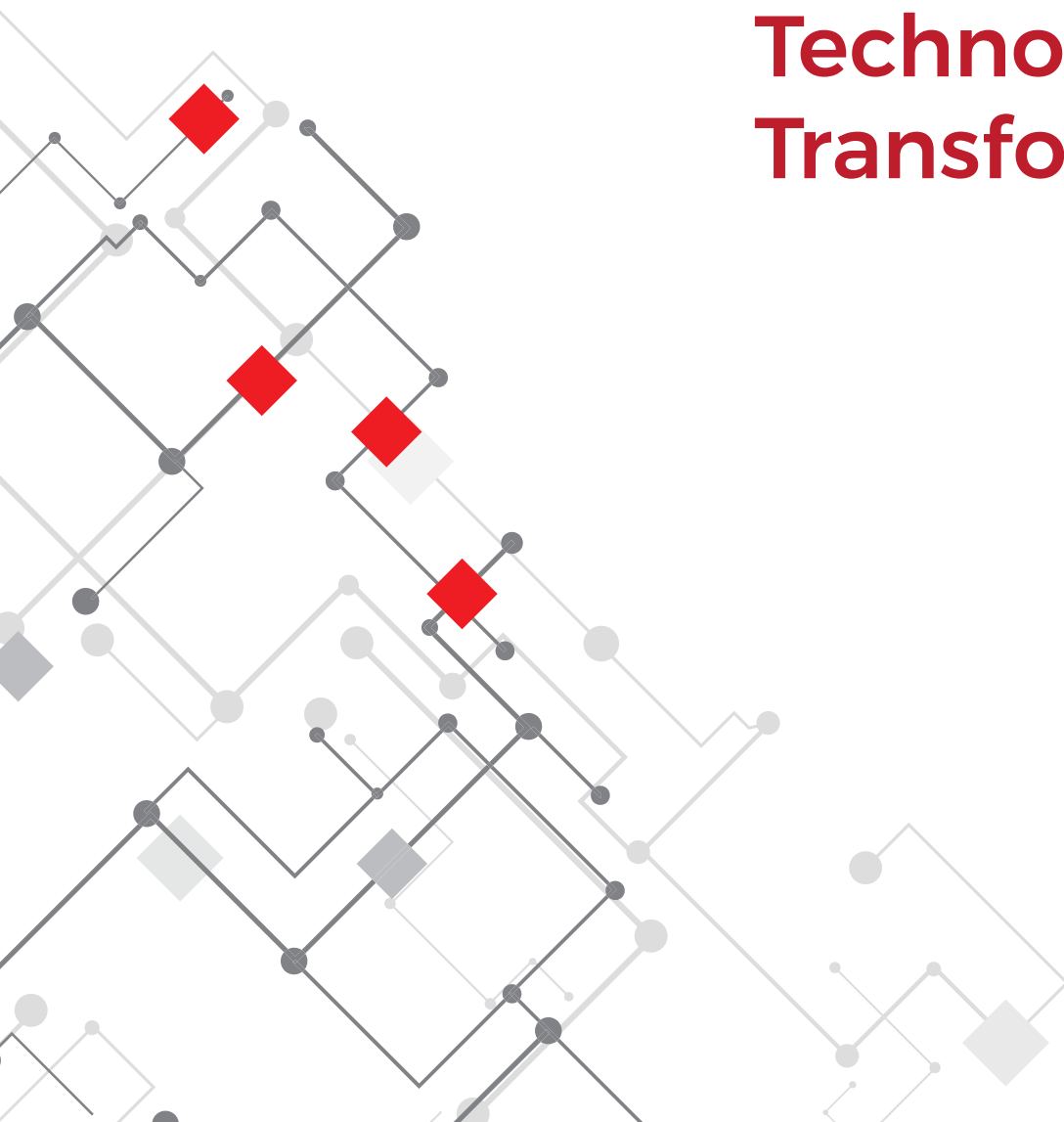


Inspiring Technological Transformation





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1 Year in Review: 2018

Amid the slowdown in economic growth, the World Bank expected Malaysia to achieve the coveted high-income country status at some point between 2020 and 2024.

- World Bank, The Star 5 Oct 2018



1.1

YEAR IN REVIEW

A Word from MIDA

MIDA is on a targeted course to encourage industries to embrace emerging technologies and strive for more highly-skilled human capital development towards raising the productivity bar and overall competitiveness of the nation. By locking arms with committed stakeholders, MIDA envisages to see this year's theme *Inspiring Technological Transformation*, come to fruition

Global Economic Investment Growth

Turn of the tides

The global economic outlook for 2018 held much promise on the back of 2017's rapid upturn in global manufacturing and international trade. However, as investors rushed to cash in, their confidence was met with a slowing global growth momentum in the second half of 2018, amid heightened trade tensions and policy uncertainties, marked fluctuations in energy prices, higher yields in the United States, a strengthening US dollar, and financial market pressures on the currencies of vulnerable economies with weaker fundamentals. Against this backdrop, uneven growth prospects among emerging markets and developing economies (EMDEs) dimmed the outlook further.

The weakening global growth prospects led to the World Bank's downward revision of 2018's global economic growth to an estimated 3.0 per cent, which is a marginal 0.1 per cent decrease from 2017 – a vast contrast to the whopping 0.7 per cent jump in global GDP from 2.4 per cent in 2016 to 3.1 per cent in 2017.

Both EMDEs and advanced economies witnessed slight growth declines in 2018 estimates versus 2017. EMDEs slid marginally to 4.2 per cent in 2018, down by 0.1 per cent, and advanced economies was at 2.2 per cent, also 0.1 per cent lower.

All regions recorded declines in 2018 except for South Asia, Middle East and North Africa, and Sub-Saharan Africa. Europe and Central Asia was hit by a sharp decline of 0.9 per cent, which landed them at an estimated 3.1 per cent in 2018. The world's fastest growing region, East Asia and the Pacific, slid by 0.3 per cent, going from 6.6 per cent in 2017 to an estimated 6.3 per cent in 2018. In China, growth slowed by 0.4 per cent to 6.5 per cent in 2018, against its preceding year's high of 6.9 per cent. Conversely, South Asia lauded growth of 6.9 per cent in 2018 (up by 0.7 per cent) heralded by strengthening investments and vigorous consumption; India contributed to the region's rosy growth numbers by charting 7.3 per cent in 2018 – up by 0.6 percent – due to its steadying economic activity arising from strong domestic demand.

According to the World Bank, given the downside risks to 2019's outlook, global economic growth is expected to soften by 0.1 per cent to 2.9 per cent in 2019. Growth in EMDEs is expected to remain unchanged – albeit at

a weaker-than-expected 4.2 per cent in 2019 – while advanced economies are projected to slide by two per cent, from 2.2 per cent in 2018 to 2.0 per cent.

Other headwinds that could hamper economic activity in 2019, warned the World Bank, are sharper borrowing costs, past increases in private and public debt, and intensifying trade tensions which could disrupt globally interconnected value chains.

Malaysia's Private Investment Performance 2018

Celebratory rankings

Closer to home and on a brighter note, Malaysia came up roses in several global rankings in 2018, one of which is Bloomberg's Emerging Market Scorecard. Carrying on its lead from 2017, Malaysia once again clinched the top spot in a line-up of 20 other emerging market peers, ahead of prominent nations like Russia (2nd), China (3rd) and Korea (10th), to name a few. The study cites Malaysia's current account surplus, relatively stable economic growth outlook, and valuations as reasons that led to its repeat performance.

Another rousing accolade is Malaysia's nine-spot leap to garner a global ranking of 15 among 190 economies in the World Bank Group's Doing Business 2019 report. In its statement, the group lauded the country's consistent efforts to adopt international regulatory best practices as what made the achievement possible. The six business reforms carried out were in the areas of starting a business, dealing with construction permits, getting electricity, registering property, trading across borders, and resolving insolvency. Malaysia was top five in several areas, namely; second only to New Zealand for protecting minority investors, third for dealing with construction permits, and fourth for cost of obtaining electricity. These significant improvements in its business environment, as captured by the report, helped the nation regain a position among the world's top 20 economies.

The country rose one spot in the World Economic Forum's (WEF) 2018 Global Competitiveness Report (GCR) to the 25th place out of 140 countries, with a score of 74.4. The report heralded Malaysia as one of three non-high-income economies that made it to the top 40 list; Malaysia was at 25th place, China at 28th and Thailand at 38th. The country came in tops

for macroeconomic stability, 15th for financial systems, 19th for business dynamism, 24th for institutions, and 32nd for both infrastructure and ICT adoption. Adding that Malaysia sits at 9th place among future-ready economies, the GCR stressed that adaptability and agility of all stakeholders – be they individuals, governments or businesses – will be key to the success of economies. The report alluded to the fact that Malaysia's results – which spells competitiveness, if kept up – will promote higher and sustained levels of income in the future.

Malaysia was also proudly the only Southeast Asian economy that registered an improvement of two notches in the Switzerland-based IMD's (Institute for Management Development) World Competitiveness annual rankings. According to its 2018 report, the country's improved position – from 24th to 22nd place among 63 economies – owes much to its strong rebound in economic performance, especially in the international trade arena. Coming in at 25th, Japan, South Korea (27th), and India (44th) also saw slight improvements.

Economic progress at home

Malaysia is set to leverage on the improving trend of private investments bolstered by the positive sentiments arising from the new Government's supportive policies and clear economic direction.

In its fourth quarter 2018 bulletin, Bank Negara Malaysia (BNM) reported that the Malaysian economy had a higher growth of 4.7 per cent in the fourth quarter of 2018 despite global headwinds, supported by expansion in domestic demand and a positive growth in net exports. Private sector expenditure remained the key driver of domestic demand, growing at 7.7 per cent, while a rebound in real exports of goods and services turned around to register a positive growth of 1.3 per cent against the third quarters' -0.8 per cent. On a quarter-on-quarter seasonally-adjusted basis, the economy grew by 1.4 per cent. As a whole, the economy grew by a commendable 4.7 per cent in 2018 influenced by resilient private sector spending, lift from net exports, and continued expansion in the services and manufacturing sectors.

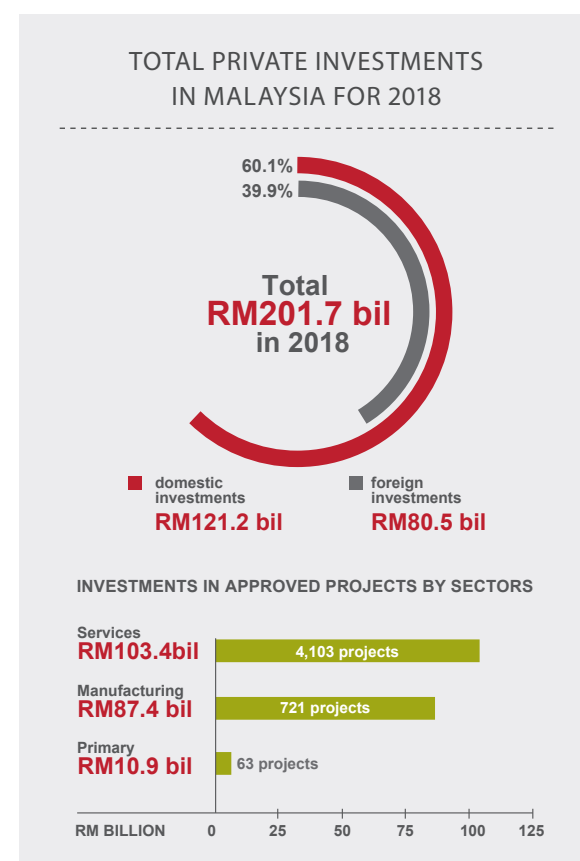
The report noted the continued expansion in the manufacturing sector was supported by electronics,

improvement in the mining and agricultural sectors, and robust household spending driven by income and employment growth. Private investment growth moderated to 4.4 per cent in the fourth quarter (versus 6.9 per cent in the third quarter), attributed to slower capital spending across major economic sectors. However, ongoing multi-year projects in the manufacturing sector continued to provide support to overall growth.

BNM warned, though, that further widening of trade tensions would curtail global trade and growth. Other factors that could weigh down growth prospects include tightening financial conditions, heightened financial market volatility, political and policy uncertainties, and elevated debt levels.

Performance overview

Malaysia's private investments in the manufacturing, services and primary sectors charted RM201.7 billion in 2018, a 0.55 per cent increase against 2017's RM200.6 billion. The pie was split with domestic direct investments (DDI) assuming 60.1 per cent of the share at RM121.2 billion, while foreign direct investments (FDI) accounted for the remaining 39.9 per cent, chalking RM80.5 billion.



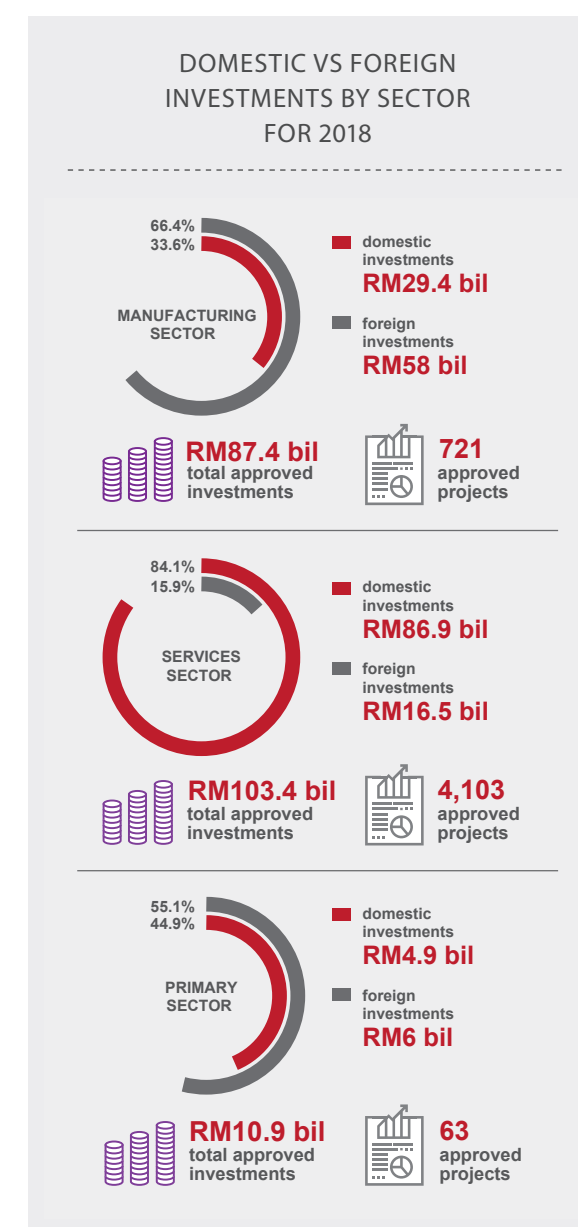
The manufacturing sector's performance rose by 37.2 per cent and stood at RM87.4 billion, against investments of RM63.7 billion in 2017. The sector called in 721 projects, the bulk of which (386 of the total approved projects) were new ones that created 59,294 job opportunities.

