked 45th and 64th respectively, Indonesia is ranked 63rd and the Philippines 71st.

The need for significant investment and improvement is particularly felt in the region's largest island groups. Improved ports infrastructure is seen as crucial to the future development of the Philippines' transport system. International Container Terminal Services Inc (ICTSI), for example, is

planning to upgrade its home port of Manila to create a major hub in its global network of ports.

In addition to Manila, the country has several other large ports including Batangas, Cebu, Davao, Zamboanga, Cagayan de Oro, Iloilo and General Santos needing modernisation. There are also another 1,300 smaller mostly state-owned ports. Increasingly the Government is seeking to develop PPPs to accelerate investment in its maritime infrastructure.

Overcoming congestion is also the main challenge for Indonesia as it seeks to reduce cargo unloading times at the principle port of Tanjung Priok in north Jakarta and other major ports in Sumatra and Java.

President, Joko Widodo, is seeking to implement a maritime strategy to develop a coordinated network of ports throughout the country, including building new ports in the underdeveloped eastern parts. The projected US\$46 billion Marine Highway Development Programme, is designed to improve connectivity of the economy, in order to reduce the high logistics costs which are limiting the competitiveness of the economy.

Many of the harbours have shallow drafts, with the largest port, Tanjung Priok, having only a maximum draft of 11.5m. This means the largest ships which can dock there carry a maximum load of 5,000 containers. The focus is also on increasing container handling capacity. Jakarta's new Priok Port project will see capacity raised from 5.8 million TEUs to 18 million

TEUs, by 2023. By then, ships carrying up to 18,000 containers will be able to access the port through a new 300m wide channel.

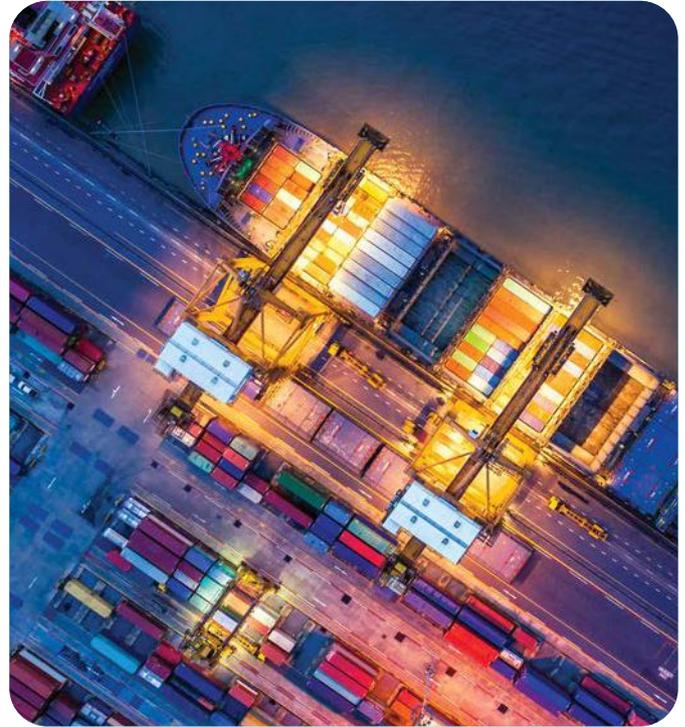
The Marine Highway strategy, which features a strong PPP element of up to 70%, seeks to upgrade six existing ports and develop 24 new commercial hubs. The main ports of Jakarta, Makassar, Medan, Surabaya, Bitung and Sorong will serve as regional logistics hubs for auxiliary ports. This is designed to raise inter-island connectivity and improve the transport of goods throughout the country.

Indonesia's Minister of Transportation, Budi Karya Sumadi, is seeking to attract up to US\$3 billion in foreign investment to implement a range of nationwide port developments. These include projects at Makassar in South Sulawesi, Kijing in West Kalimantan, Sorong in West Papua and Tanjung in South Sumatra.

Maritime connectivity is key to developing Myanmar's economy. Ports there have the potential to become regional transportation hubs serving markets in China, India and the Indochina region. Growth in imports and exports as a result of increased demand for its agricultural commodities, minerals and natural resources, are likely to be the catalysts stimulating development of port infrastructure in the country.

Myanmar occupies a long eastern seaboard where new ports could provide faster access to Thailand, Cambodia, Lao PDR and Vietnam. One of the main proposals is an US\$8.6 billion project at Dawei to develop a new deep-sea port and an industrial area for steel production, petrochemicals and an oil refinery. The proposal also envisages the site being connected by an oil pipeline as well as road and rail systems to Thailand.

Six new inland river port terminals are also planned, four on the Irrawaddy River and two on Myanmar's Chindwin River. Transport and Communications Minister, U Thant Sin Maung, says these ports are a critical part of a national plan to enhance regional development and create jobs.



In the north of the country, Chinese assistance has been instrumental in developing a port at Kyaukpyu. It is designed to connect with an oil & gas pipeline linked to China's Yunnan Province. In addition to Dawei, sites in Thilawa, Sittwe, Kalgauk and Bokpyin have been identified for potential port development.

Development is also a key to Vietnam's economic growth, where cargo handling could rise from 400 million tonnes a year to 2.1 billion tonnes by 2030. The Government has indicated that greater outside investment will be invited and foreign ownership allowed in the state-controlled sector, in order to attract the investment needed. Vietnam is seeking up to US\$2 billion of private sector investment to develop 19 port projects throughout the country.



A modern and well managed maritime sector is crucial to Southeast Asia's economic progress and to expanding global trading routes.



International assistance is also playing a role in the first phase of the Lach Huyen International Gateway terminal east of Haiphong, which is due to open in 2018. The US\$1 billion project is being financed by Japan's International Cooperation Agency. The loans have also supported construction of new bridges and road links to the port.

In the south of Vietnam, further development of the container section of Ho Chi Minh City's port at Cat Lai is underway. The Government has also approved plans to build a 12 berth deep-water port in the southern province of Ca Mau. The proposed US\$2.5 billion port is due to be developed on a PPP basis on Hon Khai island and will act as a transshipment point for commodities including coal to fuel thermal power plants in the Mekong Delta.

In common with other ASEAN member states, Thailand also wants to leverage its maritime assets which include more than 3,000km of coastline as well as nearly 4,000km of rivers and waterways.

Thailand's two main ports of Bangkok and Laem Chabang are undergoing major upgrades and modernisation programmes. The aim is to turn the latter into a gateway for the Greater Mekong sub-region and compete

more effectively with Singapore. It currently handles more than half of Thailand's trade. As planned investments take shape this volume could increase dramatically.

Laem Chabang is due to have new rail links and quayside expansion. The aim is to raise its capacity to 20 million TEUs, almost doubling its present capacity. There are also plans to turn Sattahip, a deep-water port to the south, from naval to commercial use. The country's Port Authority is also planning a range of new infrastructure developments including improvements to Bangkok City Port to raise capacity to two million TEUs.

Long discussed concepts include building a canal across the Kra Isthmus in southern Thailand, to make it the shortest link between the South China Sea and the Indian Ocean. This could cut three days sailing time for vessels that currently transit the Malacca Strait.

For now, Singapore remains the region's leading ports operator though this pre-eminence is being challenged with significant competition from Malaysia. For example, Tanjung Pelepas Port, which is barely an hour's drive from Singapore, only opened in 2000, and now ranks as the eleventh busiest container port worldwide. The port installed four giant

55.5m high quay cranes in November 2017, as part of ongoing developments to maintain its business competitiveness. A further four cranes are due to be delivered at the end of 2018.

Meanwhile, Malaysia's Transport Minister, Liow Tiong Lai, has confirmed that a giant US\$65 billion project to develop a new port complex and industrial area on Carey Island near the country's Port Klang is to go ahead. The project covering an area of more than 100km² will double container handling capacity, now at 30 million TEUs a year. A joint venture with Chinese investors is under discussion. Almost 80% of ships passing through the Strait of Malacca are bound for ports in China.

Malaysia is a growing area for China's infrastructure investments in railways and ports, which are designed to build economic connectivity along the old Asian Silk Route. Companies, including Power China, Shenzhen Yantian Port Group and Rizhao Port Group, are reportedly willing to invest more than US\$7 billion in Malaysia's proposed Malacca Gateway deep-sea container port.

China Railway Group is involved in a planned US\$2.8 billion associated port development near Malacca Gateway at Kuala Linggi. It is planned to handle oil tankers and also serve bunkering requirements for transiting vessels. In addition, an existing port at Kuantan on Malaysia's east coast is due to be deepened as part of an US\$900 million investment with participation from China's Guangxi Beibu which, in addition, is due to manage the port under a 30 year concession. The new investments will be reinforced by the country's East Coast Rail Link project which is also supported by Chinese investment.

It will be some time before these ambitious projects can significantly challenge Singapore's maritime role in the region. The Port of Singapore, with its daily sailings and connections to 600 ports in 123 countries,

remains paramount, handling one fifth of the world's containers. Half the world's supply of crude oil is also shipped via the Port.

Singapore's maritime sector is a vital component of the economy, employing around 170,000 people and contributing an estimated 7% to GDP. It also supports many home-grown companies, including SMEs engaged in areas ranging from manufacturing to logistics and technology as well as services.

Profit margins in the global maritime industry are finely calibrated. Automated terminals allow ports to handle containers more efficiently by using computerised systems to plan storage in accordance with collection and transshipment times. This in turn offers major port hubs greater predictability and consistency of container moves per hour.

A US\$2.8 billion investment at Singapore's Pasir Panjang Terminal, has seen the facility expanded with the latest technology to allow the operation of unmanned gantry cranes to handle some 15 million TEUs a year.

In 2017, work started on reclaimed land to replace existing facilities with an entirely new seaport at Tuas, south of Singapore's existing port. Due for phased completion in 2040, the new port will double existing container handling capacity to 65 million TEUs a year. The strategy aims to utilise a wide variety of new technologies including driverless vehicles and drones in port operations, in an effort to underpin the country's central maritime role at the mouth of the Malacca Strait.

A fleet of 30 driverless vehicles are already deployed to move cargo containers around the newly expanded Pasir Panjang Terminal. These are being tried out in preparation for the move to Tuas, where more than 1,000 of the battery powered vehicles are expected to be operated. Tuas Port will also feature 1,000 automated yard cranes, five times the number deployed at Pasir Panjang.

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Oil & gas projects are key to the region's future energy security

ASEAN's rapidly growing economies and expanding populations mean increasing consumption of oil & gas. Oil alone stood at about six million bpd in 2016, having increased 60% since 2000. This trend means that exploration and development of new fields and associated infrastructure is a major focus, as future energy security becomes a priority for all countries in the region.

Fossil fuels supply around three quarters of the region's energy needs, with oil contributing 34%, natural gas 22% and coal 17%. Oil production declined from 2.9 million bpd in 2003, to 2.5 million bpd in 2016, according to the International Energy Agency (IEA).

The situation varies, with Brunei Darussalam and Malaysia still remaining net exporters of oil. In these countries, oil & gas revenues are vital for their economies, notably the former where hydrocarbon exports account for 85% of its GDP. Southeast Asia is a mature oil producing region and has potential to boost output, with relatively unexplored areas which hold significant resources, especially in deep offshore waters.

However, the costs of developing energy resources are prodigious. According to the IEA, around US\$205 billion is needed for infrastructure, mainly for upstream development and new refineries. Gas requires the larger sum of US\$460 billion, reflecting the increasingly high costs of development and the need for expanded gas transmission and distribution infrastructure.

Indonesia is ASEAN's largest oil producer with 880,000 bpd. Its proven reserves, at 3.2 billion barrels at the end of 2017, are the third largest in the region, after those of Vietnam and Malaysia. However, its potential recoverable resources, at around 40 billion barrels, are by far the most abundant, accounting for half the total in the region.

A significant portion of its oil production currently comes from its Minas and Duri fields, located on the east coast of central Sumatra. These have been in production for more than 60 years. Chevron is using enhanced oil recovery technology to slow the decline of output from the two fields with its steam injection project in the Duri field, one of the largest of its kind to be deployed in the global oil industry.

The state oil company, PT Pertamina, is also spending heavily to boost crude output from existing fields with enhanced recovery techniques in Sumatra, Java and East Kalimantan.

New sources of production include the Banyu Urip field, offshore East Java, operated by ExxonMobil. Oil & gas fields are also due to come on stream at South Mahakam and Gendalo-Gehem in the Makassar Strait. The target is to raise domestic oil production from 880,000 bpd to one million bpd by 2019.

Malaysia is ASEAN's second largest oil producer with an output of 700,000 bpd in 2016, down from a peak of 830,000 bpd in 2003. Its proven oil reserves of 3.6 billion barrels are located mainly in offshore Peninsula

Malaysia, Sarawak and Sabah. Fields brought into production since the end of 2014, such as Gumusut-kakap and Malikai have allowed the country to reverse a previously declining output. The increase of production from these projects has been successful in halting the decline in output seen in recent years.

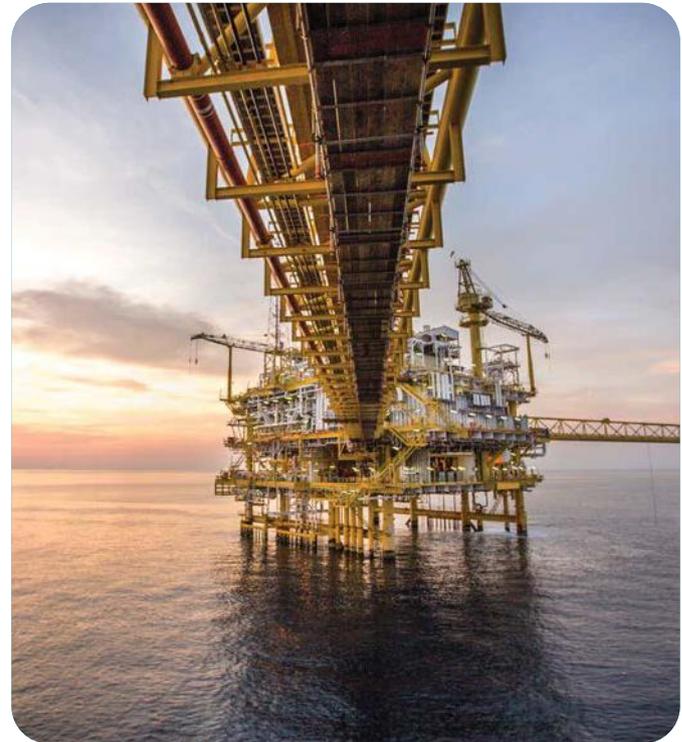
Vietnam produced some 330,000 bpd of oil in 2016 and has the largest proven oil reserves of 4.4 billion barrels. Promising areas for exploration include the offshore Cuu Long, Con Son and Malay basins in the south of the country.

As with crude prospects, gas reserves are also mostly located in deep-water areas offshore. Indonesia and Malaysia are main producers in natural gas, accounting for up to 75% of the 8.1 trillion cubic metres (tcm) of proven reserves. Both countries are also major exporters of gas, primarily in the form of liquefied natural gas (LNG), along with two other smaller gas exporters, Myanmar and Brunei Darussalam.

Thailand and Singapore are the region's main gas importers, with imports of 16 billion cubic metres (bcm) and 12 bcm respectively in 2016. The Philippines and Vietnam are currently self sufficient in gas, though the IEA's 2017 World Energy Outlook estimates that both countries are likely to start importing LNG as their demand increases at a quicker pace than domestic production.

The region's natural gas outlook is bright with the IEA forecasting that it's production will reach almost 260 bcm annually by 2040, from around 213 bcm currently. However, as with oil, gas reserves are unevenly distributed with the bulk located in Indonesia and Malaysia, notably offshore Sarawak.

East Natuna contains the largest untapped cluster of gas fields, with 1.6 tcm of recoverable gas reserves and is thought to represent the largest prospect for Indonesia's gas sector.



Malaysia also has potential for gas developments. The country holds 2.6 tcm of proven natural gas reserves, the second largest after Indonesia, and 18th in the world. Annual production of 56 bcm is also the second largest in the region. Production from offshore Peninsula Malaysia, including the Thailand-Malaysia Joint Development Area, is helping to meet rapidly increasing demand from domestic users.

Fields offshore at Sarawak and Sabah, where there is little local demand, have been mainly developed for exporting LNG. Half of its gas is exported as LNG, making it the second largest global exporter after Qatar.

Vietnam has proven reserves as a result of offshore discoveries. The country's Lan Tay field in the Nam Con Son Basin, provides almost two

thirds of the country's current output, with new developments expected to boost production.

Thailand's oil & gas deposits are located mostly offshore in the Gulf of Thailand. Gas production at 28 bcm per year has increased in recent years as new output has come on-stream from a Joint Development Area shared with Malaysia.

Despite its declining oil production, Brunei Darussalam has sustained its gas output at around 12 bcm per year, Southwest Ampa is its largest producing field.

ASEAN countries are among the world's main suppliers of LNG, a product which is produced by reducing natural gas to 1/600th of its original volume into liquid form, through a liquefaction conversion process at cryogenic temperatures. This makes LNG ideally suited for shipment over long distances where pipelines do not exist. The region has around 20% of global LNG production capacity, equivalent to 85 bcm a year, principally accounted for by Indonesia, Malaysia and Brunei Darussalam. Regasification terminals, onshore and floating, are being steadily developed with four under construction and 20 others planned in the region.

Malaysia exports to Japan, South Korea and China. Production from offshore Sarawak feeds an LNG liquefaction terminal with eight processing units at Bintulu. It's export capacity is due to increase with the addition of two Floating LNG (FLNG) plants offshore Sarawak and Sabah, with a total capacity of 3.6 bcm.

Indonesia is also a significant exporter to Japan, South Korea and China. Three LNG liquefaction plants at Botang, Arun and Tangguh have a combined capacity of 45 bcm per year. Indonesia, which ranks as the

world's fifth largest exporter, is building two more plants on the island of Sulawesi at Sengkang and Donggi-Senoro.

The availability of infrastructure will be an important determinant of future exploration activity and production growth. Many production areas are located far from demand centres. Accordingly, they will require either an expansion of transmission infrastructure or liquefaction projects to ship the gas to regasification terminals elsewhere. Singapore and Malaysia, both possess extensive processing and handling facilities and have ambitions to become hubs for regional and international trade.

Myanmar has become a significant gas producer with most output coming from the Yaduna, Yetagun and Zawtika offshore fields which supply Thailand. Gas from the offshore Shwe field in the Andaman Sea, is the primary source used to feed the Myanmar-China pipeline. It has a capacity to transfer 12 bcm a year to China's Yunnan Province, under a 30 year agreement.

However, Myanmar remains the least explored country in the region for hydrocarbon resources, a fact that is drawing increasing foreign interest. Transportation improvements will also be the key to unlocking Myanmar's considerable potential.

The region's inadequate infrastructure in potential exploration and development areas is the main impediment to progress. Future energy strategies in the region will be supported by cross-border high flying infrastructure. Various bilateral pipelines are in operation, and an important task is to integrate them into a harmonised regional network. The planned Trans-ASEAN Gas Pipeline Project is seeking to achieve this and could serve to bring important energy security benefits for the region and increase gas trade between member states.

Renewable projects are growing part of region's energy strategy

One of the most pressing issues for all ASEAN member states is electricity generation, particularly for the less advanced areas which are not connected to national grids. Improved access to electricity will be of key importance in these areas.

While the region has witnessed phenomenal economic growth over many years and has developed as a global manufacturing power, it is vital that energy challenges are addressed in order to sustain this expansion. Investment in the provision of power will be one of the main requirements over the next 25 years.

In order to meet the deficit, ASEAN countries are required to add 354,000MW of additional capacity by 2040, according to the International Energy Agency (IEA). It is estimated that total costs of this could be more than US\$1.2 trillion.

The ASEAN Plan of Action for Energy Cooperation (APAEC) is focused on promoting clean coal technologies and renewable energy for a more diversified power mix in future. The Plan also seeks to speed development of planned ASEAN Power Grid (APG) interconnection projects, which would both lower costs and stimulate the use of renewable energy, particularly hydropower.

A more economical use of electricity will also be important. Rising demand means that reform of subsidies, widespread in the region, becomes imperative.

An increasing dependence on imported energy also raises security concerns. Greater efficiencies will help reduce reliance on imported oil & gas by as much as US\$180 billion, according to the IEA.

Implementation of the APG strategy will also play an important role in creating a more efficient distribution of supplies in the region. A regional grid is seen as helping all members to meet rising demand and minimise the costs of developing energy infrastructure.

In addition to moving towards a regional wide grid, growing investment in renewable energy resources is likely to play an important role in energy security over the next decade.

Interconnections between Sarawak and Brunei, the Philippines and Sabah, Peninsular Malaysia and Sumatra, Thailand, Lao PDR and Cambodia as well as Vietnam and Cambodia are among the linkages planned for development over the next four years. The establishment of a regional power system will offer better access to new technologies and to widely dispersed sources of renewable energy.

While the use of coal to fuel power stations are expected to rise in Indonesia and Vietnam because of its abundance and cheapness compared to other primary energy resources, a variety of alternative renewable energy sources are beginning to also be deployed. According to the IEA, renewables could account for 40% of installed electricity-generating capacity by 2040.

As nuclear projects appear to have been delayed for the short term, hydropower is expected to have the fastest growth rate, according to ASEAN's Centre for Energy (ACE). Indonesia's hydropower potential is estimated at some 75,000MW, with untapped resources concentrated on the islands of Sumatra, Java and Sulawesi. The Government is seeking to raise the use of renewables in the country's energy mix to 23% by 2025.

Hydropower already plays an important role in Malaysia, providing 11% of its generating capacity. Investment has mostly been confined to Peninsula Malaysia but future development of hydropower is likely to be focused in Sarawak on the island of Borneo.

Malaysian hydropower is also serving power integration in the region, with electricity produced in Sarawak being sold to the neighbouring Indonesian province of West Kalimantan. There are plans to also export power to Brunei Darussalam by 2025. Malaysia in turn is also expected to purchase up to 100MW initially from Lao PDR via Thailand later in 2018.

Vietnam, with its many major rivers, has an estimated 35,000MW of potential hydropower resources.