Foreign investments more than doubled in 2018 (RM58 billion against 2017's RM21.5 billion) and accounted for 66.4 per cent of approved investments. Out of the 721 approved projects, investors were mostly active in new projects, which stood at RM61.8 billion and made up 70.7 per cent of the total. The remaining 29.3 per cent (approved investments worth RM25.6 billion) were from expansion/diversification projects. The petroleum products including petrochemicals industry was the crowd favourite and attracted the largest amount of foreign investments at RM19.1 billion, while other industries with high levels of foreign investments were the electrical and electronic products (RM10.7 billion), basic metal products (RM8.5 billion), paper, printing and publishing (RM5 billion), chemicals and chemical products (RM4.4 billion), and rubber products (RM3.1 billion).

Domestic investments in manufacturing accounted for 33.6 per cent (RM29.4 billion) of total investments approved. Majority of the investments (RM21.5 billion) were new projects, while the remaining RM7.9 billion were from expansion/diversification projects. The industry that attracted the most interest from domestic investors was the petroleum products including petrochemicals industry (RM13.8 billion), followed by basic metal products (RM4.7 billion), rubber products (RM1.5 billion), machinery and equipment (RM1.5 billion), food manufacturing (RM1.3 billion), and transport equipment (RM1.2 billion).

The services sector led the way for total investments approved in 2018, and garnered 4,103 approved projects with investments totalling RM103.4 billion. Domestic investments accounted for RM86.9 billion while foreign investments stood at RM16.5 billion. The real estate sub-sector continued to lead with investments totalling RM47.9 billion, followed by utilities at RM9.8 billion, financial services at RM9.7 billion, global establishments at RM7.5 billion, and distributive trade at RM7.3 billion.

Approved investments in the primary sector landed RM10.9 billion from 63 projects. Foreign investments took more than half of the share at RM6 billion, while domestic investments landed at RM4.9 billion. Contributing 26 projects, the mining sub-sector came out tops with approved investments worth RM10.2 billion. Plantation and commodities followed with investments of RM601.8 million, while the agriculture sub-sector accounted for the rest.



Total Realised Private Investments (GFCF)

In 2018, realised private investments, measured in terms of Gross Fixed Capital Formation (GFCF), stood at RM246.4 billion as compared to the RM234.8 billion recorded in 2017, an increase of 4.9 per cent.

Following the mid-term review of the Eleventh Malaysia Plan (11MP) 2016-2020 in October 2018, Malaysia has been given a fresh set of revised selected targets for Macroeconomic Prospects. The country's new target of average growth for real private investments for 2018 to 2020 is set at 6.1 per cent, as opposed to the 9.4 per cent prior to the mid-term review. Average private investments have also been adjusted downwards to RM252 billion in current prices, from RM291 billion prior to the mid-term review (see box article on page 12 on the 11MP Mid-Term Review). Considering the incremental total growth from 2017 to 2018, Malaysia is certainly on track to achieve the 11MP's revised target of 6.1 per cent of average growth of real private investment by the year 2020.

Shape-shifting for a Productive and Competitive Future

Labour productivity in Malaysia has grown between three to four per cent annually over the last few years. To improve this, productivity was highlighted as a pivotal game-changing element in the 11MP set target of RM88,450 per worker by 2020, with an average annual growth rate of 2.9 per cent from 2018 to 2020. All stakeholders must make a concerted effort to boost productivity at the national, sectoral and enterprise levels in a targeted and focussed manner.

As the nation's leading Investment Promotion Agency (IPA), MIDA fully supports the Malaysia Productivity Blueprint (MPB), launched on 8 May 2017, in its goal of shaping the productivity and competitiveness of the local business landscape. The blueprint takes a bold step towards raising labour productivity to achieve the targets set forth in the 11MP and provides a framework that addresses productivity issues and challenges in a comprehensive and cohesive manner, covering five strategic thrusts, 10 National-Level initiatives, and 43 Sector-Level Initiatives.

MIDA has been entrusted to lead the 6th National-Level initiative – a key immediate action plan of the MPB to embed productivity targets for enterprises into disbursement of new grants, incentives, and soft loans. To spur industry players onwards, more initiatives will be crafted to promote the uptake of automation without over-relying on foreign workers, and to encourage the development of highly skilled workers through industry-led trainings and enhanced sustainable manufacturing.

Labour-intensive industries must shift away from unskilled foreign workers and adopt automation by emulating smart factories that have successfully raised the productivity bar through automation processes involving robotics, optimised assets, production quality, and the deployment of a highly skilled workforce. By utilising emerging technologies, these businesses can then infuse them into their future strategy, development and innovation processes, and remain at the leading edge to reap profitability, energy, and productivity gains.

Digital Transformation

Malaysia has one of the highest internet penetration rates regionally, with over 620 million online. Due to this, the country is in a good place to capitalise on the digital transformation era – and the numbers are telling of the same. In 2017, the ICT sector contributed to 18.3 per cent of the economy whereas, just four years ago it registered 16.4 per cent.

Local industry players should take advantage of Malaysia's current state of digital readiness. While digital transformation and Industry 4.0 present boundless benefits for big players with deep pockets, small and medium enterprises (SMEs) should not feel intimidated or left out. SMEs, which make up over 98 per cent of business establishments in the country, should embrace the digital economy to remain competitive and to meet their customers' evolving needs. Although the task of digitalising existing business practices may seem daunting, the benefits far outweigh the costs.



Those that adapt and evolve are able to stay ahead of the curve, anticipate marketplace needs, and serve customers better, thereby raising their service levels. In fact, there are several fuss-free, scalable, and cost-effective digital uptake options ranging from cloud

solutions to open source IoT operating systems and even cyber-physical systems (CPS), where the low entry costs provide SMEs with the option to invest on a need-to basis rather than waste on excess capacity. Manufacturers that digitalise their processes stand to realise huge cost savings on inventory, logistics, and maintenance.

SMEs can also take advantage of Malaysia's Digital Free Trade Zone (DFTZ), the first of its kind in the world, to capitalise on the convergence of the explosive growth of the internet economy and cross-border eCommerce activities. DFTZ is set to boost Malaysia's eCommerce roadmap which is aimed at doubling the nation's eCommerce growth and increasing its GDP contribution to RM211 billion (approximately US\$47.68 billion) by 2020. MIDA envisions that SMEs which adopt digital business models will double their growth and provide 6,000 jobs for Malaysians by 2025.

Under the National eCommerce Strategic Roadmap, MIDA is the lead agency tasked with transforming the country into an e-fulfilment hub. For this transformation to come to fruition, MIDA urges local players to invest in ICT systems and smart logistics to be able to handle full-fledged e-fulfilment activities.

National Policy on Industry 4.0

The rapidly evolving global manufacturing landscape calls for manufacturing firms to re-evaluate their current approaches and strategies to remain relevant and competitive. A strong manufacturing sector would pave the way to enhanced productivity, job creation, innovation capacity, high-skilled talent, and ultimately economic prosperity and societal well-being. This would position Malaysia as a primary destination for smart manufacturing globally and attract more high-tech investments.

The National Policy on Industry 4.0, titled "Industry4WRD" (expanded upon in the box article on page 64), provides the basis and support for firms to make the leap into Industry 4.0. The Policy outlines 13 broad strategies for Malaysia to embark on a journey that will transform its manufacturing industry landscape over the next decade.

The Government believes that this journey towards Industry 4.0 adoption is anchored on three shift factors – People, Process, and Technology – and will be made possible by 11 technology pillars / key drivers; namely Additive Manufacturing, Artificial Intelligence (AI), Big Data Analytics, Advanced Materials, Cybersecurity, Simulation, Cloud Computing, Augmented Reality, Internet of Things (IoT), Autonomous Robots, and System Integration.

Labour productivity in Malaysia has grown between three to four per cent annually over the last few years. To improve this, productivity was highlighted as a pivotal game-changing element in the 11MP set target of RM88,450 per worker by 2020, with an average annual growth rate of 2.9 per cent from 2018 to 2020.

However, the strategies and action plans outlined in this Policy require collaborative efforts across multiple stakeholders and organisations. To accelerate or improve the intended outcome of these actions, a number of factors must be taken into consideration to identify the most efficient and effective implementation approach. For instance, the availability of capital and incentives from the beginning ensures that Industry 4.0 programmes have a solid start in the country. Funding and incentives should be directed towards both R&D and adoption of these technologies in the manufacturing process.

In line with one of the strategies outlined in this Policy, the Government aims to support industry transformation and develop local technologies by providing and aligning incentives with targeted outcomes to manufacturing firms and solution providers. Various initiatives supporting the implementation of this Policy were announced in Budget 2019, including tax incentives, grants, and a readiness assessment programme. MIDA will continue to work with MITI and relevant stakeholders to deliver the strategies and action plans towards strengthening Malaysia's competitiveness in the long run.

Anchoring Growth on People

The Eleventh Malaysia Plan (11th MP), 2016-2020, marks the final phase towards achieving a developed and inclusive nation in line with Vision 2020. On 18th October 2018, the Government launched the Mid-Term Review (MTR) of the plan to report the progress achieved in 2016-2017 and outlines the realignment of socioeconomic policies and strategies for 2018-2020, taking into account priorities of the new Government following the 14th General Election.

The past (2016 -2017)

During the review period, socioeconomic performance remained strong despite uncertainties in the global environment. The Gross Domestic Product (GDP) was well within the expected targets of between five to six per cent (5.1% in 2016, further strengthening to 5.9% in 2017), while inflation remained low and stable at 2.9 per cent per annum and the economy stayed in full employment. The current account of Balance of Payments (BOP), although narrowing, was in surplus. As targeted, the fiscal deficit of the Government as a percentage to GDP reduced at the end of 2017.

New priorities and emphases

In the remaining two years, policy priorities will strive to strike a balance between fiscal consolidation objectives and inclusive growth spread across all sectors. The revised GDP expansion goal of between 4.5 to 5.5 per cent per annum is set to be propelled by productivity improvements and sustained domestic demand, as outlined in the MTR's revised multidimensional goals that go hand-in-hand with the qualitative aspects.

Moving in response to rising domestic and global challenges, a total of six policy pillars with 19 priority areas and 66 strategies have been crafted in line with the direction of the new Government, namely:

- Reforming governance towards greater transparency and enhancing efficiency of public service;
- Enhancing inclusive development and well-being;
- Pursuing balanced regional development;
- Empowering human capital;
- Enhancing environmental sustainability through green growth; and
- Strengthening economic growth.

On transforming services

The services sector is expected to stay on as the primary driver of Malaysia's economy with an annual average growth rate of 6.3 per cent. Initiatives are set to spur transformation towards a more productive and competitive nation through the development of a knowledge-intensive, skilled workforce.

Recognising that human resource sufficiency is a critical component in determining the performance of the services sector, MIDA has taken the

initiative alongside the Malaysian Digital Economy Corporation (MDEC), to enhance talent development in the e-Commerce and e-Fulfillment industries. Some of the measures in place include improving industry readiness of new graduates and encouraging SMEs to provide training for employees.

MIDA is optimistic that the nation's growth potential will be stimulated to generate high income jobs for Malaysians in the services sector by eliminating labour market mismatch, and maximising productivity output.

Based on the Malaysia Productivity Blueprint (MPB), the Government has set a minimum target for the services sector to achieve a labour productivity level of RM83,400 per employee by 2020. Significant improvement has been recorded, whereby the productivity level per employee has increased from RM69,534 per worker in 2016 to RM73,040 per worker in 2017.

Present-day services identified under the ambit of the 11MP Mid-Term Review are ICT services, creative industry, oil and gas services, tourism, retail trade and the halal industry.

In pursuit of revitalising manufacturing

The manufacturing sector on the other hand, will continue to be remodelled towards producing more high value-added, diverse and complex products. The catalytic sub-sectors, namely electrical and electronics (E&E), machinery and equipment (M&E), and chemicals and chemical products will remain as priority sub-sectors. The other two high potential growth sub-sectors, namely aerospace and medical devices will still be pursued.

Enterprises are encouraged to increase their productivity by accelerating automation and innovation, undertaking research and development (R&D), implementing sustainable production practices, and leveraging industry associations in sharing best practices.

In line with this, incentives, such as grants and soft loans to promote automation, technological adoption, and exports will be provided based on specific milestones and outcomes to ensure an optimal allocation of resources that is impactful.

Another imperative step taken to promote cooperation among businesses and industries in a more collective way is the adoption of the eco-industrial parks (EIP) concept. Through the exchange of materials, energy, water or by-products, this initiative aims to support sustainable consumption and production (SCP), enabling new value creation to significantly reduce industrial waste and promote optimisation of resources while improving economic returns.

The realignment of priorities and strategies set in sight under the Mid-Term Review of 11MP should place Malaysia well on its way to become a developed economy and inclusive nation. Malaysia's per capita income is expected to reach RM47,720 in 2020 and is anticipated that the nation will breach this outset by 2024.

Post-Invest: MIDA Cares for Business Health

MIDA's job does not end at securing investors: as the Government's principal investment promotion agency to oversee and drive investments into Malaysia, MIDA – through the Post-Investment and Infrastructure Support Division (PostInvest) – provides facilitation to companies to ensure their investment journey goes as smoothly as possible.

Established on 3rd May 1999, MIDA's PostInvest (formerly known as the Industry Support Division) strives to facilitate investment projects and offer 'peace-of-mind' to current and future investors. PostInvest provides proactive support services to the manufacturing and services sectors, supported in full by the Advisory Services Centre, which was itself established on 1st October 1988.

With the combined efforts of senior officials from several key Government agencies – including the Royal Malaysian Customs Department (RMCD), Tenaga Nasional Berhad (TNB), Telekom Malaysia Berhad (TM), Department of Labour and Immigration Department alongside the general support of Liaison Officers from other relevant agencies – including the Department of Environment (DOE) and Department of Occupational Safety and Health (DOSH) – that are permanently stationed in MIDA, PostInvest is well situated to offer facilitation to investors, both local and foreign.

Biz Clinic and Biz Talk

In 2018, PostInvest successfully introduced a 360-degree outreach programme called the 'Biz Clinic & Biz Talk'. Despite its short existence, the dual-faceted programme quickly became a key flagship initiative for MIDA, as it facilitated a greater connection between investors and stakeholders.

The Biz Clinic is a one-on-one session between investors and stakeholders that gives companies a platform to securely and effectively air their grievances and discuss the challenges they face. At the Biz Clinic, companies are not only able to work out solutions to the issues they come up against, but they can seek much-needed clarification and advice on prevailing policies and governmental guidelines and initiatives.

The Biz Talk complements the Biz Clinic, with participants being given a thorough explanatory presentation on current market trends and forecasts by officials from TNB and TM.

The year 2018 saw the successful execution of three Biz Clinic and Biz Talk events in Negeri Sembilan, Selangor and Pulau Pinang. The events were well attended and received positive feedback from the business communities they served.

2018 BIZ CLINIC AND BIZ TALK EVENTS

Negeri Sembilan	Selangor	Pulau Pinang
7th March 2018	6th July 2018	30th October 2018
122 participants  70 companies 	160 participants  90 companies 	140 participants  55 companies 
Key Issues raised: - Power quality - Lack of internet connectivity - Lack of local talent	Key Issues raised: - Recruitment of foreign workers (lengthy procedures, insufficient quota and high levy) - Lack of local talent - Delay in approval for Development Orders (DOs), Building Plans (BPs) and Certificates of Completion and Compliance (CCCs) from local authorities	Key Issues raised: - GST refunds - Licensed Manufacturing Warehouses(LMW) compliance - Immigration Expatriate Services Division (ESD) system
Supported by: Invest Negeri Sembilan, FMM, TM, TNB and NGC Energy	Supported by: Invest Selangor, FMM, TM, TNB and NGC Energy	Supported by: Penang Development Corporation (PDC), FMM, TM, TNB and NGC Energy

With the encouraging success of the 2018 Biz Clinic & Biz Talk programmes, MIDA will continue to work with the relevant stakeholders to organise more programmes for 2019 towards increasing the ease of doing business and ensure business compliance, in the hopes of preparing a new fleet of investors for success within Malaysia.

1.2

MALAYSIA'S INVESTMENT VIS-A-VIS GLOBAL INVESTMENTS SCENARIO

Developing Economies Show Resilience

In the face of downturned global FDI flows which slid further in 2018 for the third consecutive year, developing economies held resilient, and took up half of the top 10 host economies' spots with East and South-East Asia staking claim to a third of the world's FDI investments dollars, plus sizable bites into greenfield project announcements and cross border M&As

The Crux of the Matter

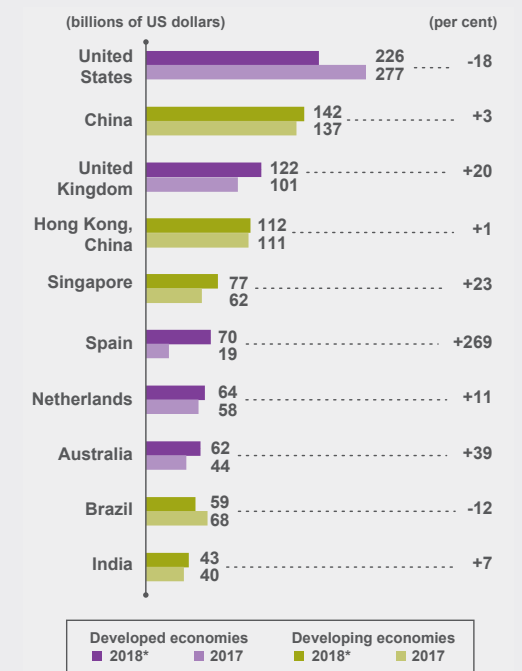
The global economy rallied at the start of 2018 on an upbeat note buoyed by forecasts of a marginal increase of up to 10 per cent in global FDI flows. Although well below the average over the last 10 years, the higher economic growth projections, trade volumes and commodity prices in 2018 were promising factors that were expected to steer the world towards a sizeable hike in global FDI inflows for the year.

However as investors' confidence in the global economic outlook dimmed, so did the upswing. The global economy's downward roller coaster ride has been riddled with issues of significant risks and policy uncertainties ranging from Brexit to jittery stock markets to intermittent capital flight from developing nations to Italy's fight with the European Union, to quote a few headlines. Other pressing issues impacting global investment patterns are, heightening trade tensions that could unfavourably affect investment in global value chains (GVCs), and the implementation of US tax reforms.

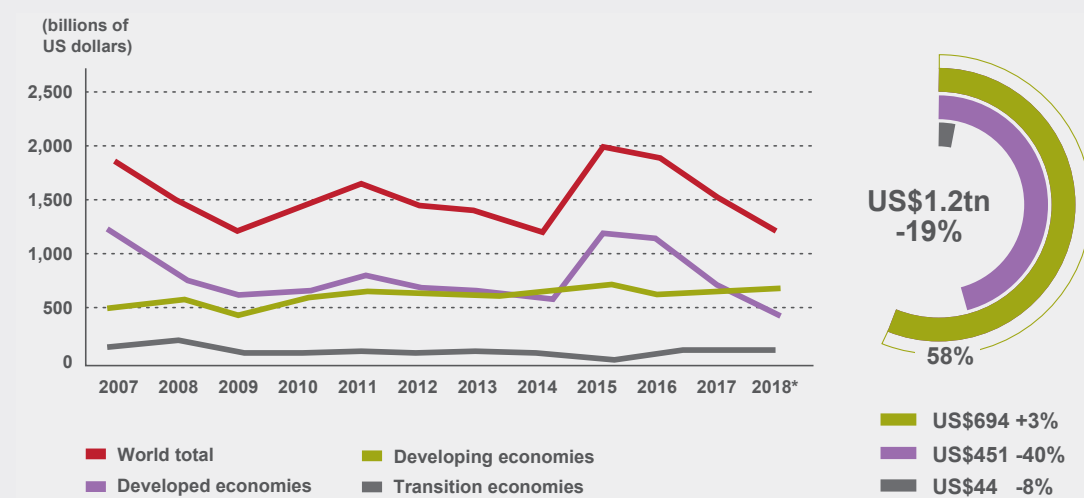
According to the United Nations Conference on Trade and Development's (UNCTAD), Global Investment Trends Monitor Issue No. 31, global FDI slipped for the third consecutive year by 19 per cent in 2018, to an estimated US\$1.2 trillion from US\$1.47 trillion in 2017, back to its former low point post the global financial crisis. Developed countries were the hardest hit

where FDI inflows tumbled by 40 per cent, to an estimated US\$451 billion owing to large reinstatements of accumulated foreign earnings from tax reforms by multinational enterprises (MNEs) in the United States. FDI to the transition economies dwindled by 8 per cent to US\$44 billion, following the global trend.

FDI INFLOWS: TOP 10 HOST ECONOMIES, 2017 AND 2018*



FDI INFLOWS: GLOBAL AND BY GROUP OF ECONOMIES, 2007-2018*



Developing economies remained resilient and took up half of the Top 10 host economies (2017, 2018) spots, with FDI increasing by 3.0 per cent in 2018 to US\$694 billion. The region held on to 58 per cent of the global FDI pie, thanks to the sharp decline in the developed countries, where Europe inflows receded by 73 per cent and North America's by 13 per cent. Despite the decline, the United States remained the largest recipient of FDI at US\$226 billion, followed by China at US\$142 billion and the United Kingdom with US\$122 billion.

A beacon of future trends, South-East Asia accounted for much of the global expansion in greenfield investment activity, and doubled to US\$140 billion in 2018. This gave developing economies a substantial 47 per cent stake in overall announced greenfield project values.

The increase in investment project values is testament to the corporate income-tax-reform-driven nature of the decline in global FDI. Cross-border mergers and acquisitions (M&As) rose in tandem by 19 per cent to US\$822 billion. Greenfield project announcements rose by 29 per cent from its relatively low baseline in 2017 – a piece of positive news indicative of future trends.

The light at the end of the tunnel is that a rebound is likely in 2019 although the ongoing global economy scenario holds little promise. Rising risks hover over the horizon from recent downward amendments in growth forecasts and policy factors including trade tensions, the uncertainty about the global policy environment for investment, and the possibility of structurally lower reinvested earnings by United States' MNEs.

FDI flows to developed economies lowest since 2004

Facing a decline of 40 per cent, inflows to Europe fell by almost three quarters (73 per cent) to only US\$100 billion with a decrease of 18 per cent to the United States. Inflows to developed countries were the lowest level since 2004, well below the troughs in 2009 at US\$652 billion and 2014 at US\$595 billion.

Prior to 2018, FDI outflows from the United States were mostly accounted for by reinvested earnings, so local MNEs tried their best to avoid tax liabilities. Nonetheless, reforms that came into motion in January 2018 reduced those liabilities and the MNEs responded by repatriating accumulated overseas profits.

Reinvested earnings by the United States' MNEs amounted to US\$200 billion in the first two quarters, compared to US\$168 billion in the same period the year before. These negative flows resulted in declines in global FDI flows, especially in Europe. Even though reinvested earnings in the third quarter reverted to a positive value of US\$42 billion, the effect may persist longer as there is no time limit given on the tax advantage and profits re-established.

East and South-East Asia take up one third of world's FDI pie

Flows increased by 5.0 per cent in Asia and 6.0 per cent in Africa, but was focussed on a few countries. Latin America and the Caribbean took a downward trend of 4.0 per cent with East and South-East Asia emerging as the largest host regions, making up one-third of global FDI in 2018.



For developing Asia, FDI flows rose by 5.0 per cent to an estimated US\$502 billion. Already the largest recipient of FDI flows in the world, the region also garnered the highest value of greenfield project announcements. In East Asia, the largest developing-economy FDI recipient, namely the PRC, raked in an estimated US\$142 billion, an increase of 3.0 per cent. Flows to Hong Kong, the region's second largest host economy, were stable at US\$112 billion.

The main FDI driver is South-East Asia, where inflows rose by 11 per cent for three consecutive years, to reach a record level of US\$145 billion. Much of the region's FDI growth in 2018 was captured by a rise in investment in Singapore to US\$77 billion, mainly due to a 94 per cent increase in cross-border M&A activities.

A beacon of future trends, South-East Asia accounted for much of the global expansion in greenfield investment activity, and doubled to US\$140 billion in 2018. This gave developing economies a substantial 47 per cent stake in overall announced greenfield project values. The value of cross-border M&A sales in these economies also rose by nine per cent in 2018 to US\$122 billion and accounted for 15 per cent of the global total, affirming that FDI in developing economies are predominantly greenfield and expansion driven.

The Story Back Home

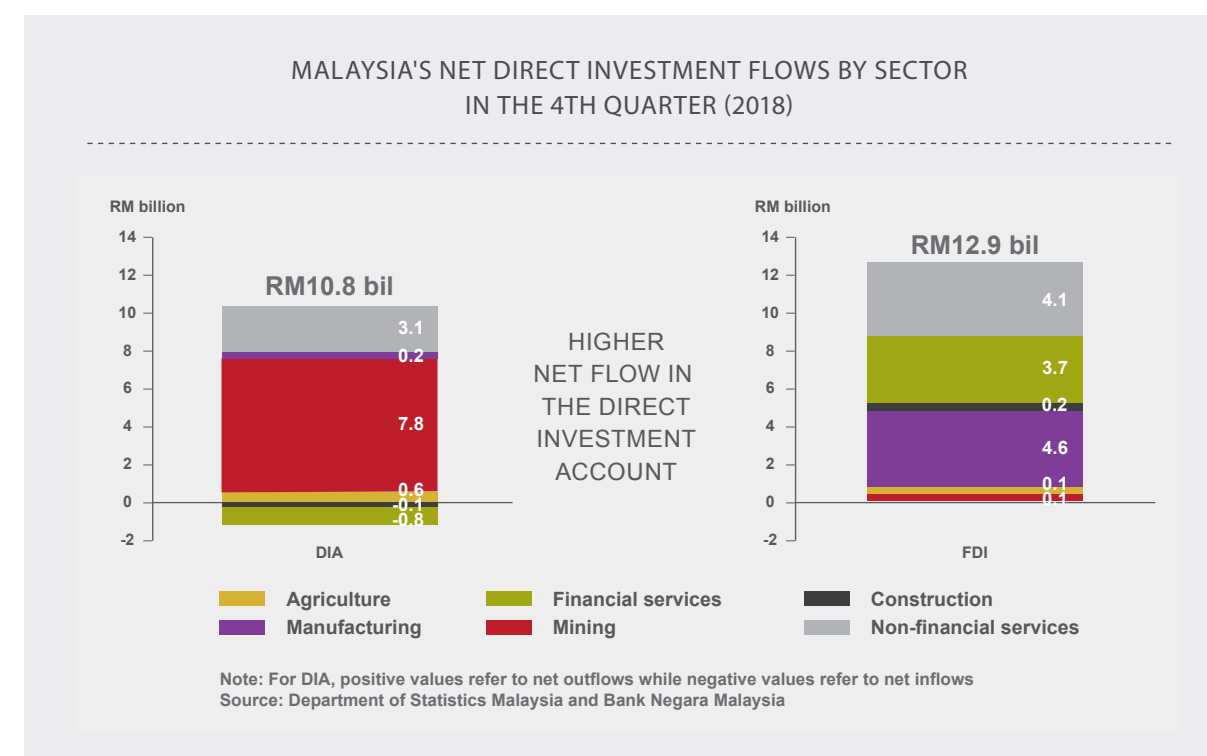
Tempering down from an exceptional performance in 2017, the Malaysian economy recorded a respectable growth of 4.7 per cent in 2018. Amid temporary supply disruptions in commodity-related sectors and the Government's rationalisation on spending, growth was supported by resilient private sector activities.

Private sector expenditure continued to be the main growth driver, supported by fundamental factors such as favourable labour market conditions and improved consumer sentiments.

Net FDI and DIA by Sectors in Malaysia in 2018

Malaysia's FDI net inflows improved in 2018's final quarter – from RM4.3 billion in the third quarter to a sizeable RM12.9 billion in the fourth quarter – and was broad-based across all sectors. The inflows were mainly channelled into the manufacturing sector which charted RM4.6 billion, followed by the non-financial services sector at RM4.1 billion. Financial services also received a fair share at RM3.7 billion. Advanced economies including the Netherlands, Japan, and Hong Kong were the largest contributors of FDI in 2018.

On the other hand, direct investments abroad (DIA) by Malaysian companies which was primarily channelled into the mining and non-financial sectors also recorded a higher net outflow of RM10.8 billion in the final quarter of 2018 compared to RM3.8 billion in the third quarter. The mining sector's DIA outflows were at RM7.8 billion, whereas non-financial services sectors recorded RM3.1 billion.



2 Performance of the Main Sectors

The Fourth Industrial Revolution can address many issues concerning businesses, including the environment, health and safety of workforce, waste management, efficiency in managing supply chains, resources and delivery systems. Smart manufacturing will eventually lead to the emergence of smart cities, smart grids, smart services et cetera in Malaysia. Industry4WRD can be a clear strategic direction for the nation since these technologies apply across the board

- Tun Dr Mahathir Mohamad, Prime Minister
(The Edge, 31 October 2018)



2.1

PERFORMANCE OF THE MANUFACTURING SECTOR

All Abuzz

Despite the myriad ups and downs, the dramatic improvement in Malaysia's manufacturing sector performance in 2018 demonstrates the sector's evergreen attractiveness and economic importance to the nation

The year 2018 has seen its share of ups and downs in the global manufacturing scene. For instance, manufacturing in the UK has boomed as a prelude to 'Brexit', or the UK's exit from the European Union (EU) in 2019. Meanwhile, the ongoing 'US-China trade war', coupled with slowing demand, has had an adverse impact on production in multiple economies, with the PRC being harder hit than the USA. According to Reuters, China's slowing manufacturing activity has "spilled over to other Asian economies", with Malaysia's manufacturing industry having "slowed to its weakest pace of expansion" since IHS Markit's survey started in 2012.

On a more positive note, however, the trade war has also opened doors for Malaysian manufacturers to potentially capitalise on, becoming alternative suppliers of substitutionary goods for both parties involved. This is especially noticeable in the oil palm products and rubber products industries.

Another possible spin-off in the country's favour lies in investment diversion opportunities. As foreign investors look for greener pastures to flee trade tariffs and tensions, Malaysia's solid economic standing, wide trading networks, and diversified sectors could prove attractive to those seeking to steer their way around the disruption, search for new opportunities, and open up alternative markets. A big plus for investors is that the nation remains open to pursuing trade initiatives through bilateral and multi-lateral agreements that benefit export-oriented manufacturers.