There are 11 operational hydropower plants in the Greater Mekong Sub-Region (GMS) with another seven under construction. Trading arrangements among GMS partners are based on long term bilateral power purchase agreements.

The US\$3.2 billion Xayaburi Dam project in the north of Lao PDR is one of a series planned to be constructed on the Mekong river. It is the largest of the planned projects and could start commercial operations in 2019.

Net exporters such as Cambodia, Lao PDR and Myanmar could see increased earnings from export oriented hydropower projects. Importers, which include Brunei, Vietnam, Philippines, Thailand and Singapore will be more energy secure and will be able to reduce their dependence on coal and gas-fired power stations.

The Philippines Department of Energy is seeking to triple output from renewable sources to 15,300MW by 2030, with geothermal, solar, wind and biomass projects contributing to about 30% of new capacity. Vietnam's Power Masterplan also seeks to increase the percentage of renewable energy to 7% by 2020 and 10% by 2030.



The process is being assisted by the rapidly declining cost of wind and solar photovoltaic (PV) technologies. This will help meet growing demand in a cost effective and sustainable way, while also helping to stimulate local manufacturing industries. Malaysia is already the third largest global producer of PV cells, while Thailand is also a major producer of PV technology.

In Thailand, solar power installations are expected to generate 3,000MW by 2022, which is almost three times the present level. It aims to increase capacity to 6,000MW by 2036, accounting for 9% of total generation. A sharp fall in the cost of components and a subsidised tariff scheme has also helped encourage investment in the sector.



In Thailand, solar power installations are expected to generate 3,000MW by 2022, which is almost three times the present level.



Five new offshore wind farms in the northeast province of Nakhon Ratchasima will also start producing in 2018, with a total of 720MW generating capacity. The US\$1.14 billion investment by Wind Energy Holdings, is expected to be followed by further projects to bring their capacity up to 3,000MW by 2025, according to Chief Executive, Emma Collins.

The Philippines, has installed wind energy systems of 426MW. Thailand, Vietnam, Cambodia, Lao PDR and Myanmar also have considerable potential to develop wind generated electricity. Singapore based Blue Circle, is carrying out a feasibility study on wind energy potential in Cambodia's coastal provinces.

Geothermal resources are also open to exploitation. Indonesia has considerable potential to develop this type of natural energy because it has 40% of the world's known geothermal resources. There are an estimated 276 sites within the country, including major fields located in Java, North Sumatra and Sulawesi, that could provide an estimated 28,000MW of power.

The Philippines already produces around 2,000MW of geothermal power from resources in six fields located in Luzon, Leyte, Negros and Mindanao. Malaysia is also due to bring its first field in Sabah into production. A 30MW unit is due to begin operating there in 2019. The

exploitation of renewable energy resources, particularly solar, will assist in extending power connections to isolated communities and reduce their reliance on costly and polluting diesel generators.

While sustainability concerns are calling for cleaner energy supplies, at present the region is prioritising the use of available resources and affordability. This has led to an increasing use of coal to fire power stations. Fossil fuels dominate in the region, with the aim for clean energy having to be weighed against an increased use of fossil fuels to sustain economic growth, says Anthony Jade, a former energy advisor at the Asian Development Bank.

Solar and wind power, together with other renewable sources such as biomass, will be vital and a growing part to the energy mix, but coal and natural gas will remain the principle sources for next ten to 15 years. The adverse effects of burning fossil fuels will be mitigated by the promise of cleaner technologies and a more efficient usage, resulting from ASEAN's economic integration.

Policy makers recognise that over the next 20 years, they will need to balance energy security with environmental concerns. This will result in many approaches, depending on each country's individual energy assets. However, regional cooperation is providing an essential route in making the best use of resources in ASEAN member states.

Technology holds potential to transform region's healthcare

ASEAN countries have witnessed huge advances in the health of their citizens in less than 20 years, advancing from caring for the sick, to huge preventative initiatives. Improvement is particularly evident in the least developed countries.

This is seen particularly in Cambodia, which has made substantial improvements in maternal health as well as early child care and has also proved to be successful in HIV/AIDS prevention and treatment. At least 95% of those infected have access to antiretroviral treatment, a rate that is among the highest in the developing world, according to The World Bank.

The region continues to advance care for its citizens through standardising quality of care in countries at different stages of economic development, although this is going to take time. In states with relatively small populations levels are already high.

Healthcare services in Brunei Darussalam are free to citizens and permanent residents. There is an average of 1.4 doctors per 1,000 people while a major hospital is located in all of the country's four districts. These are supported by a network of health clinics and a flying service for more remote areas.

Singapore has the highest per capita spend on healthcare out of all ASEAN countries. More than 70% of its citizens access a public health system via three major public finance providers, Medifund, Medisure and Medshield Life. The Government carries around 30% of costs for the system, with the rest provided via healthcare insurance packages.

International standards of health services have allowed Singapore to become home to a thriving health tourist industry ranging from elective, specialist surgery, emergency treatments and standard procedures. Medical insurance providers sometimes choose to evacuate their members to Singapore from other countries. The quality of healthcare is supported by ten high standard public hospitals, 13 private hospitals and numerous other specialist clinics and treatment centres, in which English is commonly spoken.

Vietnam has increased investment in its healthcare system in recent years and now spends 7.1% of GDP on health, the highest in Southeast Asia. The ratio of one doctor per 1,000 people is also one of the highest.

Malaysia has a highly rated healthcare system across private and publicly funded hospitals and ranks second only to Singapore in service delivery quality. Recently, increased investment in specialist doctors in areas such

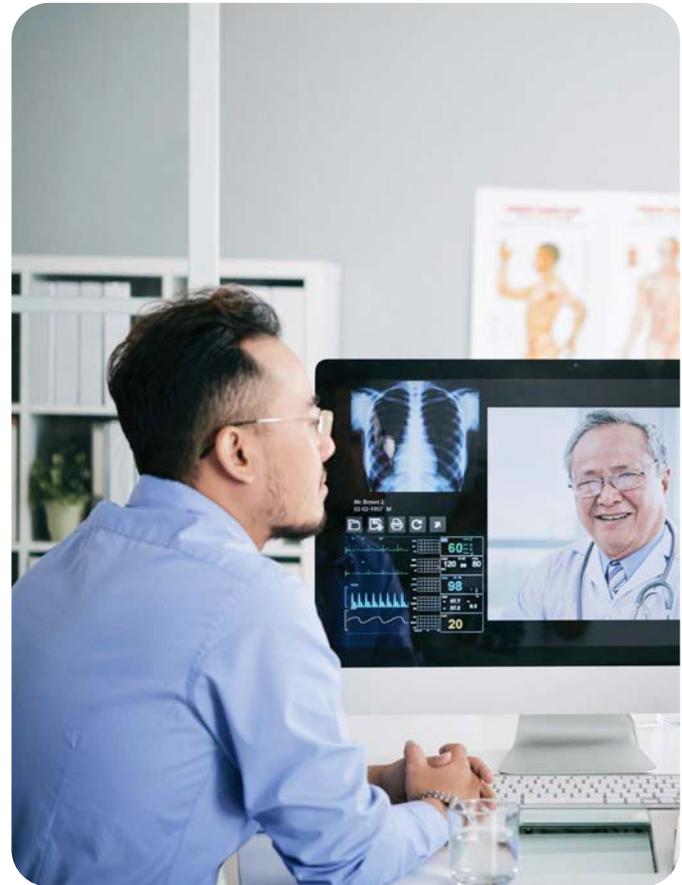
as cardiology and ophthalmology has led to the country becoming a medical centre of excellence.

For Indonesia, with the largest population of all ASEAN countries, healthcare challenges are far more onerous with one doctor per 5,000 people and a population, many of whom live in remote areas, lacking adequate infrastructure and are spread across thousands of islands.

Despite disparities between member countries, ASEAN is moving steadily towards providing universal healthcare to its citizens at least at a basic level. Insurance schemes for lower income groups have been introduced. These include Health Cards and “30 baht” systems in Thailand (referring to its less than US\$1 cost for low earners), Vietnam’s Health Fund for the Poor and Health Equity Funds in Cambodia and Lao PDR.

At the beginning of 2014, Indonesia launched its Jaminan Kesehatan Nasional (JKN), it’s first national health insurance programme. Around 185 million people, representing 70% of the population, are now covered by a mandatory universal healthcare programme, which while heavily government subsidised is not entirely free and provides various levels of care. The programme is due to be extended to the whole country by 2019.

The Philippines is committed to provide the whole population with universal healthcare. The Universal Healthcare Act in 2013 is designed to ensure that all Filipinos receive health insurance coverage from the Philippine Health Insurance Corporation.



As communicable diseases have successfully been placed under control and infant mortality rates much improved, the focus is shifting to treatment of chronic diseases and providing for people living longer.

Singapore is facing the challenge of a steadily ageing population, this will mean healthcare expenditure is likely to overtake education spending over the next decade, according to Finance Minister, Heng Swee Keat. As a consequence, six more general and community hospitals, four new



International standards of health services have allowed Singapore to become home to a thriving health tourist industry.



polyclinics and additional nursing homes and care centres for the elderly are to be built.

All countries are seeking to expand and develop provision of healthcare to its citizens through cooperation with the private sector. In this, PPPs will be a necessary and a growing means of bridging the gap. Governments are seeking to deregulate many of their medical services and offering fiscal incentives for investors to develop healthcare infrastructure.

Vietnam's Government offers a range of tax incentives to foreign healthcare investors and is allowing overseas physicians to practice there. Indonesia also permits majority foreign shareholdings in specialist healthcare suppliers. It has also amended its laws to allow greater ownership by foreign companies in hospitals. Indonesia's plans also focus on encouraging PPPs to develop hospitals and other essential infrastructure. Siloam Hospitals, the country's largest private operator, has plans to extend its portfolio of 24 hospitals, through new developments and acquisitions.

Dr Milind Sabnis, a healthcare specialist with industry analyst Frost & Sullivan, has said that demand for hospital beds, especially outside Jakarta, cannot be met by public hospitals alone. Indonesia has 73 major private hospitals with 42 of them located in the Jakarta area. Dr Sabnis says he expects more to be developed in cities such as Makassar, Pekanbaru and Balikpapan.

Kuala Lumpur based Parkway Pantai, the healthcare supplier which manages 14 hospitals in Malaysia and four in Singapore, is also in a joint venture with the Brunei Investment Agency in managing a specialist cardiac centre there. In another PPP, Singapore's Government has joined with Integrated Healthcare Holdings in leasing capacity and services from private healthcare suppliers.

Myanmar, which is seeking to achieve universal health coverage by 2030, is also opening up its sector to foreign investors. It now has more than 100 private hospitals and over 3,000 specialist and general clinics. There is demand for more high quality treatments and diagnostic services to

be available. At present many middle and higher income nationals as well as expatriates travel to neighbouring countries such as Thailand and Singapore.

More partnerships and cross-ownership of health facilities across the region is expected to be a continuing trend among ASEAN countries. The Royal Rattanak Hospital in Phnom Penh and Royal Angkor International Hospital financed by Thailand's Dusit Medical Services, are Cambodia's first private hospitals offering international standards of care.

These cross-border investments will be helped by ASEAN integration initiatives to allow medical workers to work in any member country via the full implementation of Mutual Recognition Agreements. An ongoing liberalisation process is also proceeding through ASEAN's Framework Agreement on Services and through the Healthcare Services Sectoral Working Group.

In order to improve delivery of healthcare, the Philippines, Vietnam and Indonesia are also seeking to decentralise the provision of state-funded services to local government. New technology also has a part to play in Indonesia's vast archipelago. According to Romeo Fernandez Lieda,



Director of privately owned Siloam Hospitals group "the introduction of telemedicine to reach rural areas is essential in Indonesia and a great opportunity for investment."

ICT offers considerable potential to assist in providing healthcare by helping doctors to provide consultation to patients as well as manage and monitor their condition remotely. Under this arrangement, medical specialists make a diagnosis or treatment decision based on patient information and data which is sent online. Telemedicine, or e-Health, can therefore contribute to the achievement of universal healthcare services for patients regardless of their location. ICT can also be used to help in the training of health workers as well as educating remote communities.

Raising skill levels is the region's key to future economic growth

In recent decades, ASEAN countries have made huge strides in building the required foundations for an educated, forward looking society. Literacy rates have improved remarkably. According to UNESCO figures the literacy average is at, or above, 90% in Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Most of the population can now read and write, and net school enrolment rates have increased in member countries.

Lao PDR, for example, has made good progress on its Millennium Development Goals, especially in the provision of primary schooling and is seeking to make lower level secondary education compulsory for all children. Cambodia's current National Strategic Development Plan aims at capacity building and human resource development. The intention in particular is to strengthen technical and vocational education and training (TVET) in order to increase the productivity of under-educated and unskilled people in the labour force.

Education is proving the key to successful adaptation to changing market requirements. This is illustrated by Vietnam's experience, where

educational improvements have played an important role in the success of the country's manufacturing sector over the last two decades.

A committed effort to promote access to primary education for all and to ensure its quality through centrally setting minimum quality standards, has contributed to Vietnam's reputation for having a young, well educated workforce. An increasing availability of personnel capable of training, has helped to attract international technology based industries. The Ministry of Science and Technology is now trying to build on this to develop a cluster of SMEs in the country.

The value of prioritising education is also seen in ASEAN's most advanced economies. The Times Higher Education World University rankings list for 2018, puts the National University of Singapore and Nanyang Technological University Singapore in the first 100 worldwide. The former is also ranked the leading university in Asia while Nanyang is in fifth ranking in Asia.

Improving the quality and availability of education is a priority in the Philippines. The effort is essential if the aspirations of the Philippines

Development Plan 2017-2022 that seeks to position the Philippines as an upper-middle income country by the end of the plan period, are to be achieved. Recent education reforms are seeking to boost enrolment levels, the average years of schooling in elementary and secondary education, improve the quality of higher education and graduation rates.

Allocations for the country's Department of Education were increased 25% in 2017, making education the largest item in the national budget. The budget for 2018 has been raised a further 1.7% to US\$10.26 billion. President Duterte has also announced that education at state universities and colleges is to be provided at no cost to students in future.

Meanwhile, the first class of students will graduate in 2018, from a new 12 year education cycle (K-12) which has added two years of mandatory senior secondary schooling for all Filipino students. The reform resulting from the country's 2013 Basic Education Act is considered an essential step to improve the global competitiveness of the Philippines and bring the country up to international standards. Significant strides have also been made in pre-school education, making one year of kindergarten mandatory since 2011.

Malaysia has also set ambitious targets for improving access to quality education throughout all parts of the country, with recent policies seeking to increase the number of teachers and to lower student teacher ratios. The strategy also aims to raise teaching standards in the classroom for core subjects. These include English, Mathematics and Sciences alongside Malay. Ultimately, the objective is to see the education system placed among the top third in the world.



Higher entry levels for teachers are also called for, as well as greater private sector collaboration and more parental involvement. The programme also emphasises improved teacher training and enhanced terms for those achieving the required standards. More ICT systems are being introduced for distance and self-paced learning programmes.

One of the principal reforms will see new Secondary and revised Primary curricula implemented to international benchmarks by 2020. This will see greater school based management, autonomy on curricula implementation and a culture, whereby teachers share best practice and hold peers accountable for meeting professional standards.

In Indonesia, access for all to education has also increased dramatically. The Constitution demands that at least 20% of the total Government



ASEAN is also a fertile area for internet enabled education start-ups which can provide services to schools and vocational training institutes.



budget is committed to education, which has led to more than a doubling of spending in real terms since 2002.

While the majority of the population has, at most, only completed basic education, there are now more than 30 million secondary school graduates and more than ten million tertiary education graduates in Indonesia's workforce.

The aim is to provide universal access to secondary level through a compulsory 12 years of schooling and doubling enrolment in higher education by 2020. The total number of Indonesians who are educated beyond early secondary school level could more than double over the next ten years as a result.

One of the priorities is to expand vocational courses to meet employment needs. Indonesia is seeking to triple the number of students in technical programmes and increase the number of doctoral students five-fold by 2025. The aim is also to establish a community college in every district

and increase the number of entrants to higher education institutions by providing more scholarships and raising secondary school enrolments.

Myanmar also recognises that improvements in the formal education system and other training programmes will be needed to prepare more of its workers for jobs in manufacturing and service industries, which will be the basis of the country's future economic growth. The educational system was once one the best in ASEAN but has fallen far behind regional norms.

Myanmar is planning to radically overhaul it's educational system. Under the National Education Sector Plan, a new 13 year curriculum will be introduced in 2018. The Plan will also see teachers trained in contemporary methods, with students taught to deploy critical analysis in their studies rather than rely on traditional rote learning. It is a strategy that if implemented, promises an astonishing transformation, according to Lynne Heslop, Education Director at the British Council in Myanmar.

Raising educational standards and skill levels in the labour force are central to growth prospects. A report from the OECD and Asian Development Bank suggests that it will be necessary to allow students flexibility to enter, exit and re-enter education depending on their financial and social circumstances, and create pathways between academic and vocational tracks.

There is a fast-growing middle income segment in the region's population that can consider private education, especially in establishments that are able to develop English language skills. Boston Consulting Group and McKinsey predict that by 2020 there will be 100 million people with middle income spending patterns in Southeast Asia.

In view of this, opportunities for international schools as well as providers of vocational and technical training are expected to increase as ASEAN economies continue to expand.

An analysis by Parthenon and Ernst & Young says there is a growing and robust private education market in Southeast Asia worth close to US\$10 billion, with K-12 and higher education the largest elements in the market. Malaysia and Singapore have the most developed private education sectors in the region where international schools have become popular. Singapore is said to be the largest international

schools market in the world with estimated revenues of US\$700 million. There are now close to 1,000 such schools in Southeast Asia with their presence expected to increase particularly in Thailand, Indonesia and Vietnam.

A strong factor driving the demand for private education is the fact that English has moved from being an aspirational skill to become an essential requirement in the job market. Proficiency in the language is valued because it can lead to higher paying jobs as well as access to training opportunities within companies.

ASEAN is also a fertile area for internet enabled education start-ups which can provide services to schools and vocational training institutes. The population is young and increasingly attached to the concept of a digital society.

It will be the countries displaying higher levels of education and those able to push the technological frontiers who will reap the economic benefits of the fourth industrial revolution. The potential for providing highly skilled workers will spur the introduction of new and advanced technologies for making high value goods. This will place ASEAN countries at the hub of innovation and industrial growth in global markets.

Fast moving digital revolution set to transform ASEAN economy

ASEAN's strong and vibrant economies, favourable demographics, its promotion of private sector investment in ICT infrastructure, and ongoing integration are providing firm foundations for it to become a leader in the global digital economy.

With more than 370 million internet users at the beginning of 2018, the digital sector is booming and attracting increasing investor interest. A combination of a growing middle class, rising levels of urbanisation, technical innovation and government support for the development of digital economies, the ICT industry is experiencing double digit growth in many of the countries.

A report by Google and Singapore's sovereign wealth fund, Temasek Holdings, confirms the trend and says that Southeast Asia is the fastest growing internet region in the world and is expected to have 480 million users by 2020.

More than half the population now use the internet. Indonesia has an estimated 133 million users and Thailand 57 million. In Singapore 84% of the country's 5.75 million people were connected to the internet at the

end of 2017. According to Google, the region is well on track to realising a US\$200 billion e-commerce market by 2025.

Social media usage has sharply increased, even in less developed areas. Facebook now has an estimated 14 million users in Myanmar alone, with six million users joining the platform between 2016 and 2017. Google estimates that mobile phone users spend more time connected to the internet than in any other part of the world. Thai and Indonesian mobile users are top of the list with 4.2 hours and 3.9 hours on internet connection per day respectively.

Digital integration is stimulating business development and helping to connect ASEAN countries' supply chains in production and distribution. A report by consultancy firm A T Kearney, predicts that Singapore, Malaysia and Thailand will be among the top 20 countries in the global digital rankings by 2025.

According to Singapore's Communications and Information Minister, Dr Yaacob Ibrahim, "We all recognise the potential of ICT to positively transform the way we work, live and play. Sensors, for example, can be

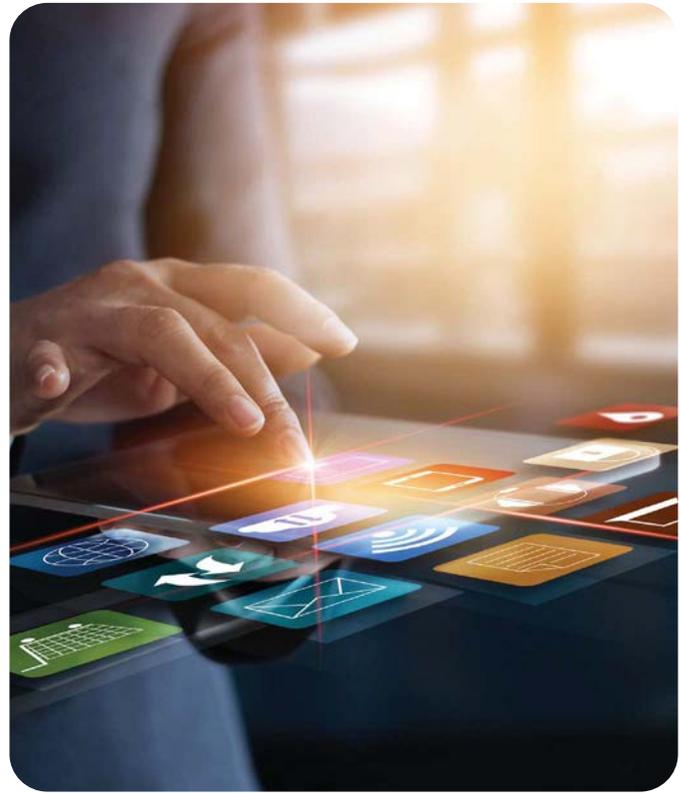
placed in homes, this allows hospitals and clinics to monitor their patients' health and wellbeing remotely, changing the way we deliver healthcare needs to the community."

The introduction of a national high-speed broadband network has been a priority in Malaysia, with the country committing US\$3.7 billion to install cable links to 1.3 million homes over the last four years.