There are also many incentive programmes and tools facilitated by MIDA for both foreign and domestic investors who want to set up manufacturing projects on Malaysian shores. One such incentive programme is the Automation Capital Allowance (Automation CA) which was introduced in the 2015 Budget. For the period of 2015-2018, MIDA has approved a total of 139 Automation CA applications.

The threshold of qualified expenditure for this incentive is dependent on the application's industry category. Labour-intensive industries (Category I) which have been identified as rubber products, plastics, wood, furniture and textiles would be eligible for an Automation CA of 200 per cent on the first RM4 million qualified expenditure.

Other industries (Category II) such as fabricated metal or electrical and electronics (E&E) products would be eligible for an Automation CA of 200 per cent on the first RM2 million qualified expenditure.

The 139 beneficiaries of Automation CA incentive have invested more than RM250 million into automating their manufacturing operations and processes. As a result of this incentive, overall production volumes have increased by approximately 140 per cent on average, with a quality improvement of 60 per cent on average. Furthermore, more than 700 reductions of unskilled workers have also been achieved.

As foreign investors look for greener pastures to flee trade tariffs and tensions, Malaysia's solid economic standing, wide trading networks, and diversified sectors could prove attractive to those seeking to steer their way around the disruption, search for new opportunities, and open up alternative markets.

The release of Malaysia's National Policy on Industry 4.0 or Industry4WRD (see box article on page 64) in October 2018, underlines the Government's seriousness and commitment towards this new era of technological convergence. Some of MIDA's endeavours to familiarise companies with smart manufacturing technologies include seminars, dialogues with business chambers, briefing with business associations, workshops and supplier conferences to MNCs and SMEs. The agency has additionally identified strategic partners in the fields of robotics and automation, and the Industrial Internet of Things (IIOT), among others. By working with these technology developers and solution providers, MIDA serves as a networking conduit to link industry players.

In an effort aimed to assist local industry players in implementing Industry 4.0 in their operations, MIDA in collaboration with the IME Group of Companies, with the support of Dassault Systèmes and Robert Bosch, jointly organised the MIDA-IME Industry 4.0 Showcase in mid-2018 at its headquarters. It demonstrated a wide range of related technologies

KEY HIGHLIGHTS OF THE MANUFACTURING SECTOR FOR 2018

OVERALL PERFORMANCE

RM87.4 bil
total approved investments

37.2%
more than RM63.7bil
in 2017

70.7%
approved investments
in new projects

RM61.8 bil
total approved investments
in new projects

TOP PERFORMING INDUSTRIES IN 2018

RM32.9 bil
Petroleum
Products including
Petrochemicals

RM13.1bil
Basic Metal
Products

RM11.2 bil
E&E
Products

RM5.4 bil
Paper, Printing
& Publishing

RM5.0 bil
Chemicals &
Chemical Products

RM4.6 bil
Rubber
Products

RM2.4 bil
Machinery
& Equipment

RM2.4 bil
Non-metallic
Mineral Products

These 8 industries
contributed:
88.2%
to the total
approved
investments

such as simulation, additive manufacturing, system integration, digitisation, cloud computing, Internet of Things (IoT), and data analytics.

In doing its part, the Government through MIDA has provided various forms of facilitations that local industry players can leverage on to upgrade their technologies as well as human capital. Among them is the Domestic Investment Strategic Fund (DISF). The fund aims to provide support to Malaysian-owned companies in targeted industries on their way towards achieving high technology, high-value-added, and knowledge-intensive operations.

MIDA has established dedicated SME Investment Desks at its headquarters and offices nationwide to keep SMEs informed about its facilities. Financing assistance and development programmes are available for SMEs to upgrade their services and capabilities. Through this platform, MIDA has organised more than 60 programmes in 2018 through roundtable meetings, networking sessions, and outreach programmes.

The team also frequently organises engagements with associations and chambers. MIDA also conducts regular domestic investment seminars and specific forums on industrial parks. Malaysian businesses and SMEs should take advantage of these facilities for guidance and advice on the Government's initiatives and facilities in building sustainable business collaborations.

A Very Good Year

The performance of Malaysia's manufacturing sector for 2018 has improved by a significant margin as compared to that of 2017. The sector saw approved investments totalling RM87.4 billion in 2018; a notable 37.2 per cent higher than the 2017 figure of RM63.7 billion. Over two-thirds or 70.7 per cent of the total investments approved were in new projects worth RM61.8 billion.

As with 2017, the People's Republic of China (PRC) was again the manufacturing sector's largest investing foreign country (RM19.7 billion across 40 projects), with a large gap between it and Indonesia (RM9 billion in eight projects). This was closely followed by the Netherlands (RM8.3 billion across 10 projects), Japan (RM4.1 billion in an astounding 63 projects), and the USA (RM3.2 billion across 18 projects). These five nations jointly accounted for 76.4 per cent of foreign investments approved in 2018. Most of the foreign projects approved involved the production of high-technology, high-value-added goods; a significant and appropriate step towards achieving Malaysia's industrial ambitions.

Capital Intensive Projects Dominate

As measured by the capital investment per employee (CIPE) ratio, the capital intensity of projects approved in the manufacturing sector in 2018 was RM1,473,600,

which is a significant jump of 30.6 per cent from 2017's CIPE of RM1,128,476. The industry with the highest CIPE remained petroleum products including petrochemicals (RM22,121,523, or over RM12 million more than 2017's figure), followed by basic metal products (RM2,627,948) with chemicals and chemical products close behind (RM2,092,071).

The manufacturing sector also featured 16 projects approved with investments of RM1 billion or more each, nearly double of the nine projects approved in 2017. Investments into these 16 projects reached RM57.7 billion, or 66 per cent of total investments approved. This represented a 65.8 per cent increase over 2017's figure of RM34.8 billion. These 16 projects were petroleum products including petrochemicals (seven projects worth RM30.0 billion), basic metal products (three projects totalling RM10.9 billion), E&E products (one project worth RM7.5 billion), paper, printing, and publishing (two projects worth RM4.1 billion), rubber products (one project worth RM2.2 billion), chemicals and chemical products (one project amounting to RM2.1 billion), and non-metallic mineral products (1 project worth RM1 billion).

In total, there were 81 projects approved in the manufacturing sector with investments of at least RM100 million each, making up RM75.0 billion (85.9%) of all investments approved. This is 43.2 per cent higher than in 2017, and clearly indicates that capital-intensive projects dominated Malaysia's manufacturing landscape.

How the Industries Fared

The petroleum products including petrochemicals industry recorded the highest total investments approved in 2018 (RM32.9 billion). This was followed by basic metal products (RM13.1 billion), an increase of RM12.9 billion from its 2017 investment figures of RM183.2 million; E&E products (RM11.2 billion), an increase of RM1.5 billion from its 2017 investment figures of RM9.7 billion; paper, printing and publishing (RM5.4 billion); chemicals and chemical products (RM5 billion), a 20.5 per cent increase over the RM4.1 billion charted in 2017; rubber products (RM4.6 billion), or well over triple 2017's figure of RM1.23 billion; machinery and equipment (RM2.4 billion); and non-

metallic mineral products (RM2.4 billion). These eight industries accounted for RM78.3 billion or 88.2 per cent of total investments approved.

Malaysia's Darling Export Earner

Manufacturing remains a key contributor to the nation's exports. In 2018, a total of 221 export-oriented projects were approved; these were from projects that proposed to export at least 80 per cent of their output. These projects, with investments totalling RM32.6 billion, were foreign-dominated in nature. Foreign investments were worth RM23.8 billion (72.9%), while the remainder RM8.8 billion (27.1%) came from domestic investments. Export-oriented projects mostly originated from petroleum products including petrochemicals (RM11.5 billion in six projects), E&E products (RM10.4 billion in 24 projects) and rubber products (RM4.4 billion in 13 projects) industries.

KEY CONTRIBUTORS TO THE NATION'S EXPORTS FOR 2018

221
export-oriented
projects approved

RM32.6 bil
total approved
investments

27.1%
RM8.8 bil
domestic
investments

72.9%
RM23.8 bil
foreign
investments

EXPORT-ORIENTED PROJECTS

RM11.5 bil
6 projects

RM10.4 bil
24 projects

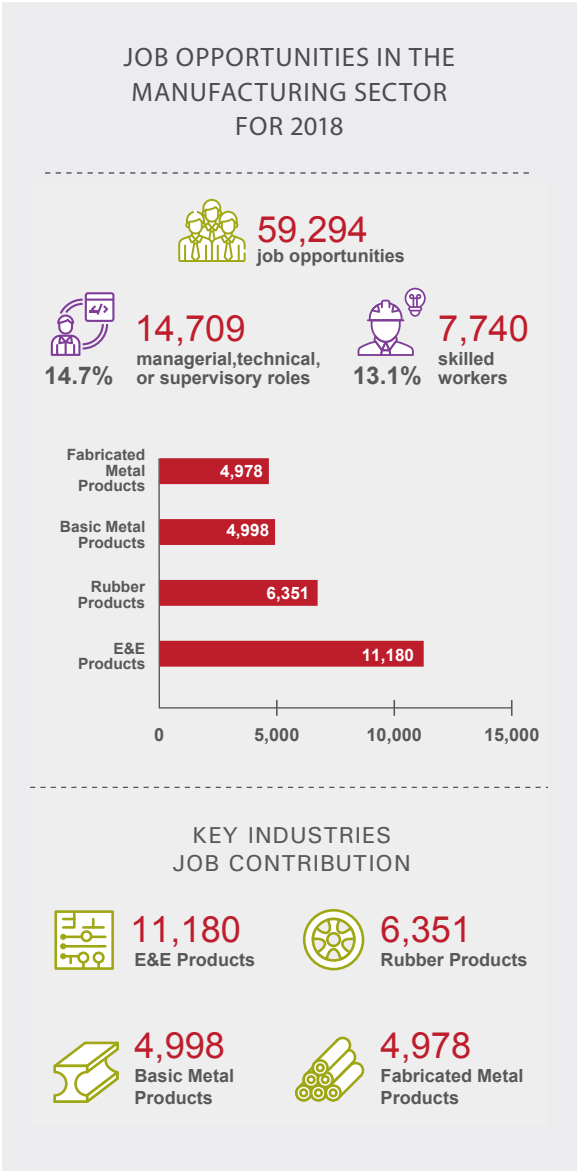
RM4.4 bil
13 projects

Drawing Skilled Talent

The projects approved in 2018 will create 59,294 new jobs. Of these, 14,709 (14.7%) were in managerial, technical, or supervisory roles, while 7,740 (13.1%) were for skilled workers. Most of the jobs created

were in the E&E industry (11,180 jobs), followed by rubber products (6,351), and basic metal products (4,998), with fabricated metal products (4,978) very close behind.

The Eleventh Malaysia Plan (11MP) foresees the creation of 1.5 million new jobs by 2020, with 60 per cent requiring technical or vocational skills. One way in which MIDA seeks to deepen the nation's talent pool is through the establishment of the Apprenticeship Programme, in collaboration with the Ministry of Education (MOE), Ministry of Human Resource (MOHR)'s Skills Development Department, and the Federation of Malaysian Manufacturers (FMM).



The rapid technological advancement in the sector calls for periodic upskilling of human capital to sustain Malaysia's position as a preferred location for

investment. It also requires for Government support in the areas of research, development, and innovation (RDI) infrastructure and facilitation.

To this end, MIDA has been working to drive stronger RDI collaborations between the industry and academia. For example, on 7 May 2018, MIDA signed and exchanged a Memorandum of Understanding (MOU) with the Industrial Technology Research Institute (ITRI), a key organisation in transforming Taiwan's labour-intensive industry into an innovation-driven one.

These and other such collaborations do not necessarily have to involve huge injections of fresh funding. For instance, Osram Opto Semiconductors (M) Sdn. Bhd. has provided several institutions of higher learning with RM2.4 million worth of used equipment from its Penang factories. The equipment provides students with hands-on educational experience vis-à-vis the high-tech industry. They also helped the universities develop R&D labs and allow lecturers to educate on photonics and semiconductors technology without requiring the institutions in question to make any additional capital investment.

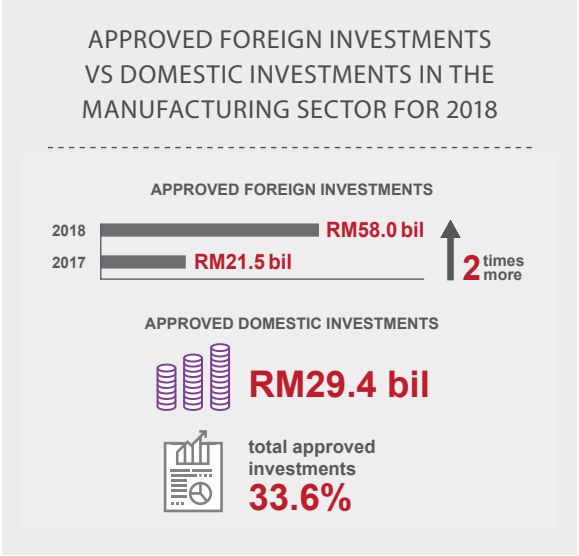
Foreign Investors Lead...

Despite the slow global economic growth, and in contrast to 2017, foreign direct investments (FDI) play a pivotal role in growing the country's manufacturing sector. Foreign investments in approved manufacturing projects have more than doubled to RM58.0 billion in 2018 from 2017's figure of RM21.5 billion. New projects made up the majority of FDI, totalling RM40.3 billion (69.5%), with the remaining RM17.7 billion (30.5%) being for expansion/diversification projects.

The petroleum products including the petrochemical industry brought in by far the largest amount of foreign investments (RM19.1 billion) in 2018, with the second-largest amount of foreign investments coming from the E&E products (RM10.7 billion, over RM2 billion more than 2017). Other industries with high levels of foreign investments are basic metal products (RM8.5 billion), paper, printing, and publishing (RM5 billion, a remarkable increase from 2017's figure of RM104.9 million), chemicals and chemical products (RM4.4 billion, nearly double 2017's figure of RM2.4 billion), and rubber products (RM3.1 billion).

....with Domestic Investors Making Up Nearly a Third of Total Investments in 2018

Approved domestic investments into the manufacturing sector reached a total of RM29.4 billion, accounting for 33.6 per cent of total investments approved. Most (RM21.5 billion of these investments were approved across 270 new projects, while RM7.9 billion was pumped into 210 expansion/diversification projects. DDI was primarily concentrated in the petroleum products including petrochemicals industry (RM13.8 billion or 47 per cent) and basic metal products (RM4.7 billion), followed by rubber products (RM1.6 billion), machinery and equipment (RM1.5 billion), food manufacturing (RM1.3 billion), and transport equipment (RM1.2 billion).



The Spread by Location

Following 2017's trend, a majority of the projects approved were sited in Selangor (241 projects), Johor (144 projects) and Pulau Pinang (108 projects), with 493 (68.4%) of all projects approved in 2018 located in these three states. Value-wise, the state of Johor (RM30.5 billion) benefitted the most from these investments, followed by Selangor (RM18.9 billion), Sarawak (RM8.7 billion), Pahang (RM8.0 billion) and Pulau Pinang (RM5.8 billion). These five states contributed 82.3 per cent of the total investments approved.