Singapore has also invested heavily and now ranks as one of the world's most advanced digital societies when it comes to fast internet access with average speeds of 61Mbps. The country ranks 18th out of 176 nations in the International Telecommunication Union's 2017 ICT Development Index, only two places below the US and three below France.

Fast broadband speeds are increasingly a prerequisite consideration in capturing the possibilities of e-commerce and emerging technologies such as cloud computing. The latter is useful for SMEs since it allows them to reduce costs by subscribing to online solutions rather than having to invest in expensive hardware systems.

Malaysia has invested US\$2.6 billion in its high-speed broadband project to provide connectivity to 2.3 million homes, offices and businesses, under Malaysia's Tenth Development Plan. The Multimedia Development Corporation is encouraging the use of cloud services among SMEs in the country's Multimedia Super Corridor, which is a Special Economic Zone extending 15km from central Kuala Lumpur to the city's international airport.



Indonesia has established a National Broadband Network strategy under its Masterplan for Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI). Under this Plan, the wired access target for a 20Mbps connection is set to rise from 21% to 75%.

Indonesia's Nusantara Super Highway project, also known as the Palapa Ring, will form a nationwide fibre optic cable network which will be the backbone of its ICT development, destined to propel the country into an advanced digital age and ranks as one of Asia's most ambitious telecoms developments. The installation of the fibre optic cable network is expected to be completed by 2019.



Digital integration is stimulating business development and helping to connect ASEAN countries' supply chains in production and distribution.



Thailand aims to extend basic internet services to 95% of the population by 2020. The strategy also aims to provide 100Mbps fibre optic services to key cities by the same date.

The benefits to countries with more advanced domestic telecoms infrastructures, such as Singapore and Malaysia will be substantial but even for the less developed areas, faster development provides a greater opportunity to join the digital world.

The transformational change in Myanmar's telecoms sector has been the entry of foreign operators in the domestic cellular market joining the national operator Myanmar Posts and Telecommunications (MPT).

Myanmar now has three mobile network operators, state-owned MPT, Qatar's Ooredoo and Norway's Telenor. Together, these now have 50 million subscribers, almost the whole of the country's population of 54 million people. The huge take-up of mobile services is down to the liberalisation initiated in 2014, which allowed foreign-owned operators to enter the market.

The initial foreign investors who recognised the potential in the development of Myanmar's mobile telecoms and their strategies have

been vindicated. Within two years, Telenor Digital Businesses secured more than 16 million subscriptions, more than 30% of the market.

Ooredoo and the largest operator Telenor, have each invested more than US\$2 billion to acquire licences to develop their networks. Vikram Sinha, Ooredoo's Chief Executive in Myanmar, says the company has invested a further US\$280 million to expand its 4G network in the country by acquiring extra spectrum to speed up its data services.

Countries in the region need access to faster internet connection data speeds of 3G and above to use mobile devices for more than telephone connections. Fewer than one third of mobile connections in Lao PDR, for example, are 3G or faster. The latest 4G technology offers download speeds three times faster than 3G connections. Sweden's Ericsson estimates that 4G technology usage in the region will reach 60% by the end of 2019.

Vietnam hopes to see 3G and 4G networks covering 95% of homes by 2020. Indonesia will need to start moving towards 4G, as cellular data traffic is expected to expand more than tenfold by 2019, according to Ericsson's Mobility Report.

The Philippine's Business Process Outsourcing (BPO) industry, which has grown considerably each year over the last decade, illustrates how new economic sectors are assisted by ICT development. In just a few years, it has become the country's largest source of private sector employment and the second largest contributor of foreign exchange after remittances.

Apart from call centres, the Philippines is targeting a larger slice of the fast expanding, global knowledge process outsourcing market. This includes healthcare information management, human resource outsourcing, banking and other financial services, accountancy and legal work. These segments all deal with sensitive data. As a result, it is expected that the country's Data Privacy Act, which aligns Philippine laws with international data privacy standards, will help consolidate the Philippines' role as a leader in the Information Technology BPO industry.

Digital advances are opening many new potential development areas throughout the region. ICT technology has a multitude of applications in providing a more efficient use of electricity and water resources, healthcare, government services as well as transportation management. Smart technology is also being deployed to improve transportation in major cities in the region. Singapore has introduced an electronic road pricing system to manage congestion.

ICT Ministers of the ten ASEAN member countries have drawn up a masterplan which seeks to improve mobile applications for use in areas such as healthcare provision, transport and e-governance. Another aim is in the provision of broadband internet access to every school in

the ASEAN community, through the development of policy frameworks and a national statistics portal. It is hoped that by 2025, all public services, domestic and cross-border, should be available digitally within ASEAN member states.

Another ICT focus is financial technology, especially in Singapore where the Government is keen to promote digital payments systems to encourage a cashless society for both businesses and individuals. FinTech could help to bring banking services to many remote communities, currently unable to access financial services. The World Bank estimates that up to 80% of people in Indonesia, the Philippines and Vietnam and 30% in Malaysia and Thailand have no banking relationships at present. For such communities, mobile phones could act as personal banks allowing individuals to access a wide range of financial services using a browser or app on their handsets.

ASEAN countries have the potential to enter the top five global regions in terms of the application of digital technologies. By 2025, the region's manufacturers are expected to have embraced fast evolving technologies and its citizens will be increasingly using advanced digital communications in their personal lives as well as in the workplace.

In conclusion, the region has an opportunity to move to the forefront of the fast growing global digital economy with many of the fundamentals already in place. These building blocks include robust and growing economies, a literate population, a rapidly growing smartphone penetration and well developed ICT. The successful implementation of a radical ICT agenda can help ASEAN leap to the forefront of global competitiveness as a world leading digital hub.

Airlines lead to global aviation expansion

Southeast Asia in 2017 was the only aviation market in the world to have as many aircraft on order as it had in its active fleet, as regional airlines continued to expand capacity and open new routes. It is relative newcomers such as Indonesia's Lion Air and Malaysia's AirAsia that are leading the way.

At the end of 2017, Boeing increased its 20 year forecast for new fleet acquisitions by regional airlines by 460 expected orders to 4,210 aircraft, valued at US\$650 billion. The US manufacturer predicts annual passenger and cargo traffic growth of 6.2% over the period, while Airbus expects annual passenger growth in ASEAN will average 7%.

Budget carriers are not the only airlines which are growing. Long established national airlines are also expanding. Garuda Indonesia, the state-owned carrier, has 90 new airliners on order while Malaysian Airlines is acquiring 60 aircraft. Vietnam Airlines has taken delivery of 11 new aircraft with another eight due for delivery. Singapore has said it will purchase 38 Boeing twin-aisle planes in anticipation of future growth and to replace existing models. Thai Airways is also due to acquire 30 new airliners over the next five years as part of its fleet modernisation programme.

The dramatic rise in air travel is largely due to the increase in lower and middle income travellers and the availability of affordable fares from budget airlines, which continue to expand their fleets and destinations.

Malaysian low-cost carrier (LCC) AirAsia whose "Now Everyone Can Fly" branding logo, has grown from serving a handful of routes since start up in 2001, to become an established carrier now flying to more than 165 destinations spanning 25 countries. This development has seen it become Asia's largest airline by fleet and passenger numbers.

The seat capacity provided by the LCC business model has grown by an average of 22% a year in recent years, providing the highest number of seats in the global LCC market. Thailand hosts a number of budget operators including, Nok Air, Thai Smile, Thai AirAsia, Thai Lion Air, Thai Vietjet and Orient Thai.

Juliandra Nurjahjo, President of Indonesia's Citilink, expects that LCCs will grow by 10% in 2018, as new routes are introduced. Lion Air, Indonesia's largest LCC is expected to add 17 new aircraft to its fleet in 2018. The carrier has one of the largest outstanding order books of any budget airline, with more than 400 booked between Boeing and Airbus. Malaysia's AirAsia also has 300 on order or pending confirmation. Vietnam's VietJet, has more than 200 on order. JetStar, which is 30% owned by Australia's Qantas, has ten.

A number of budget airlines are developing medium and long-haul routes outside ASEAN to Australia, North Asia and beyond. These operations are becoming increasingly viable due to the introduction of a

new generation of fuel efficient and low maintenance aircraft. This trend has seen Singapore based LCCs such as Scoot, adding to its long-range network with flights to Athens and Jetstar opening routes to Australia, Japan and Hawaii. Lion Air is also flying to Jeddah from Jakarta.

The development of aviation services, while powered by rising passenger demand and the expansion of budget carriers, is also being assisted by ASEAN's evolving Single Aviation Market (SAM) strategy. This is enabling the air travel market to extend beyond national boundaries and is also supporting airlines in implementing new business models. Easing of visa policies also promises to allow passengers to travel more freely within the region.

ASEAN airlines already have the right to fly over each other's airspace without landing, and the right to land, to refuel or carry out maintenance. The aim is to emulate the common aviation market seen in Europe where airlines, especially LCCs, can fly cross-border routes that do not originate or connect with its country of origin.

Forming alliances with companies in other member states has allowed ASEAN carriers to extend their operations. AirAsia has established several subsidiaries, which include Indonesia AirAsia and Thai AirAsia. The airline group also operates from the Philippines as both AirAsia and Zest Air. In Malaysia, another franchise AirAsia X, has been set up to operate long range budget routes, while AirAsia Japan commenced operations in 2016.

In October 2017, ASEAN transport ministers agreed a range of measures which are expected to further ease restrictions on the region's aviation sector. The agreements include adoption of the ASEAN Air Traffic



Management Masterplan to facilitate and manage aircraft movements in a more integrated way. The intent is to enhance airspace capacity and safety, reduce delays and lower operational costs.

Domestic code sharing rights for points within the territory of any ASEAN member state have also been agreed. This will allow travellers to make a single booking from one ASEAN country to another. Allowing more convenient transfers from one carrier to another and enable them to expand their networks without having to deploy their own aircraft.

Airport capacity is a concern which continues to be addressed. Runways at Singapore's Changi Airport, Southeast Asia's busiest airport, are expected to reach maximum capacity by 2019. Manila has already reached that point and has had to limit aircraft movements. Bangkok's main



As incomes rise throughout the fast growing economies of the region, demand for air travel is set to continue its growth curve.



Suvarnabhumi International Airport is also at full capacity. This has led to the Thai capital's former principal gateway Don Muang airport, being re-opened to take some of the traffic, particularly from LCCs.

Vietnam's Tan Son Nhat airport serving Ho Chi Minh City is the country's busiest hub and now handles seven million more passengers than its original capacity of 25 million. Hanoi International Airport is similarly also fast reaching its designed capacity.

Indonesia's Transportation Ministry has predicted that 2018 could see a 29.6% increase of passengers to 140 million from the 108 million recorded in 2017, a figure which in turn was 12.45% higher than in 2016. Jakarta's Soekarno-Hatta International Airport, is expected to receive 60 million passengers in 2018, while designed to accommodate only 43 million.

A major terminal expansion programme is now underway at Jakarta international airport with plans to add a third runway. Many of the country's other airports are also operating beyond capacity. As a result, investment in expanding existing facilities and building new airports to

serve regions close to tourist destinations are a priority in national infrastructure development plans. In 2017, the Director General of Civil Aviation was allocated a budget of US\$685 million for projects including a new international airport in Central Java at Yogoyakarta.

The Philippines has allocated US\$1.56 billion to upgrade Manila International Airport. Singapore is planning a fourth runway and fifth passenger terminal at Changi with the aim of increasing capacity by the mid 2020s. Malaysia is redesigning Kuala Lumpur International Airport to include an "Aeropolis" logistics hub and aerospace industrial estate. These and others comprise 18 major airport projects planned in the region with a total investment of US\$34 billion, according to the Hong Kong based Asia Times.

As incomes rise throughout the fast growing economies of the region, demand for air travel is set to continue its growth curve, especially in the highly populated areas of Indonesia and the Philippines. Significant extensions to existing and construction of new airports are becoming an urgent need in order to sustain predicted aviation growth.

Southeast Asia seeks role in global aerospace production

Development of aerospace manufacturing is an investment priority for many ASEAN countries. In the next decade, they intend to implement strategies to go beyond aircraft maintenance services, to enable them to become suppliers of both aircraft and aero engines and other high-value aviation products.

The essential building blocks for advanced aerospace assembly and manufacturing operations as well as R&D activities are being steadily implemented. The presence of major global aerospace companies is also helping domestic companies to move up the value chain and to take on increasingly more complex work.

As a result, the region promises to become a new global force in aerospace, which will increasingly be able to provide engineering services, electronics, composite materials, manufacturing and systems integration.

Strategies are ambitious with the Philippines, for example, seeking to establish itself as an aerospace hub in ASEAN for manufacturing and maintenance services within the next 20 years, selling US\$2.5 billion of aerospace products a year and employing 15,000 people.

Singapore is evolving to become an influential global manufacturer. As evidence of this, Professor Louis Phee of Nanyang Technological University (NTU), points to the university's long term R&D partnerships with international companies such as Rolls-Royce and Leonardo, both of which have established manufacturing ventures in Singapore.

Malaysia is also keen to emulate Singapore's success as it vies to become a leading aerospace nation within the next 15 years, at which point the sector is predicted to contribute US\$7.7 billion in revenues and provide 32,000 high income jobs. In 2016, aerospace activities had revenues of

US\$3.2 billion and employed 21,000 people. The country's Aerospace Industry Blueprint 2030 strategy, sets out plans to achieve this goal.

Composites Technology Research Malaysia (CTRM), based near Batu Benendum airport in Malacca, is a partner in the Airbus A380 programme. It is also producing components for Boeing 737, 767, 777 and 787 airliners, and has work share on development types such as the Airbus A350. The company intends eventually to move into fuselage work to further enhance its role. One area likely to underpin growth in the sector is military procurement, with some US\$6.6 billion allocated for the modernisation of defence equipment and systems.

Most manufacturing activity in Singapore is based at Seletar Aerospace Park, which opened in 2007. Production will be underpinned with completion of the park's development in 2018. It is already home to major companies including Pratt & Whitney and Rolls-Royce and home-grown companies such as Wah Son Engineering, Wings Over Asia and ST Aerospace.

Rolls-Royce arrived at the 310 hectare site in 2012, where it has built R&D and training centres as well as facilities to assemble and construct titanium wide-chord fan blade engine parts for its range of Trent aero engines. These include the Trent 1000 which power Boeing's 787 airliner and the Trent 7000 used by Airbus's latest A330neo. The pioneering venture represents Southeast Asia's first production of commercial jet engines. Engine casings, gears, valves and electrical power systems are among other products also being made in Singapore factories.

A number of manufacturers including Boeing, Airbus, Rolls-Royce and Thales have entered into partnerships with local universities and research institutes

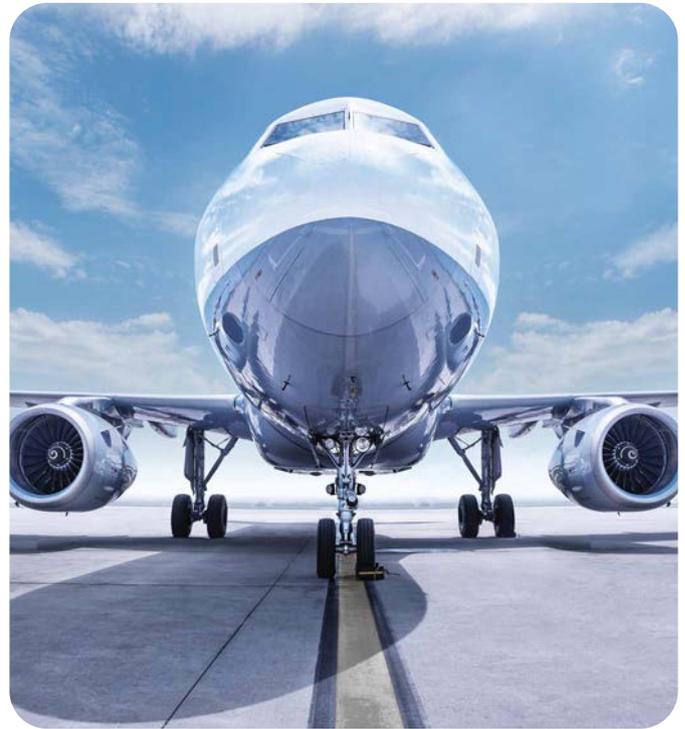
to study advanced materials, fuel cells and repair technologies. European Aeronautics Defence and Space Company (EADS) chose Singapore to establish its first research and technology centre outside Europe.

According to Tan Kong Hwee, Transport Engineering Director at Singapore's Economic Development Board, aerospace is a strategic sector which emphasises the country's focus on advanced technology and manufacturing. As part of this approach, "the Government is seeking to promote Singapore as a reliable partner with foreign companies in terms of protection of intellectual property rights and a reliable legal framework for doing business," he says.

About 60% of available space at Seletar has already been allocated. When capacity has been reached, companies are expected to have the option of increasing their activities at Changi international airport, which is being expanded to include a new industrial zone, in addition to a third runway and fifth passenger terminal, due to be operational in 2020.

Malaysia's answer to Singapore's Seletar, is Asia Aerospace City, a dedicated industrial hub at Subang, close to Sultan Abdul Shah Airport outside Kuala Lumpur. The facility, which is being developed by Mara Aerospace & Technologies is due to be completed in 2018, and is expected to attract new foreign inward investors.

Indonesia is also committed to aerospace development and is preparing to produce a locally designed airliner. The new 19 seat turboprop N-219 had its maiden flight in August 2017. The country's largest low-cost carrier Lion Air, has ordered up to 50 of the new aircraft with options on an additional 50. Another local airline, Nusantara Buana Air, has also signed a memorandum for 20 N-219s to provide feeder services around the country's vast archipelago.



Dirgantura Indonesia has previously collaborated in assembly work on the Spanish designed Airbus CN-235 medium-range transport aircraft. The N-219 is far more of a local product and it is hoped that production of the aircraft will stimulate the creation of a supply chain of domestic aerospace manufacturers for landing gears, rubber components and tooling among other items. The twin-turbo prop has a 1,556km range and designed to operate from small airfields.

Honeywell International has also established a plant on Bintan Island to manufacture aircraft communications, navigation equipment and other cockpit components for a range of Boeing and Airbus aircrafts as well as helicopters and corporate jets. The plant is described as one of the most modern assembly facilities in the region.

Local activity has also been boosted following a US\$1.3 billion deal with South Korea in August 2016, to jointly develop a new generation of fighter aircraft with Korea Aerospace Industries (KAI). The investment will account for around one fifth of the project's cost with 100 Indonesian engineers participating in the programme. The agreement allows for Indonesia to receive technical data and a prototype aircraft from the project.

Thailand also has ambitious plans, which officials hope will emulate the success of the country's automotive industry. They believe the sector is set to grow and benefit from a rising demand in global aviation and point to its pool of available skilled labour, geographical position, strong governmental support and its conducive business environment. The World Bank's Ease of Doing Business 2018 report, for example, lists Thailand 26 out of 190 countries, with Bloomberg placing it as the world's top emerging market after China and South Korea.

A number of prominent foreign aerospace companies, including GE, Senior Aerospace, Triumph Group, Chromalloy, Ducommun, Aeroworks, Eurocopter, Driessen and Minebea, have already established Thai based manufacturing operations.

The Government's recognition of the opportunities which lie in the sector has led to the implementation of the Aerospace Industrial Estate Development Plan (2016-2045) at the new U-Tapoa-Pattaya International Airport, which is a former military facility adapted for civil use and now serving the region south of Bangkok.

Many ASEAN governments recognise that the key to fulfilling their ambitious strategies lie in high quality education and training at all levels. The Philippines Board of Investments (BOI) is helping local companies

with training programmes designed to lead to AS9100 certification. Major aerospace manufacturers require the globally recognised quality management system to be used by suppliers as a condition for doing business with them.

BOI's Head of Management, Ceferino Rodolfo, says that "as the country's participation in the global value chain is increasing, the capability training programmes will further enhance the competitiveness of our local aerospace industry, which means more quality jobs for Filipinos and more export earnings for the country."

Malaysia is placing a particularly high priority on training, which has seen numerous new academic institutions and aerospace curriculums established in recent years. These include the Advanced Composite Training Centre at UniKL-Malaysia Institute of Aviation Technology and the Advanced Aeronautics Technology Centre, in addition to related diploma and degree level courses at public universities.

Investment in research is showing impressive results. Aerospace Malaysia Innovation Centre is researching an optimal algae strain to produce jet fuel.

Singapore also emphasises its R&D subsidies in addition to manpower development projects such as aviation scholarships. As part of the National Research, Innovation & Enterprise 2020 Plan, a sum of US\$13.4 billion is to be invested in R&D, with aerospace cited as one of the key areas for investment.

As a result of this investment, it expects to take a lead in niche aerospace areas such as transport drones and the design of small smart satellites. A satellite was launched from the International Space Station in 2017, and another is due for launch in 2018.

Aviation Maintenance, Repair & Overhaul (MRO) firms continue to expand

The huge expansion of airlines operating in the ASEAN region has created a growing need for such services for their aircraft. Lufthansa Technik Philippines, for example, estimates that more than 37% of global commercial aircraft will soon be based in the Asia-Pacific region, as low-cost carriers rapidly expand their fleets.

This market is a vital part of the entire global civil aviation industry. Technical support is essential to ensure passenger and cargo carrying aircraft are kept in condition of airworthiness as defined by strict international and domestic regulations of the civil aviation authorities.

There are now more than 100 MRO operations in Singapore alone and more are developing throughout the region. Many of these are being established to provide services through joint ventures with foreign companies.

Singapore is the leading hub for these services, accounting for 25% of the market and is expected to be one of the main beneficiaries of the region's fast expanding aviation growth. The sector already generates an annual turnover of US\$5.8 billion and employs more than 18,000 people.

However, the business is characterised by serious competition and this will intensify as a result of new generation aircraft and aero engines entering service. These aircraft are designed to require less frequent maintenance and lighter work content. Nevertheless, this prospect is balanced by the overall expansion in aircraft fleets throughout the region.

According to Boeing's Current Market Outlook, 3,860 new airliners will be needed in Southeast Asia over the next 20 years.