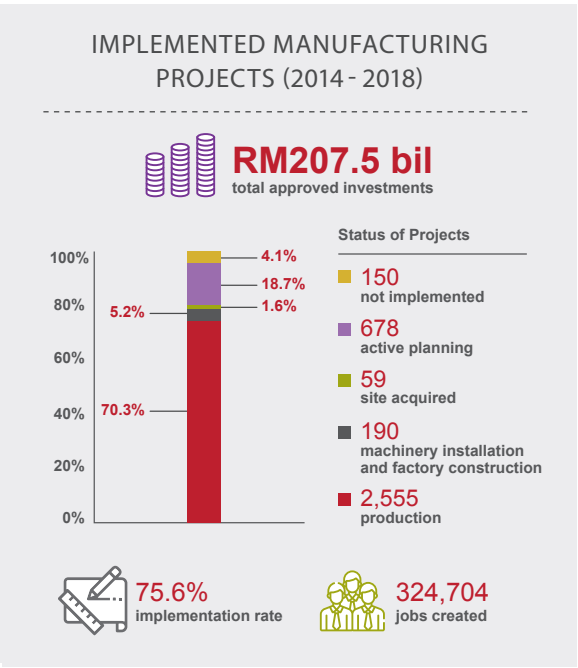
The two largest investments in Johor stemmed firstly from a new project by a majority foreign-owned company in the petroleum products and petrochemicals industry (RM14 billion), and secondly from an expansion project

by a foreign-owned company in the E&E industry (RM7.5 billion). Meanwhile in Selangor, a major investment was from a new project by a majority domestic-owned company in the basic metal products industry (RM5.7 billion). Investment also surged in Sarawak, led by a new project by a wholly Malaysian company in the petroleum products and petrochemicals industry (RM5.7 billion).

Implemented Manufacturing Projects

The addition of 721 new projects in 2018 brings the total number of manufacturing projects approved during the five-year period (2014 - 2018) to 3,632 projects. Around 2,745 of these projects have been implemented thus far, with 2,555 projects already in active production and 190 projects still undergoing factory construction and machinery installation. Total capital investments in these 2,745 projects amounted to RM207.5 billion. Another 59 projects with investments of RM13.2 billion have acquired sites for factories, while 678 other projects worth RM101.1 billion are in the active planning stage. When these 737 other projects are realised, total investments of these projects will amount to RM114.3 billion.

The majority of projects implemented during the five-year period of 2014 to 2018 came from the E&E products, machinery and equipment, fabricated metal products, chemicals and chemical products and food manufacturing industries. Selangor has the largest number of implemented projects to date, followed by Johor, Pulau Pinang, Kedah and Perak.



2.2

PERFORMANCE BY INDUSTRY

Industry Snapshot

Talent pool development and Industry 4.0 stay on as the focus of Malaysia's manufacturing sector, revitalising many mature industries and opening new opportunities for others

Electrical and Electronic Products

Malaysia's electrical and electronic products (E&E) industry has been and continues to be a significant contributor to the nation's economy. In 2018, the industry raked in investments worth RM11.2 billion, or 12.8 per cent of total investments. E&E was overwhelmingly dominated by foreign investments (RM10.7 billion, or 95.8 per cent of all investments in the industry), mostly from the Netherlands, Japan, and China. Of the 56 projects approved, the vast majority were expansion/diversification projects, with investments worth RM10.3 billion. The other 17 were new projects, with investments of RM918.2 million. Compared to the 109 projects that brought in RM9.7 billion in 2017, this is a clear indication that the average capital expenditure per project has more than doubled in 2018.

As with 2017, the E&E industry was again the country's largest export earner in 2018, chalking RM380.8 billion and accounting for 38.2 per cent of the total value of exports. The industry's top five export destinations were Hong Kong, Taiwan, PRC, Thailand, Republic of Korea, Singapore and Vietnam.

This is a great opportunity to position Malaysia as a hub for future investments. Malaysia's strategic location means it is able to offer a cost-competitive platform for investors intending to set up offshore operations for the manufacturing of advanced E&E products.

The 'US-China trade war' that started in 2018 has the potential to be either bane or boon for the E&E industry, depending on how industry players respond. Tariffs and other trade barriers that cover items critical to semiconductor manufacturing will impact companies in the sub-sector's supply chain by directly increasing business costs. This may lead to added uncertainty and further stifle innovation. That said, the Malaysian semiconductor and semiconductor-related sub-sector may benefit from the trade war should the PRC-based and other foreign companies choose to

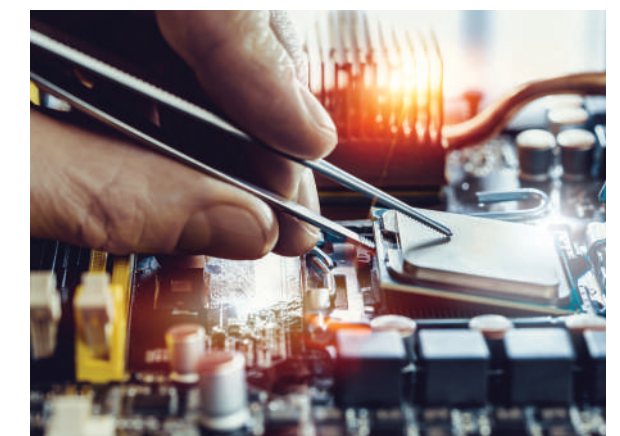
relocate their plants or outsource projects to existing industry players in Malaysia to circumvent higher US-imposed tariffs.

Indeed, this is a great opportunity to position Malaysia as a hub for future investments. Malaysia's strategic location means it is able to offer a cost competitive platform for investors intending to set up offshore operations for the manufacturing of advanced E&E products.

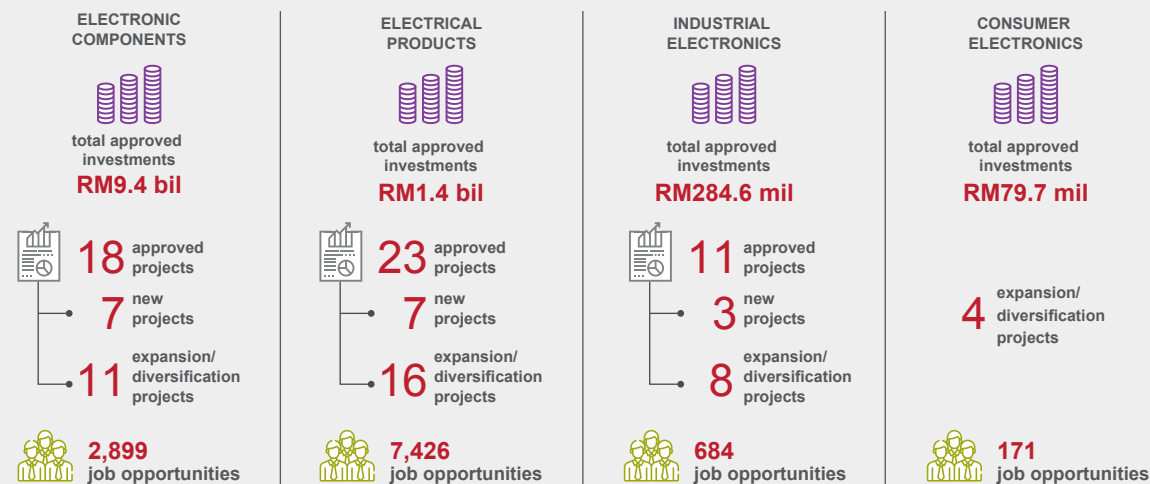
From a regional perspective, Southeast Asia may witness increased FDI inflows not only from the PRC, but also from the USA, if the trade war persists. Additionally, customers from the USA may very well decide to source for products outside of China to avoid the tariffs, benefitting Malaysian manufacturers in particular, as the nation is a major semiconductor manufacturing hub. Malaysia's Government however, is committed to attract only the highest-quality, high-technology investments.

The American Malaysian Chamber of Commerce (AMCHAM) is also of the opinion that the trade dispute may benefit the Malaysian E&E industry due to its strategic position. AMCHAM expects USA investments in Malaysia to expand over the next few years, assuming that the global economy remains on course.

The emergence of trends such as Industry 4.0 and the Internet of Things (IoT) means that the E&E industry, especially the semiconductor sub-sector, is on the rise again. As such, Malaysia's long-standing expertise gives it a competitive advantage when it comes to promoting investment in the industry.



OVERALL PERFORMANCE OF THE E&E INDUSTRY BY SUB-SECTOR FOR 2018



One of MIDA's flagship promotional events for the E&E industry was SEMICON Southeast Asia (SEMICON SEA) 2018. This is an international semiconductor trade event organised annually by SEMI, a global association for the electronics manufacturing supply chain. Throughout the event, MIDA held various programmes to engage with industry stakeholders.

One such programme was the International Sourcing Programme (INSP), which MATRADE organised with MIDA's support. INSP consisted of one-on-one business meetings between foreign buyers in the E&E industry and Malaysian suppliers, enabling them to source for products and services. The outcome of these meetings resulted in total potential sales worth RM289 million.

MIDA also conducted a supply chain programme involving electric vehicle projects and the avionics/aerospace transport sub-sector. Through the programme, MIDA helped connect the relevant clients and vendors by holding business-matching sessions between them.

To further strengthen the industry ecosystem, MIDA is working closely with the Semiconductor Fabrication Association of Malaysia (SFAM) for curriculum embedment initiatives with several universities in Malaysia.

In addition, MIDA also undertook several talent initiatives during SEMICON SEA 2018. One of these initiatives was the SEMICON University Programme (SEMICON U). The programme provided students the opportunity to learn more about entrepreneurship in the industry, as well as engage with industry professionals during interactive sessions. By doing so, SEMICON U provided students with the latest insights into future technologies, propelling their interest in entrepreneurship.

Another event that took place during SEMICON SEA 2018 was MIDA's electronics career fair, involving the participation of major companies in the E&E industry and its supply chain. The career fair provided a platform for these companies to address their specific technical manpower requirements.

Electronic components

Electronic components formed by far the most significant share of investments in the E&E industry, making up 84.4 per cent of total investments. In 2018, a total of 18 approved projects brought in investments worth RM9.4 billion, a stunning growth of over 200 per cent from 2017. The projects approved involved the manufacturing of electronic components (some examples include advanced IC packaging, Light Emitting Diodes (LEDs), microcontrollers,

semiconductor devices and printed circuit board assembly). Almost all investments into this sub-sector was a result of FDI, forming 99 per cent of total investments.

Of the projects approved, seven were new projects involving investments worth RM548.3 million, while 11 projects with investments of RM8.9 billion were for expansion/diversification. These projects are expected to generate 2,899 employment opportunities.

There were two notable expansion projects involving integrated circuits (ICs). The first is by wholly-foreign-owned STMicroelectronics Sdn. Bhd., which brought in RM7.54 billion worth of investments to manufacture advanced IC packaging and undertake R&D service activities, and creating 597 job opportunities. The second is by Unisem (M) Berhad, which also manufactures advanced IC packaging. This expansion project worth RM68.8 million would create up to 2,318 employment opportunities.

Another significant project is a new investment by Daiichi Seiko (M) Sdn. Bhd., a manufacturer of sensors for the automotive industry, with investments chalking RM297.7 million. This new project will create 135 new job opportunities.

Currently, MIDA is aggressively promoting knowledge intensive design activities under the E&E industry. These activities include Integrated Circuits (IC) Design, Integrated Circuits (IC) Packaging Design, Embedded System Design and Test & Engineering design services for E&E clusters and its connecting supply chain ecosystem. This would include those in the Semiconductor, EMS, Industrial System Electronics, Storage, LED, Solar, Automation Robotics, Optics Photonics, IoT (as a basis for Industry 4.0) and Shared Services.

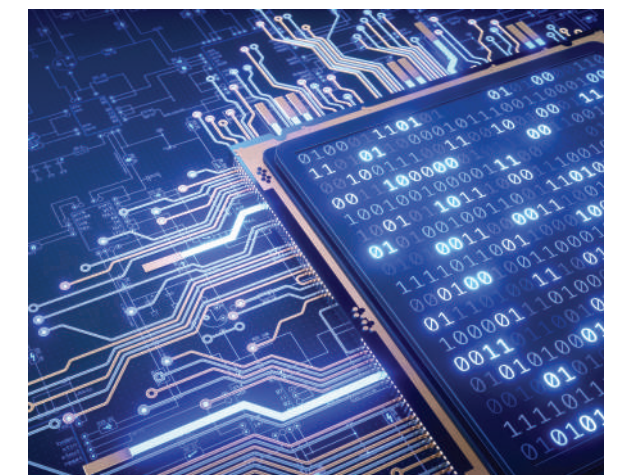
Consumer electronics

The year 2018 saw the approval of four expansion/diversification projects with investments totalling RM79.7 million. These projects mainly involved the manufacture of speaker units and amplifiers, speaker systems, chess clocks, and Bluetooth devices. Up to 171 new jobs were envisaged to be created from these projects.

Industrial electronics

In 2018, a total of 11 projects were approved in this sub-sector involving investments worth RM284.6 million. Of those, the majority of investments (RM165.9 million or 58.3%) were for three new projects, while eight expansion/diversification projects attracted investments totalling RM118.8 million (41.7%). FDI played a slightly larger role, which amounted to 70.5 per cent of total investments, or RM200.5 million, while domestic investments brought in RM84.1 million.

Another noteworthy expansion project is by a wholly-Malaysian-owned company Testhub Sdn. Bhd. involved in the design, development, and production of test boards for automotive semiconductor testing solutions. Raking in investments worth RM30 million, this project could potentially create employment opportunities for up to 50 people.



Electrical products

The electrical products sub-sector had 23 projects approved in total throughout 2018 with investments worth RM1.4 billion, a slight increase of RM300 million from 2017. Of these, seven were new projects (RM204.1 million), while the bulk of investments (RM1.2 billion) went into 16 expansion/diversification projects. This sub-sector is mainly dominated by FDI amounting to RM1.2 billion (84.3%), while domestic investments totalled RM223.9 million (15.7%). These projects are expected to generate employment opportunities for 7,426 people.

Transport Equipment

The transport equipment industry comprises the automotive, aerospace and rail sub-sectors. In 2018, exports of transport equipment totalled RM31 billion, an increase of 15.5 per cent.

A total of 59 projects were approved in the transport equipment industry in 2018, with total capital investments reaching RM1.9 billion. Domestic investments came to almost two-thirds (63%) of total investments, or RM1.2 billion, while FDI totalled RM692 million (37%). The approved projects are expected to generate 3,736 new jobs.

Of the total projects approved, 26 were new, with investments worth RM1.6 billion or 85 per cent of the total investments. Meanwhile, the remaining 33 were expansion / diversification projects with investments worth RM318 million.

Rail

The rail sub-sector subsumes activities in rail design, manufacturing, and assembly, as well as maintenance, repair, and overhaul (MRO). Over 30 players are involved in the design, manufacture, and assembly of rail-related products in the country, with more than 40 other local companies involved in MRO activities. The respective rail operators, such as Keretapi Tanah Melayu Berhad and Rapid Rail Sdn. Bhd., conduct the bulk of their MRO activities in-house. The Government is expected to invest more than RM160 billion by 2030 to develop advanced rail infrastructure and new passenger lines. The industry currently employs 20,000 workers with a target of 68,000 employees by 2030.

Intensive innovation in disruptive technologies have given rise to new business models. Malaysia is part of the revolution in automotive technology, with several noteworthy local companies and universities having initiated development projects related to autonomous vehicles.