This surging expansion is being accompanied by a rapid increase in MRO providers, not just in hubs such as Singapore and Malaysia. The Philippines, Indonesia, Thailand and Vietnam are also keen to develop their industries. The market for services in Vietnam is growing fast with more than US\$500 million in revenues generated in 2018. As the country's carriers expand substantially over the next five years, further facilities are expected to be set up by local airlines in Chu lai, Da Nang and Hanoi.

Vietnam's capabilities are focused on Vietnam Airlines Engineering Company (VAECO), a subsidiary of Vietnam Airlines. It has facilities in Hanoi and Ho Chi Minh City and provides services for all Vietnam air carriers as well as 40 other airlines and holds safety certification from both the European and US air safety bodies.

Nguyen Duc Cuong, Chairman of the Vietnam Aviation Aerospace Association, says the country is quite capable of becoming a leading maintenance centre in the region, with large repair facilities available in Bien Hoa City and Da Nang. The Chairman believes Vietnam's potential could attract an increasing amount of investment from both the US and Europe.

Thai authorities are actively seeking to develop the aviation sector which is estimated to generate employment for up to 20,000 people within the

next 20 years. Limitations on foreign investment in aviation maintenance centres have been relaxed by Thailand's Board of Investment (BOI) as part of a wide range of incentives to foreign inward investors. These include provision of sites and factories close to air and seaports and free trade zones. Further incentives are available for aerospace companies if they collaborate with Thai academic and research institutions.

MRO industries and training bodies are being encouraged to set up in Bangkok at Suvarnabhumi International Airport. Studies are also taking place to develop Nakhon Ratchasima Airport, 220km northeast of Bangkok, as a new service centre.

Meanwhile the Government is establishing a specialised aerospace industrial estate at U-Tapao International Airport, in an effort to make the country a regional aviation services hub. In 2017, Airbus signed an agreement with Thai Airways International to evaluate the development of facilities at U-Tapao, a civil and military airport, 140km southeast of Bangkok.

The country already hosts a number of international companies including Triumph Group, Chromalloy, Airbus and Turbine Aero. The latter's VP and General Manager, Peter Gille, believes that Thai based organisations can also benefit from demand for services from Myanmar, Cambodia and Vietnam, given Thailand's close proximity to these ASEAN neighbours.

MRO is also the main current focus of Indonesia's aerospace development, with the sector expected to generate revenues of US\$2 billion a year by 2020, compared to US\$900 million in 2016. There are up to 70 companies and most of these only comply with certification provided by Indonesia's Directorate General of Civil Aviation. This is a far less costly service as it only extends to the domestic market.

GMF AeroAsia, a subsidiary of the country's principal airline Garuda, is the only airframe and engine overhaul facility in the country which is



internationally certified. The company holds both European Aviation Safety Agency (EASA) and US Federal Aviation Administration (FAA) certification. GMF's main MRO facilities are located in Cengkareng, west of Jakarta and close to Soekarno-Hatta International Airport, where the company services a range of Boeing, Airbus and Bombardier airliners.

GMF is now focused on developing a secondary MRO base on Batam Island. Located in the Riau Island group, it is close to Singapore's aviation hub. The local Hang Nadim airport also features a 4,025m long runway which can accommodate the largest airliners including the Airbus A380.

In March 2017, several of Indonesia's leading state-owned aerospace companies signed a memorandum to create a new company to be called



MRO is also the main current focus of Indonesia's aerospace development, with the sector expected to generate revenues of US\$2 billion a year by 2020.



the Indonesian Service Hub. Minister for State-Owned Enterprises, Rini Soemarno, expects that combining the capabilities of GMF, Dirgantura Indonesia, Nusantara Turbine, Propulsion Indopelita and Meripati Maintenance Facility, will strengthen the country's competitiveness. The new entity is expected to provide services for both the military and civil aviation sectors.

The market is also growing in importance in the Philippines, where revenues from these activities are predicted to rise more than six-fold to US\$1.5 billion by 2025, compared to US\$226 million in 2014. This reflects the steadily expanding scope of the country's capabilities. Lufthansa Technik, for example, is providing services for Air France's Airbus A380 fleet, which has necessitated building a third hangar to accommodate its growing volume of work.

Malaysia's Aerospace Industry blueprint (2015-2030) seeks to gain 5% of the global market by the end of the plan. By 2030, aerospace activities are projected to generate revenues of US\$13.7 billion annually and provide 32,000 jobs. The sector now employs around 19,000 people with 160 companies involved, according to International Trade and Industry Minister, Mustapa Mohamed.

Singapore has also developed a substantial capacity on its own account through the locally incorporated ST Aerospace and SIA Engineering (SIAEC). The largest local services company is Singapore Technologies (ST) Aerospace, which has been operating since 1976 when it was established to service military aircraft. Now with a global reach, the listed company has 8,000 certified engineers and operates space for 30 types of twin-aisle and 11 narrow body airliners.

Boeing and SIAEC, a subsidiary of Singapore Airlines, have a joint venture to service the US manufacturer's aircraft. The agreement also covers the provision of services for Singapore Airlines' Boeing 777-300ER aircraft and the fleet of new 787 twin-aisle long-range airliners ordered by Scoot, a local budget carrier.

Jet Aviation, a subsidiary of the US' General Dynamics company, has used Singapore as one of its four worldwide aviation services hubs since 1996, and is currently extending its space to 15,000km² at Seletar Airport. Jet is increasing its capabilities in Singapore to modify aircraft, carry out avionics upgrades and refurbish interiors. The company's General Manager, John Riggir, says this is a reflection of accelerated growth in the Asia-Pacific aviation market.

Mining sector looks to improve environmental safeguards

As new policies designed to instigate a more balanced approach to mining development in the region have begun to unfold, it has also had to cope with a decline in commodity prices over the last three years. However, prospects for the sector have increased since the second half of 2017, with demand recovering in key markets, in particular China, the world's leading consumer of minerals such as nickel and copper.

ASEAN countries' are rich in mineral resources with vast potential for new discoveries. Some 60% of the Philippines' land area of 30 million hectares, for example, has high mineral potential with values estimated at around US\$850 billion. The south especially is seen as having a wealth of resources including gold, copper, nickel, manganese, chromite, silver, lead, zinc and iron ore.

Malaysia has substantial gold deposits in a belt stretching from Kelantan, Terengganu and Pahang through to Johor and Sabah. Cambodia also has considerable potential to develop, with significant deposits of gold, titanium, copper and bauxite. Vietnam has many extractable reserves including tungsten, titanium zinc, rare earths, as well as phosphates, iron ore and coal. It is also estimated to contain 7% of world deposits of bauxite, with 5.5 billion tonnes located in the Central Highlands.

Indonesia is the region's largest producer of both industrial ores and precious metals. It's Grasmore Mine in the eastern province of Papua is one of the largest gold mines in the world. Operated by US based Freeport-McMoran, the mine provides most of Indonesia's estimated 100 tonnes of gold production a year, a level that ranked Indonesia as the world's tenth largest gold producer in 2016, according to the US Geological Survey (USGS).

However, future exploitation of ASEAN countries' mineral wealth is being increasingly measured against environmental considerations and the effect on local populations.

These considerations can slow foreign large scale investment but there are many artisanal and small scale gold mining operations taking place that are far less easy to control. Since these take place in remote areas they are largely unregulated, creating environmental concerns especially from the release of chemical contaminants such as mercury into local areas and rivers.

Stricter controls and enforcement of regulations concerning environmental threats and citizens' welfare weighs heavily on future exploitation of gold deposits and other mineral wealth in the country. In February 2017, the

Philippines Department of Environment and Natural Resources (DENR) ordered 50% of the country's mines to halt production and cancelled contracts for 75 potential projects still in their exploration stages.

Projects involving open-cast mining are a major concern in the Philippines. These include the US\$5.9 billion open-cast Tampakan copper-gold project mining proposal, which covers the provinces of South Cotabato, Saranggani, Sultan and Davao del Sur on Mindanao Island and has an estimated 17 year life span.

Nevertheless, the Government is weighing the benefits of mining against environmental and social considerations and has shown it is willing to suspend the operations of mines considered not to be meeting environmental rules. An audit has reported that many mines fall short of required standards.

Indonesia is determined to add value to mining activities by insisting that its minerals, including nickel, bauxite and copper be refined and processed within the country, rather than exported as ore. In an effort to stimulate domestic processing facilities, a ban on the export of unprocessed ore was imposed in 2014. This overall ban was relaxed at the beginning of 2017, with companies permitted to export certain approved quantities of unprocessed and semi-processed products for a period of five years.

Foreign investors in Indonesia are also required to divest at least 20% and 51% of their stakes respectively, by the fifth and 20th year of a mine's production. The divestment schedule is applicable to all minerals.

While it is easy to concentrate on potential gold mining projects and valuable industrial minerals, the most abundant mined commodity in the



region is coal, which contains 30 billion tonnes of reserves. Indonesia, with large scale mining ventures in Kalimantan and Sumatra, is the largest coal producer and also a net exporter. Vietnam is the second largest producer while Malaysia has mines in Sarawak, with Thailand's production located in its northern Lampang Province. The Philippines also produces for an export market as well as domestic use, mainly from a large open-cast mine on Semirara Island.

Coal, because it is so plentiful and easily recovered, offers a much cheaper form of fuel for power stations than oil or gas. As a consequence, some 100,000MW of new generating plants are due to be fuelled by coal over the next 20 years.



In the long term, the vast and still to be extracted mineral potential is likely to remain a powerful magnet for investors.



Resilient demand from a fast expanding power sector is continuing to support growth in coal production. Indonesia's electricity strategy, for example, envisages that half of its planned increase of 35,000MW generating capacity will be coal-fired. The country, which ranks as the world's main exporter of thermal coal, has extensive deposits distributed throughout. As a result, mining has become a major activity in provinces such as Papua, Bangka-Belitung, West Nusa Tenggara and East Kalimantan

Vietnam, which has around 8.8 billion tonnes of coal deposits in the north-east and 29 billion tonnes in the Northern Delta region, also plans to build more than 70 coal-fired power stations by 2030.

However, all major coal-consuming nations have introduced standards that must be met for controlling carbon dioxide and other air pollutant emissions. The adoption of improved methods to control them is recognised by ASEAN's Mineral Awards. Eight companies operating in

Indonesia, the Philippines, Thailand and Lao PDR were the first recipients of these awards in December 2017, at the sixth ASEAN Ministers Meeting on Minerals held in Myanmar.

If managed well, natural resources can help economies expand and develop in a sustainable way, benefiting local communities as well as national economies and the companies involved. In this, a meaningful attention to human rights in addition to environmental questions is essential as is a process of awarding contracts, which are fully transparent.

Mining can make a significant contribution to countries' GDP, exports, government revenues, employment and perhaps most importantly if done responsibly, the economic development of the country's remote regions where mining operations are located. In the long term, the vast and still to be extracted mineral potential is likely to remain a powerful magnet for investors.

Agriculture development offers huge investment potential

Agriculture is a key element of export growth for many ASEAN countries. Some 60% of the working population in Cambodia, 50% in Vietnam, 40% in Thailand and Indonesia, and 35% in the Philippines depend on the land.

They produce a wide range of food and products and are top global exporters of rice, fruit, vegetables and coffee, palm oil, cashew nuts and pepper.

ASEAN is playing an increasingly important role in world agro-food trade with around US\$139 billion of sales abroad, according to the UN's Food and Agriculture Organisation (FAO). Palm oil accounts for the largest share of exports in value terms, while fish and seafood products rank as the second most valuable, totalling 15% of world sales. Vietnam and Thailand respectively are the third and fourth largest exporters of fish and fisheries products globally.

Indonesia has the highest fisheries and aquaculture production sector at 38% of the total. Vietnam and Myanmar are also intensively developing their fisheries industries.

In addition to food, ASEAN countries are also important world suppliers of commodities accounting for 3.3 million tonnes a year of rubber, representing 70% of global production.

Thailand, Indonesia and Vietnam are the world's largest exporters of rubber. Malaysia moved from traditional labour intensive rubber cultivation to focus on palm oil development, a sector in which its highly efficient plantation management and genetics research have led to high productivity.

While farming has evolved to the cultivation of high value export products, most agricultural production remains centred around rice. However, the crop's contribution in total production value has declined over the last 25

years from 40% to 30%, mainly because of the increasing contribution of palm oil to total agricultural production value.

Despite a growing emphasis on export opportunities for higher value products, food security is major focus for governments. Almost all countries have some form of self sufficiency related targets. Indonesia has the most ambitious targets aiming to achieve this for all main staple products by 2019. The Philippines meanwhile has coupled a drive for self sufficiency in its two main staple crops of rice and maize.

The national level strategies of member states are no longer seen as sufficient to tackle the immense food security challenge and ASEAN is in an increasingly influential position to develop and implement region wide responses to these problems.

Member states have already implemented a number of cooperation projects. These cover exchange of information, crop production, postharvest processing and handling, training programmes and trade promotion initiatives.

ASEAN Integrated Food Security (AIFS) is working to integrate programmes to stabilise national and regional food prices and supplies, and quickly help member countries to cope with food emergencies.

Innovative techniques and regional cooperation such as the ASEAN Ministers of Agriculture and Forestry (AMAF) work plan to improve crop, livestock and fisheries production, are also helping the region's farmers meet environmental challenges.



Indonesia's rice partnership is an initiative to engage smallholder farmers in increasing yields through new technology and innovative financing programmes. A first trial has resulted in 17% higher yields and a 20% reduction in water usage. In addition, digital technologies are providing opportunities to further the AMAF agenda. These include drones that spread fertilisers and pesticides.

Vietnam, Thailand, Malaysia and Singapore are similarly using technology to provide information on weather, pests diseases and prices to link farmers, traders and suppliers into a unified system.

Garuda Robotics has been set up in Singapore to provide drones for palm oil farmers. The drones carry cameras and sensors to generate mapping



Indonesia's rice partnership is an initiative to engage smallholder farmers in increasing yields through new technology and innovative financing programmes.



and data on tree health over extensive areas. Temasek Life Sciences Laboratory, a non-profit body also based in Singapore, has developed a resilient type of rice capable of withstanding extreme weather while producing higher yields.

Innovation and new approaches to managing land resources can unlock huge agricultural potential in the region. ASEAN members have around 69 million hectares of their land areas under arable agriculture and another 44 million hectares dedicated to palm oil and rubber. Huge as these resource are, raising productivity in the region is a challenge. Most farms are smallholdings of about 1.2 hectares, with farmers often lacking knowledge about modern farming practice.

Up to three quarters of Cambodia's cultivable area is estimated to be taken up with rice cultivation. Around one million tonnes of the crop are produced each year though only 10% is exported due to a lack of

transportation infrastructure and high costs of production. Some experts have suggested greater focus should be made of higher-value grades of rice as well as pepper and coffee to raise farmers incomes and to develop agricultural exports.

Vietnam's agriculture sector has ample opportunities for future growth and for developing food exports and has seen the country emerge as one of the leading exporters of agro-food commodities.

ASEAN countries recognise the need for developing and modernising farming methods and is seeking to join with the private sector and foreign investors to raise productivity and quality levels. A basic objective of member states, is to enhance the international competitiveness of their food, agriculture and forestry products. Other important focus areas include harmonisation of quality standards and food safety.

Tourism sector opens up huge investment opportunities

Tourism in ASEAN countries is a vital element of economic growth and a major generator of employment. The sector contributes an average 12% of GDP to the region while also generating substantial foreign exchange earnings. For member states there is huge potential for more extensive development of an industry that generates revenues of more than US\$122 billion a year, according to World Bank estimates.

Thailand remains the main destination for international visitors. In 2017, tourism earnings, helped by a 12% rise in Chinese visitors, reached US\$56 billion, making the sector one of its most important drivers of economic growth. It is expected to receive 37.5 million foreign tourists in 2018, with revenues estimated to reach US\$67.4 billion.

The country's attractions embrace a wide clientele, many of whom are keen on entertainment and shopping opportunities as much as beaches and cultural sites. One Thai retail developer, Central Group, is investing US\$250 million in the Central Embassy Mall in Bangkok's commercial district. This project is typical of the growing number of high end ventures designed to bring in global brands to Thailand. Foreign retailers are also showing interest: Japan's department store operator Takashimaya Company is due to launch its first store in 2018, in the new Iconsiam Mall in Bangkok.

Vietnam is also benefitting from a surge in tourism. In 2017, the country experienced a 30% increase in international arrivals to 13 million visitors, while earnings reached US\$18 billion. The country's General Department of Tourism is keen to develop island resorts and attract more cruise ship visits.

As with other countries in the region, aviation expansion is playing a major role in Vietnam's tourism development. Initial work is due to begin in 2018, at Tan Son Nhat International Airport that serves Ho Chi Minh City. Long term the airport's capacity to handle 23 million passengers a year is to be doubled.

Malaysia is expecting to receive 33.1 million tourists in 2018, and have predicted earnings of US\$34.5 billion. The sector is due to be boosted by the opening of major new developments such as the 20th Century Fox World Malaysia theme park and the Desaru Coast Malaysia integrated premium destination resort.

Neighbouring Singapore, which already hosts Formula One motor racing, is seeking to attract more sports events while its Universal Studios and Sentosa Island resort have broadened its visitor appeal. As a result, tourist arrivals in 2017 rose 6.2% to 17.4 million with receipts in the sector increasing 3.9% to US\$20.2 billion.

The Philippines also saw international tourist arrivals rise to reach a record 6.62 million in 2017, an increase of 10.96% from 2016. Improved air routes and more cruise calls helped boost the number of foreign visitors. Some 1.6 million South Korean visitors provided the country with its main source market followed by China with 968,000 arrivals. The National Tourism Development Plan is projecting 7.4 million international visitors in 2018.

Meanwhile, the first phase of the US\$1.1 billion Resorts World Bayshore entertainment casino and hotels project is due to open in 2018. Promoters aim to position the project, which is located in Manila Bay, as a rival centre to classic gambling resorts such as Las Vegas or Monte Carlo.

The result of Myanmar opening up to foreign investment has seen hotel groups steadily extending their presence. Considerable hotel development is underway to build new hotels in Yangon and other resort areas. In 2018, the Spanish hospitality group, Melia Hotels International, will operate a new 400 room hotel in Yangon.

Hilton Worldwide Holdings plans to open more hotels in Myanmar. Projects in Bagan, Mandalay and in Inle Lake in Shan State are planned. The Accor, Shangri-La and Pan Pacific Groups have also declared plans to enter the market.

Myanmar aims to nearly double the number of its 7.4 million visitors by 2020. Improvements to transportation, services and sustainable development will be key to achieving this ambitious target. In view of this, Myanmar is hoping to encourage investment in less developed tourism areas such as the Myeik archipelago of 800 islands in the country's southern Tanintharyi region. Nine hotel companies have reportedly been licensed to build properties in the region, which is expected to be attractive to eco-tourism as well as for its beaches.

Cambodia received five million visitors in 2016, a 20% increase on the previous year. Tourism Minister, Thong Khon, is targeting seven million tourist arrivals in 2021, as capacity constraints are eased with new hotels opening. It is anticipated that the sector will also be augmented by completion of the Diamond Island Convention and Exhibition Centre, the centrepiece of a strategy to help the country attract more meetings, incentives, conferences and exhibitions (MICE) visitors, and enhance the attraction of iconic cultural destinations such as Angkor Wat.



The rapid increase in cruise tourism is also expected to spur further investment in port and destination infrastructure. This is expected to lead to more ship based tourism operations, providing spin-off benefits for local tourism industries. According to projections by the Florida based specialist cruise industry analysts Bermello AJamil and Partners, ASEAN countries have the potential to receive 4.5 million cruise visitors by 2035, a tenfold increase on 2016.

Indonesia's Tourism Minister, Arief Yahya, believes there is substantial potential to expand the country's share of the cruise industry and is targeting 500,000 foreign tourist arrivals in the next two years. As a result, cruise ships are being encouraged to visit Indonesia ports, particularly in



The rapid increase in cruise tourism is also expected to spur further investment in port and destination infrastructure.



the relatively unspoiled eastern parts of the country. However, this will mean ports having to accommodate larger vessels in places such as Bali, Lombok, Flores, Semarang and Probolinggo in Java, South Kalimantan, Belawan, Para Pare and Tanjung Priok.

Other leading tourism centres are preparing to attract more of the region's fast growing cruise market. Singapore's growing industry saw 481 ship calls and the number of passengers increase 17% to 1.38 million in 2017. Malaysia is also preparing for this expanding travel mode by making long term investments in developing port and shore-line infrastructure catering for cruise ships.

The provision of easier access to travel visas, in particular the application of a common visa system and extension of visa exemptions, will enable visitors to travel freely among ASEAN countries. The single visa initiative is a work in progress and requires identifying and harmonising differences in policies as well as agreement on fees, administrative procedures and security issues, in addition to coordination of information systems between countries. The region is already seeing a significant streamlining of regulations.

Member states are helping region wide tourism by developing a free flow of services and trained personnel. They also want to improve skills by implementing a Mutual Recognition Arrangement (MRA) of qualifications for those working in the hospitality sector. A Regional Secretariat has been set up in Indonesia to facilitate the introduction of the MRA. The move includes setting up an ASEAN Tourism

Qualifications Equivalent Matrix, to serve as a key reference for associated training institutions, as well as an ASEAN Tourism Professional Registration System.

Brunei Darussalam's Ministry of Primary Resources and Tourism, is seeking to encourage more visitors, particularly through the promotion of eco-tourism. Its industry will also be helped by the US\$150 million modernisation of its international airport. Tourism forecasts suggest that the sector's contribution to GDP could rise to 4.7% by 2025, to reach US\$365 million and also provide 20,000 jobs, the equivalent of 7.7% of total employment.

Developing new visitor attractions and marketing these to an international audience is vital if the benefits of tourism development are to be more evenly spread in the region, and also to relieve pressures on traditional and increasingly overcrowded visitor sites. Sustainability is a key factor in future developments.

Cambodia's strategy, for example, aims to reduce congestion at its most popular sites such as Angkor Wat, by developing and promoting other tourism areas in the country. Indonesia also wants to develop away from Bali to other areas of potential.

There are vast, exciting areas open for development in a region of much diversity. Tourism is not just about resort projects aimed at international visitors, it is also vital for socio economic development, not least because it promotes people to people connectivity, one of the key strategies towards the ASEAN Economic Community.

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