Automotive

Since the founding of Malaysia's first automotive manufacturer, PROTON Holdings Berhad (Proton) in 1983, the country has become a manufacturing hub for large automotive component makers.

For investors planning to produce such critical components/systems, MIDA provides incentives in the form of Pioneer Status and Investment Tax Allowance for a period ranging from five to 10 years.

In 2018, the Malaysian automotive sub-sector produced 564,971 motor vehicles. This figure is further broken down to 522,392 passenger vehicles and 42,579 commercial vehicles. A total of 454,971 motor vehicles were sold, comprising 533,202 passenger vehicles and 65,512 commercial vehicles.

The automotive industry saw a total of 47 approved projects with investments worth RM1 billion. DDI made up approximately two-thirds of all investments, totalling RM682 million, with FDI being worth RM354 million, or 35 per cent. The approved projects are expected to result in jobs for 2,119 people. Of the total projects approved, there were 18 new projects worth RM796 million (77%), with 29 expansion/diversification projects that brought in RM244 million (23%).

Wholly owned by Koito Manufacturing Co., Ltd Japan, Koito Malaysia Sdn. Bhd.'s latest project will introduce Koito's latest LED headlamp technology to Malaysia. This technology features world-leading brightness and instantaneous switch-on. Its manufacturing plant will cater primarily to local car manufacturers and assemblers such as Perodua, Toyota, and Honda. These LED headlamps have higher power efficiency and longer life, and are being increasingly promoted as eco-friendly lamps. The project will create employment opportunities for 270 Malaysians.

The ongoing strategic partnership between Proton and PRC-based Geely Holdings (Geely) is a win-win partnership for both parties. The collaboration benefits both parties in terms of achieving economies of scale, better operational efficiency, reducing investment costs, as well as expediting knowledge and technology

transfer. MIDA participated in Proton's working visit to Geely, China in July 2018 to explore potential collaborations between Proton and Geely's vendors in terms of the development of Proton's future models.

The future of the industry is full of both opportunities and challenges. Potential investors can expect Malaysia to be right in the heat of it, capitalising on these opportunities.

Advancements in connectivity and autonomous technology trends have changed the way people commute and travel. Meanwhile, intensive innovation in disruptive technologies have given rise to new business models. Malaysia is part of the revolution in automotive technology, with several noteworthy local companies and universities having initiated development projects related to autonomous vehicles.

For example, local company REKA has been researching autonomous car technologies since September 2016. Universiti Teknologi Malaysia (UTM) has been working on producing a fully-automated vehicle since 2017. A prototype of this vehicle, developed through the collaboration between UTM and Moovita Pte. Ltd., was unveiled in January 2018.

The potential benefits of autonomous vehicles as part of the transportation landscape are significant. Achieving these benefits require the right mix of ambition, planning, regulation testing, and careful execution in a setting that involves multiple stakeholders. MIDA continues to facilitate industry stakeholders by providing platforms to discuss and exchange ideas in this field and other new and emerging areas.

One such effort was the Towards Autonomous Technologies Conference held on 21 March 2018. This conference was a collaboration between MIDA, Collaborative Research in Engineering, Science and Technology (CREST), and DRB-HICOM University. Themed "Embracing Future Innovations",

more than 150 participants ranging from industry players, academia, and government agencies attended the conference.

These disruptive technologies point forward to a time when cars will allow both drivers and passengers to use their travel time for personal activities. An increasing reliance on software-based systems, e.g. those found in autonomous vehicles, will require car systems to be upgradable. Software in cars is used in the delivery of a wide range of features and services, including mobility services, advanced safety, GPS and other location-based services, in-car entertainment, and remote diagnostics/analytics. Hence, software quality and security has become one of the most important differentiating factors for industry players.

The local automotive sub-sector currently needs more suppliers to manufacture automotive parts and components in the scale required. The industry faces numerous challenges, such as missing linkages and components within the existing automotive ecosystem, and a lack of readiness to pursue or consider new business models.



Digitisation and new, potentially disruptive business models continue to revolutionise the world. It is expected that technology-driven trends such as diverse mobility, autonomous driving, the move towards electric vehicles, and connectivity will shape the industry in 10 to 15 years' time. The future of the industry is full of both opportunities and challenges. Potential investors can expect Malaysia to be right in the heat of it, capitalising on these opportunities.

Aerospace

Worldwide, Boeing forecasted 41,030 new airplane deliveries (worth US\$6.1 trillion) by 2036, with 16,050 new airplane deliveries to be delivered by manufacturers in Asia Pacific. Malaysia is well-positioned to capitalise from Southeast Asia's dynamic regional aerospace market, which has been gaining prominence. Strong market demand has accelerated the development of the local aerospace supply chain, with Malaysia being home to more than 200 aerospace companies comprising both international and local industry players.

The Malaysian aerospace industry depends very highly upon Government support. As the Government has identified this industry as one of the '3+2' strategic sectors with high growth potential, it is in the nation's interest to support aerospace development. The industry encompasses 66 companies involved in MRO activities, 33 companies in aero-manufacturing, 25 companies in education and training, and 11 companies in systems integration, as well as engineering and design.

As they have demonstrated their ability to meet and even exceed global OEMs' stringent demands, local companies including SME Aerospace, CTRM Aero Composite, Airod, and Asia AeroTechnics have successfully embedded themselves in the global aerospace supply chain. By 2030, the industry is projected to bring in revenues worth RM20.4 billion for MRO, RM21.2 billion for aero-manufacturing, and RM13.6 billion for engineering and design services.

Industry 4.0 adoption in the aerospace industry is picking up its pace. MIDA signed a tripartite MOU with Daher and France's IoT Valley on 20 April 2018 to further promote investment and business cooperation between France and Malaysia, especially when it came to IoT development and logistics in Malaysia's aerospace industry.

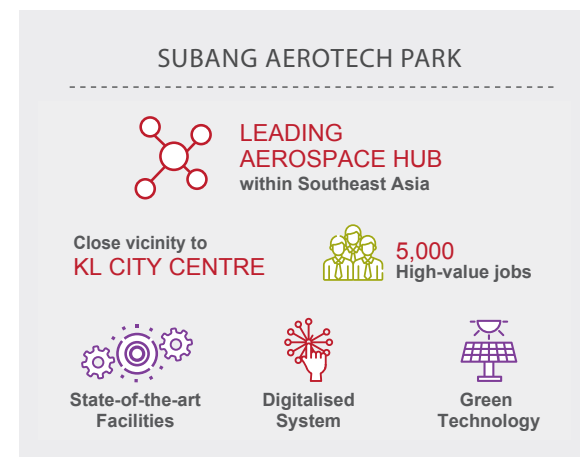
Being a key Industry 4.0 player and also a global aerospace service provider, Daher's role is to facilitate the creation and support the development of new innovative solutions. Meanwhile, the IoT Valley will leverage its dedicated IoT company ecosystem, providing the necessary digital and network support. IoT technologies will not only enhance overall user

experience, but also help with cost optimisation and energy efficiency. This initiative will eventually be able to deliver significant added value to the aerospace industry.

Another highlight moment in the aerospace sub-sector was when MIDA signed an MOU with Malaysia Airports Holdings Berhad (MAHB) on 13 July 2018. Among other things, the MOU will have both parties further collaborate on the promotion and facilitation of activities relating to the development of Subang Aerotech Park.

The Park is key to the aerospace sector in Malaysia, and is being positioned as the leading aerospace hub within Southeast Asia. It offers many strategic advantages such as a mature ecosystem, close vicinity to the KL city centre, excellent transport network, highly-accessible facilities, and a ready supply of manpower.

Various initiatives and promotional programmes have been planned to attract aerospace companies into the park. Upon completion, the regeneration of Subang Aerotech Park will result in the creation of some 5,000 high-value jobs.



The Subang Airport Regeneration Initiative is aligned with Industry 4.0 principles. State-of-the-art facilities, automated and digitalised systems, green technology, and high-specification custom-built facilities will be synergistically integrated into the development of its ecosystem.

By working with entities such as MAHB, MIDA acts as a conduit to bring together collaborating industry players and other stakeholders. In the long term,

these efforts will contribute towards creating a conducive environment for businesses to thrive. This includes having the right elements in place to meet the requirements of businesses that are value-adding, capital-intensive, knowledge-intensive, and can provide quality job opportunities to Malaysians.

Throughout the year, MIDA has undertaken several international working visits, domestic project missions, programmes, and workshops to promote and attract high-quality investments related to the aerospace industry.

For instance, in conjunction with the Malaysia Aerospace Industry Association (MAIA), MIDA organised the inaugural MIDA Industry Linkage Programme in Turkey from 5-12 December 2018. The programme sought to explore capability development, business and investment opportunities through strategic collaboration, and partnerships and joint ventures in the fields of aero-manufacturing, MRO, research and technology, engineering and design, as well as training.

MIDA also organised a supply chain workshop in collaboration with Rolls Royce on 17 December 2018. Its objectives were to develop the capability of local players in the latest aerospace technologies, increase efficiency, and improve process flows.



In 2018, a total of 11 projects were approved in the aerospace sub-sector, bringing in investments worth RM816 million, or about RM166 million more than 2017. Foreign investments amounted to RM338 million (41%). Domestic investments formed a slight majority (59%) of these investments (RM478 million). The approved projects are expected to generate new

jobs for a total of 2,442 people. All approved projects were for companies in the aerospace manufacturing sub-sector supplying to Tier 1 and Tier 2 companies.



One of the significant projects approved was a new project by Boss Aerosystem Sdn.Bhd., a wholly-Malaysian-owned company with investments worth RM246 million to produce parts and components for aircraft engines, aero structure, avionics, landing gears, and surface treatment.

Another new project was set up by Swedish-owned GKN Engine Systems Component Repair that will undertake gas turbine engine component repair and research in their facility in Nusajaya Techpark, Johor. The Malaysian site will start off by focussing on servicing engines with low-pressure compressor (LPC) components, while its research will be centred on the application of additive manufacturing (3D-printing) technology into engine parts repair. The facility will complement the company's existing operations in the USA to meet growing demand in the Asia Pacific region. The project is expected to eventually provide 250 high-income employment opportunities for Malaysians.

Local aerospace companies are engaged in the global aircraft industry through off-set arrangements and joint ventures or strategic partnerships with MNCs. However, they have not yet weaned themselves off from depending on foreign technical know-how and export market support. More specifically, the sophisticated nature of products in this industry requires companies to invest heavily into infrastructural and human talent capabilities.

Shipbuilding and ship repair

The shipbuilding and ship repair (SBSR) sub-sector in Malaysia is a strategic one, given that it has generated employment for over 15,000 people, increasing industrial capacity both directly and indirectly, and advancing maritime technological capabilities. Its development is therefore integral to the IMP3, the Malaysian Shipbuilding/Ship Repair Industry Strategic Plan 2020, and the Malaysian Shipping Master Plan 2017 - 2022. It is part of the marine transport sub-sector which directly supports the shipping industry, and is expected to generate RM6.4 billion in GNI and provide 55,000 jobs by 2020.

The SBSR industry encompasses companies that manufacture seagoing vessels and marine equipment, as well as providers of related services including ship repair, design, upgrade/conversion of vessels, and MRO. Most of the 99 registered shipyards across the country specialise in building small to medium-sized vessels (less than 120 meters in length). These include offshore support vessels, ferries, tugs, barges, fishing vessels, and patrol crafts.

In 2018, two expansion projects were approved in the SBSR industry, with a total investment amounting to RM33 million. These projects are expected to create 51 new jobs, and both projects were undertaken by wholly Malaysian-owned companies.

One of these expansion projects is a technical collaboration between Perlis Marine Engineering Sdn. Bhd. and Lu HaiFeng, a major aquatic product processing company to build modern deep sea fishing vessels. The other project is a diversification project by Berjaya Dockyard (Sibu) Sdn. Bhd. looking into ship repairing activities. The expansion project involves construction of the biggest dry dock in East of Malaysia, which is planned to be in operation by the end of 2019, to support ship repair activities of vessels weighed between 30,000 and 50,000 deadweight tonnes.

Malaysian shipyards continue to face challenging market conditions, given the global economic slowdown as well as declining performance in the shipping industry since 2008, due to the low number of orders for newly-built ships. Adding to these challenges is the rising competition from foreign yards

offering products and services at highly-competitive rates that adversely affect the industry.

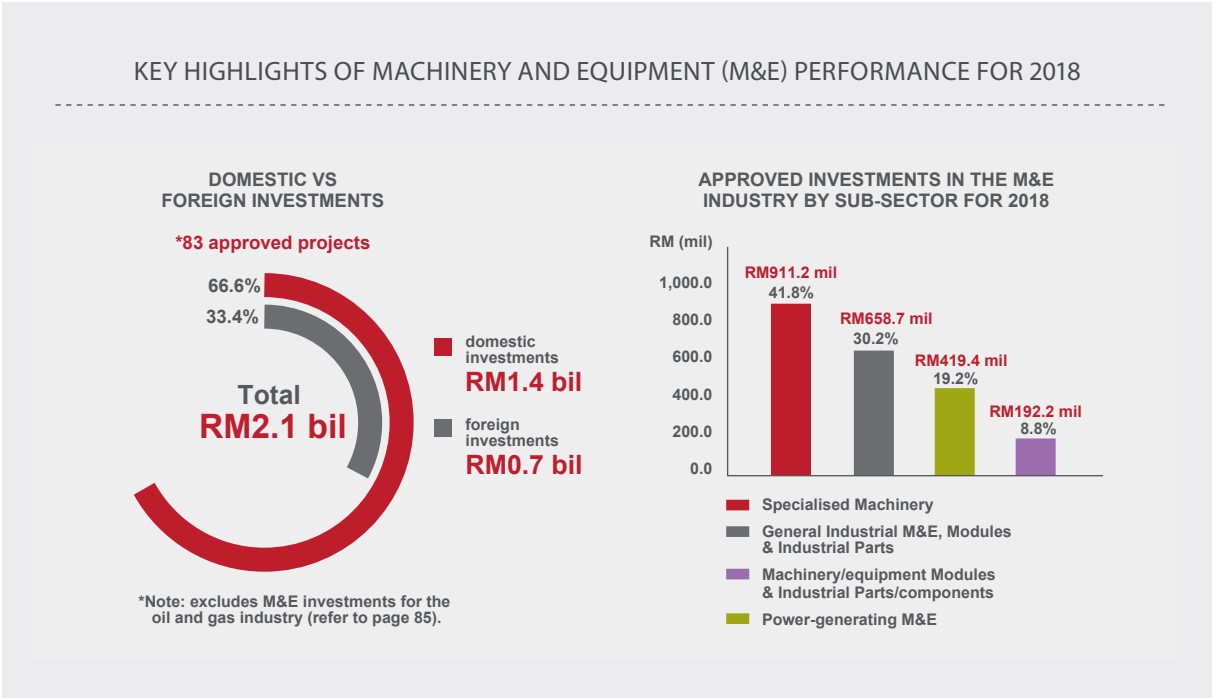
One of the measures local shipyards have taken to sustain their businesses is to diversify their portfolios into activities such as building of leisure vessels, ship conversion, and ship chartering. The Malaysian SBSR industry is well developed; industry players have the capability to build small to medium-sized vessels and provide marine engineering services. However, the domestic supply chain is less developed. The use of locally-sourced content in Malaysia’s SBSR industry is relatively low hence the majority of raw materials, spare parts, and ship components are still imported.

As the world shifts into a higher gear in terms of adopting Industry 4.0, the shipbuilding industry is doing the same, by revolutionising design, manufacturing, operations, production, and maintenance systems and processes. An example would be a local naval architecture and ship designing company that has adopted Industry 4.0 in its operations – more specifically, it has been developing a ‘digital twin’ and ‘virtual reality’ system. These systems enable its people to customise ship designs according to the ship owners’ requirements, provide accurate estimation of raw materials costs to the clients in order to reduce ‘sticker shock’, and optimise ship designs prior to physical construction.

Malaysia’s SBSR industry needs to invest in developing local ship designing capabilities, as this is integral to the Government’s agenda to enhance the industry’s competitiveness both regionally and globally, as well as reduce reliance on foreign ship designs. To achieve this goal, the Government, industry, and academia have come together to establish the Asia Marine Design Center. This not only facilitates the development of local design capability, but also increases the demand for local ship designs and generates highly-skilled human resource.

Machinery and Equipment

The machinery and equipment (M&E) industry is a key pillar of industrial growth and development that serves to catalyse Malaysia’s transition into a competitive high-technology, Industry 4.0-ready nation.



From its humble beginnings forty years ago of repairing and servicing imported machinery, the industry today consistently moves up the value chain to produce M&E for high-tech industries such as front-end semiconductor processing, medical devices, aerospace, food processing, and oil and gas. The Government is committed to keep bringing in quality investment dollars so that an advanced M&E industry can be fully developed. This is in accordance with the 11MP’s goals for the manufacturing sector to produce more high-value-added and complex products.

Currently, the industry has 1,416 companies across multiple fields; the four major ones being power generation, metal working, specialised-process M&E for specific industries, and general industrial M&E, modules and industrial parts. From 1980 to 2018, the 1,808 realised M&E projects have chalked up investments worth RM25.3 billion and provided employment opportunities for 110,287 people.

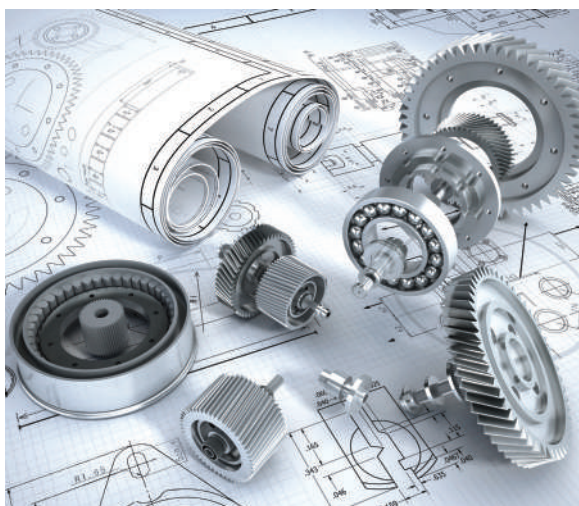
Local industry players are looking to increase their competitiveness in product technologies and some of the steps they have taken in this direction include conducting intensive R&D, running 4D-testing simulations, investing in machine-learning development, and using additive manufacturing (3D-printing) for prototyping.

While it is interesting to note that Malaysian M&E companies are more than capable of producing the most advanced of machinery incorporating automation and robotics, what this really translates to is their integration ability into MNC supply chains and export of their products globally. Some prominent players in the M&E industry include Advantest, SRM, Vitrox, Muehlbauer, Pentamaster, UMS, and Multitest.

Industry megatrends in the likes of Industry 4.0 are driving M&E companies to revisit and redevelop their human resource management and production processes every day. Many are adopting key Industry 4.0 technologies such as automation, connectivity, machine learning, required in a smart factory environment and big data analytics (BDA).

In 2018, the M&E industry saw a total of 83 projects approved with investments amounting to RM2.1 billion. A total of 38 new projects brought in RM1.0 billion (52.4%), with 45 expansion/diversification projects edging ahead at RM1.1 billion (47.6%). Domestic investments formed the majority of investments, with RM1.4 billion (66.6%), while FDI was worth RM0.7 billion (33.4%). Projects approved in 2018 are expected to generate 3,578 employment opportunities. The total approved projects for this portion excludes M&E investments for the oil and gas industry (refer to page 85).

The specialised machinery sub-sector was the biggest investment contributor, bringing in RM911.2 million across 27 projects. Of these projects, five were new projects with 100 per cent domestic investment worth RM336.4 million (36.9%), and 22 were expansion/diversification projects with a total investment of RM574.8 million (63.1%). Investments in this sub-sector were mostly contributed by domestic sources, amounting to RM779.8 million (85.6%), while foreign investments totalled RM131.4 million (14.4%).



Coming in a close second was the general industrial M&E, modules and industrial parts sub-sector, with 33 projects bringing in investments of RM658.7million. These comprised 18 new projects with investments of RM346.3 million (52.5%) and 15 expansion/diversification projects with investments totalling RM312.4 million (47.5%). DDI in this sub-sector records investments of RM312.3 million (47.4%), while foreign investments totalled RM346.4 million (52.6%).

There were 14 projects approved for machinery or equipment modules and industrial parts or components (a part of the metal working sub-sector), with investments of RM419.4 million. These projects comprised nine new projects with investments amounting to RM219.2 million (52.3%) and five expansion projects with investments worth RM200.2 million (47.7%). Investments were fairly balanced between FDI and DDI, totalling RM232.8 million (55.5%) and RM186.6 million (44.5%) respectively.

The power-generating M&E sub-sector recorded an investment of RM192.2 million across six projects, with investments coming mainly from domestic sources totalling RM161.0 million and FDI worth RM31.2 million. The five new projects and one expansion concentrated on the production of generator sets and renewable energy modules.

One significant project was an expansion worth RM35 million by Elektro Serve (Malaysia) Sdn. Bhd., a wholly-local-owned company to produce power-generating equipment. The company is also establishing integrated load-testing facilities for High Voltage (HV) electrical motors, HV generators and HV pumps. This will help to close the gap particularly in equipment testing for the oil & gas industry. The company's facility will be able to test pumps and motors with a pressure of more than 400bars and up to 1500Kw of power.

The M&E industry remains a magnet for foreign investment. Other areas of the value chain also provide opportunities for profitable investment. In particular, M&E servicing and MRO are in high demand, due to the high density of plants and installations in Southeast Asia.

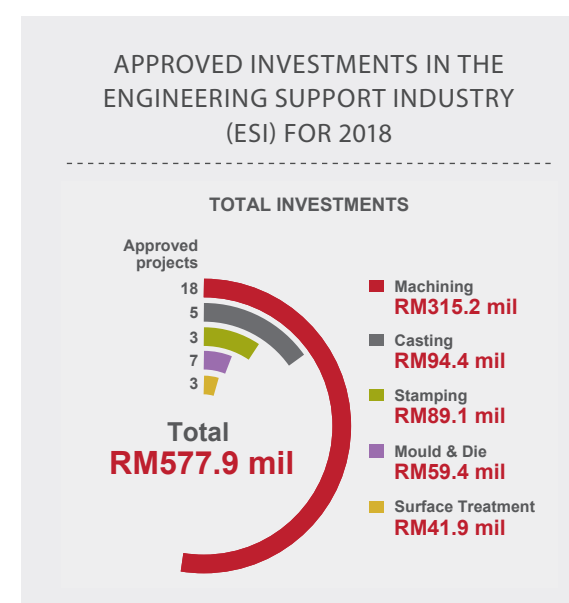
To rise to new levels of competitiveness locally and globally, M&E companies need to embrace digitalisation and Industry 4.0. Their willingness to adopt technological innovation and adaptiveness towards technology megatrends will ensure continued sustainability and relevance in the industry.

As part of its efforts to provide industry players with insights into Industry 4.0 and smart manufacturing, MIDA has collaborated with Rockwell Automation, one of the world's leading players in automation and smart manufacturing. The objective of this collaboration is to boost awareness and to provide a platform for local companies to engage with industry experts on implementing smart manufacturing. Through this collaboration, both parties have organised several smart manufacturing mini-briefings, demos, and business matching sessions throughout 2018.

Engineering Support Industry

Local companies involved in activities such as mould-and-die, precision machining, surface engineering, and fabrication fall under the umbrella of the engineering support industry (ESI), an industry vital to Malaysia's industrial development and also one that has important links to numerous economic sectors such as manufacturing, construction, transportation, mining, and agriculture.

Malaysia is internationally recognised due to its capabilities in a myriad of engineering activities and quality production. Industry players continue to press on to upgrade their facilities, improve workplace health and safety, and incorporate the latest technologies to meet the demands of Original Equipment Manufacturers (OEMs).



In 2018, a total of 37 projects were approved in ESI with investments of RM577.9 million. Of these, 19 were new projects (RM337.2 million or 58.3%), with the remaining 18 being expansion/diversification projects (RM240.7 million or 37.3%). While slightly less than 2017's figure of RM358 million, domestic investments still made up nearly two-thirds of investments into the industry, charting RM366.5 million (63.4%), while FDI totalled RM211.4 million (36.6%). Projects approved in 2018 are expected to generate 2,052 new jobs.

The machining sub-sector had 18 projects approved, bringing in investments worth RM315.2 million. Of these, eight were new projects with investments

totalling RM170.5 million (54.1%), with the balance of 10 expansion/diversification projects with investments worth RM144.7 million (45.9%). FDI brought in investments amounting to RM138.1 million (43.8%) while DDI totalled RM177.1 million (56.2%).

The casting sub-sector contributed to two new projects and three expansions, with domestic investments of RM89.9 million and foreign direct investments of RM4.5 million.

The mould and die sub-sector's seven projects resulted in investments worth RM59.4 million. Of these seven projects, there were four new projects with domestic investments of RM39 million (79.4%) and foreign investments of RM10 million (18.8%), while the remaining three were expansion/diversification projects with total investments worth RM10.4 million (7.3%).

The stamping sub-sector brought in three new projects with domestic investments to the tune of RM66.9 million and FDI of RM22.2 million.

The surface treatment sub-sector saw two new projects and one expansion project approved with investments totalling RM41.9 million. Foreign investments brought in RM30.2 million (72.1%) while DDI was worth RM11.7 million (27.9%).

Three local companies have proposed a new SME cluster project, involving investments amounting to RM112 million. The project aims to produce factory automation machines, as well as related modules and components. This SME cluster will build up and manage the local supply chain ecosystem, supporting LLCs and MNCs with regards to advanced, innovative, and cost-effective engineering of sheet metal fabrication, tooling, machining, and metal finishing services. The cluster will use Industry 4.0 technology to enable clients to track and monitor their orders in real time, as well as in its production process to increase efficiency and traceability. The JV company will provide training and assistance to the SME cluster to develop and elevate local SME capabilities.

Companies in the ESI industry that are looking forward can consider repositioning themselves as 'one-stop centres'. These one-stop centres would

offer total manufacturing solutions plus produce parts and components to their high-technology customers in the E&E, automotive, machinery manufacturing, medical, oil and gas, aerospace, defence and solar/ photovoltaic industries. Some Malaysian companies capable of providing this to advanced global demands are Alpha Master Sdn Bhd, Alliance Contract Manufacturing Sdn Bhd, UWC Holdings Sdn Bhd, RC Precision Sdn Bhd, and Kobay Technology Sdn Bhd.

By doing this, industry players are primed to support the growth of the manufacturing sector in Malaysia, which is heading for high-technology, capital-intensive, and high-value-added production. One of the ways in which this might be achieved is for Malaysian companies to consolidate and rationalise themselves. This may prove to be a great opportunity for investors with experience in corporate restructuring.

Future ESI development will then concentrate on strengthening the industry's services, and enhancing its capabilities and production quality. To that end, the industry as a whole is working towards meeting international certification standards for the supply of parts and components.

Basic Metal Products

The basic metal products industry in Malaysia assume a major role in the development of the manufacturing and construction sectors. The industry is defined as including both the manufacturing of ferrous (iron and steel) as well as non-ferrous (aluminium, tin, copper etc.) metal products.

Malaysian steel players need to boldly venture into new markets. For instance, transitioning into the production of higher-grade, higher-quality steel will enable these companies to support higher-end manufacturing activities further up the value chain. These include the automotive, aerospace, medical devices, and E&E industries.

With this, iron and steel players can sustain the local iron and steel industry, and reinforce Malaysia's capabilities regionally and globally. However, this requires support in the form of technology access, either via joint ventures with foreign partners, or

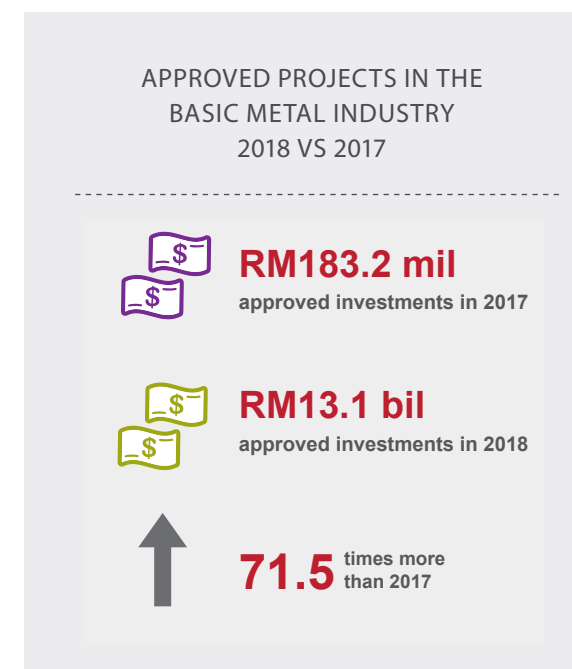
close collaboration with local technical institutions. Malaysian talent in the industry also require upskilling, so that they are equipped with the appropriate know how on the use of state-of-the-art technology.



Globally, oversupply of iron and steel remains a concern. By and large, this was caused by China's massive levels of production from 2000 to 2013, which had outperformed the rest of the world's production put together. China's government is now rationalising their production by cutting up to 150 million MT capacity by 2020. Nevertheless, Malaysian players have yet to take full advantage of the opportunities to diversify into manufacturing more advanced steel products.

The ferrous metal sub-sector in Malaysia is already well established. However, the non-ferrous metal sub-sector needs to be further explored and developed, to make it a prime investment area for both local and foreign companies to make their mark. One of the main factors limiting industry players from venturing to non-ferrous (e.g. aluminium, copper, and tin-based metal) industry sub-sectors is the lack of supporting industries to complement the ecosystem. Currently, there is only one existing non-ferrous metal producer carrying out upstream activities in the form of aluminium smelting.

In 2018, there were 25 projects approved involving the manufacture of basic metal products with total investments reaching RM13.1 billion. This represents a massive increase of 71.5 times more than the RM183.2 million of investments from 2017. Of these, 16 were new projects with investments worth RM11.8 billion, while the remainder were expansion/ diversification projects with investments worth RM1.3 billion. These projects were expected to generate 4,998 new job opportunities, with a CIPE of RM2,627,948, an incredible increase of nearly 20 times from 2017's CIPE of RM134,541.



A new project located in Sarawak by Ijin Materials Malaysia Sdn. Bhd., a wholly foreign-owned company brought in an investment of RM2.2 billion to produce electro-deposited copper foil for lithium batteries. This electro-deposited copper foil will be used as a component in the cathodes (negatively-charged electrodes) of lithium-ion batteries. These lithium-ion batteries are meant to be used in 'Energy Efficient Vehicles' (EEVs) manufactured by companies such as BMW, Volkswagen and Tesla.

Another notable project is by PMB Silicon Sdn. Bhd., a wholly Malaysian-owned company, which is undertaking a project worth RM599 million

to manufacture ferroalloys to enhance the steel properties of aluminium in particular. This project will complement the non-ferrous aluminium ecosystem. Other than in steel, these ferroalloys are also used in the chemical industry for the manufacture of silicone compounds, and the solar sub-sector for the manufacture of silicon wafers used in photovoltaic solar cells and electronic semiconductors.

Fabricated Metal Products

Having long since matured beyond the growing and emerging phases of industry growth, Malaysia's fabricated metal products industry comprises the various value-added metal shaping processes required in the creation of machines, parts, and structures for various industries, and is a vital player in the cross-industry sub-sector.



In 2018, a total of 86 projects were approved for the manufacture of fabricated metal products, racking up investments totalling RM1.8 billion. Of this, RM1.2 billion (64.4%) was contributed by domestic investors, while the remaining RM0.6 billion (35.6%) was contributed by foreign investors. Of the 86 projects approved, 45 were new projects (RM1.3 billion) while 41 were expansion/diversification projects (RM510 million). It is forecasted that 4,978 jobs will be generated from these projects.

Fabricated metal products are mainly used in four sub-sectors: O&G; building and civil construction; processing and manufacturing; industrial machinery; and M&E parts and components.

Textiles and Textile Products

The Malaysian textiles and textile products industry is one that is mature, thanks to a past of fast-paced growth as a result of Malaysia's export-oriented industrial transformation in the early 1980s. Nevertheless, investors can still avail themselves of the plentiful business opportunities in the industry, as there remains much growth potential. Today, such opportunities lie in the higher end of the global value chain and the diversified production of higher value-added products.

Textile and textile products is the nation's 13th-largest exporting industry in 2018, landing approximately RM12 billion of Malaysia's total manufactured goods exports. The USA held on to its position as the top market for Malaysia's exported textile products, purchasing RM1.6 billion (13%) of the industry's total exports.

Malaysia has become a global trendsetter in the field of textiles and apparel wear. Malaysian designers have been creating clothing worn by celebrities, members of royalty, even heads of states. Malaysian textile and fashion entrepreneurs are more than capable of becoming international players, given their many talents.

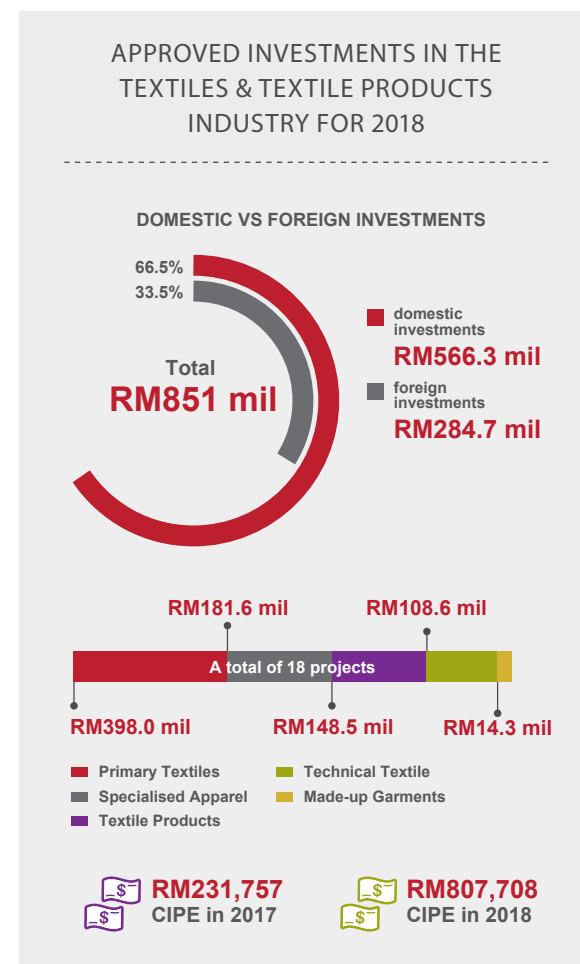
Going forward, the industry's growth will depend on building a stronger and more comprehensive ecosystem that focusses on talent, skills, and innovation. Industry 4.0 technologies such as the IoT have impacted both the front-end as well as the back-end of the industry. Digital transformation has paved the way for completely new and efficient business models.

In order to benefit from Industry 4.0, prospective investors are encouraged to take advantage of MIDA's facilities, such as the matching grant under the Domestic Investment Strategic Fund (DISF) and Automation Capital Allowance (ACA) to increase their productivity and quality.

In 2018, a total of 18 projects were approved in the textiles and textile products industry with investments totalling RM851 million. DDI led the way, with RM566.3 million (66.5%), with foreign investments amounting to RM284.7 million (33.5%).

The 18 projects consist of primary textiles (RM398 million), specialised apparel (RM181.6 million), technical textile (RM108.6 million), made-up garments (RM14.3 million), and textile products (RM148.5 million). The majority of these were new projects, with six expansion/diversification projects that was worth RM392 million.

The approved projects will result in 912 new jobs, of which 312 are in the managerial, technical, and supervisory categories. The industry recorded a CIPE of RM807,708 in 2018, which is over three times the CIPE of RM231,757 in 2017. This implies a higher level of automation and technology use in the industry.



A notable approved investment was from Siti Khadijah Dagang Sdn. Bhd., a Malaysian-owned company investing RM119.6 million into the production of customised spun polyester apparel. This project will create some 130 job opportunities for Malaysians. Focussing mainly on femininity and comfort, the company's main produce is specialised apparel such

as bags, shoes, and shawls by using face-compression technology to craft these high quality accessories with premium finishing.

Another significant new project approved in 2018 worth RM100 million was from wholly foreign-owned Porex Fiber Technologies Sdn. Bhd. The project proposes to export its products, mainly technical textiles, to the US, the Republic of Korea, and the PRC. The company will adopt Industry 4.0 elements, such as the Manufacturing Execution System (MES) which analyses data from logistics, production, and also office management (finance and sales), for more efficient supply chain management and smoother operations. The project will result in the creation of an additional 93 employment opportunities, of which 43 per cent are positions with monthly salaries of RM3,000 and above.

The Government recognises the tremendous potential of the industry and is planning to form a textiles and apparel federation to better integrate the industry's supply chain, ecosystem as well as talent development through active engagement between the Government and the private sector.



Industry players and investors would do well focussing on the production of high-value-added products such as high-quality and niche market items, investing in modern equipment, undertaking R&D to keep abreast with new market trends and development, and exploring networking and trade opportunities in exhibitions and trade fairs. They can also explore the potential of e-commerce and social media avenues to boost sales.

Non-Metallic Mineral Products

Companies in Malaysia's non-metallic mineral industry are critical links in the domestic, regional, and international supply chain since they are not merely raw and processed materials suppliers, but also exporters of minerals and mineral-based value-added products. The industry is also crucial in the nation's economic growth, with multiple cross-industry linkages.

The non-metallic mineral products industry covers the production of high-purity alumina (HPA), glass products, IBS components, ceramics and clay-based products, cement and concrete products, and other products such as quicklime, barite, marble, and granite.

Malaysia remains committed to increase the amount of affordable housing for which the adoption of IBS is crucial. The IBS industry can speed up construction, contribute to economic development, as well as decrease wait time.

The industry's production index grew to six per cent in 2018 from 4.5 per cent in 2017. This is due to the increased demand for non-metallic mineral products.

In 2018, there were 39 non-metallic mineral projects approved with total investments worth RM2.44 billion. Of these, DDI recorded RM717.5 million (29%) in investments, while foreign investments formed the majority of investments into the industry, totalling RM1.73 billion (71%).

Most of the investments approved in the industry were from the production of Industrialised Building System (IBS) components and modular products (14 projects), with the balance coming from other sub-sectors such as glass, ceramics, and clay-based activities. Nine major projects worth RM235.9 million from these sub-sectors will be exporting 80 per cent or more of its finished products. The major projects concentrated on the production of IBS components, construction materials, IBS modular systems including prefabricated prefinished volumetric construction (PPVC), and micronised zirconium silicate.

Among the significant projects approved in 2018 was an investment worth RM1 billion from Jinjing Technology Malaysia Sdn. Bhd., a majority-PRC-owned company, to produce float glass. Most of the company's products will be supplied to solar companies in Malaysia, Vietnam, and the US. This company is one of the biggest glass manufacturers of float and solar glass in China. The company has been approved to produce ultra-clear and thinner glass using advanced Industry 4.0 glass manufacturing technology for solar glass.

Accelerating the adoption of IBS is one of the main national goals of the Construction Industry Transformation Programme (CITP). This will benefit not only the industry players but also contribute to nation building (see box article on page 68).

In order to advance the affordable housing and construction agenda, connecting the relevant stakeholders together will help foster stronger collaborations and enhance the existing ecosystem. This makes it more responsive to both current and new challenges.

Towards this end, MIDA jointly organised the IBS Adoption and Regularisation Dialogue 2018 with the Construction Industry Development Board (CIDB) on 26 June 2018. Themed 'Opportunities Lie Ahead', the half-day event was the 9th outreach programme, following a series of engagements in the northern, eastern, and southern regions.

Malaysia remains committed to increase the amount of affordable housing for which the adoption of IBS is crucial. The IBS industry can speed up construction, contribute to economic development, as well as decrease wait time. It can also indirectly reduce the amount of low-cost labour in the country by reducing the need for on-site construction workers.

Many companies in the industry have caught on to the potential of IBS. Located in Negeri Sembilan, MGB Sany (M) Sdn. Bhd. was one such company that produces IBS components using the precast concrete system. Its new project will create a total of 102 new jobs, with 90 per cent of them earmarked for Malaysian citizens. The company also signed a MOU with CIDB MyIBS, a subsidiary under CIDB. The MOU targeted the development of IBS industry players, by sharing IBS-related information and technology expertise.

The company is committed to create and collaborate in R&D and internship programmes, as well as expertise development.

Another prominent IBS project approved in 2018 was Matrix IBS Sdn. Bhd. The company is located in Negeri Sembilan, and has a project to produce IBS components, which is expected to create 140 employment opportunities. The company uses Japanese technology to construct houses efficiently by using high-intensity and high-quality precast concrete products.

Despite the industry's promising growth, it is affected by the development of the construction and related sub-sectors. As such, it faces similar challenges to those sub-sectors, such as the increase in cost of construction materials; sustaining/expanding sales both domestically and internationally; relatively high electricity tariffs which affects the cost competitiveness of the industry; and lack of technology and R&D.

The adoption of the Industry 4.0 roadmap for the construction industry by January 2020 aims to streamline future programmes related to digitalising the construction industry. This includes the deployment of the Building Information Modelling (BIM). BIM is a modelling technology and associated set of processes to produce, communicate, analyse, and use digital information models throughout the construction project life-cycle. It could save 15-20 per cent in terms of time spent during the planning and design stage. This initiative would then effectively catalyse the acceleration of IBS adoption in Malaysia.

Medical Devices

Globally, the medical devices market is forecasted to grow at an estimated CAGR of 4.5 per cent between 2018 and 2023, eventually reaching an estimated



US\$409.5 billion. Some of the factors that have a direct impact on the dynamics of the industry include the evolving medical technology landscape, the positioning of software as a differentiator in medical devices, as well as the design, development, and manufacturing of patient-portable and smaller devices.

The medical devices industry manufactures higher-value-added and technologically-advanced products such as cardiac pacemakers, stents, orthopaedic implantable devices, electro-medical, therapeutic and, monitoring devices is expected to have a positive impact on the Malaysian economy. It has been designated as one of the '3+2' high-growth sub-sectors under the 11MP. It is also an integral part of Malaysia's total healthcare industry, which had an expenditure of RM52 billion at the end of 2017. This figure is expected to reach about RM80 billion by 2020.

Malaysia continues to evolve as a manufacturing hub for medical devices in Asia. The country is home to over 200 industry manufacturers including MNCs and world-class supporting companies; a fact that puts the country on track to become the next global medical device manufacturing hub.

Multiple MNCs have made Malaysia their offshore manufacturing location, such as Abbott, Boston Scientific and C.R. Bard. These MNCs have contributed to the development of a comprehensive local supply chain and in turn benefitted many domestic companies.

There are some 50 home grown companies producing higher-end medical devices categorised as Local Large Companies (LLCs) that have expanded into international markets; Vigilenz, Straits Orthopaedics, Ideal Healthcare, and Muzamal are some examples.

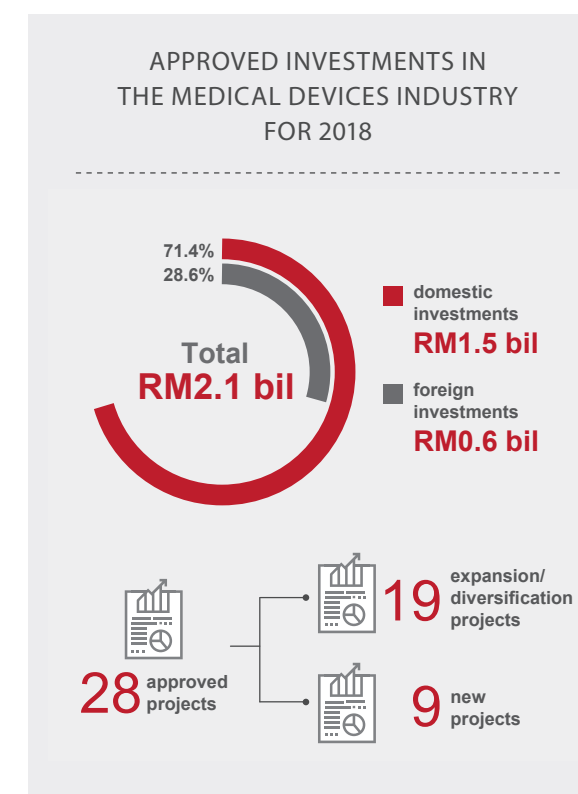
To assist medical devices companies in Malaysia to be future-ready in today's evolving business landscape, MIDA leverages on various platforms such as the Malaysia Medical Device Expo (MYMEDEX 2018), held from 23 to 25 October 2018. In conjunction with the expo, MIDA organised a panel session on the "Next Wave of Medical Devices Manufacturing: Shaping the Future of the Industry". The session highlighted the need for R&D adoption, innovative products and cross collaboration to move forward and penetrate global supply chains. It also emphasised on utilising

technology as the enabler to reduce cost, and provide better delivery and product quality.

For a competitive edge in the medical devices industry globally, companies are encouraged to prioritise productivity, accelerate automation and innovation, undertake more R&D, and implement best practices. There is a growing need for industry agility, speed, quality, and compliance. Companies need to especially embrace digitalisation to effectively develop innovative medical devices and achieve faster time-to-market. Those that form strategic alliances with MNCs, universities, and research institutes will help promote competitiveness through research, development, commercialisation, and innovation, and in doing so, increase their return on investments.

MIDA's Environmental Scan study on human capital issues within the medical device industry was undertaken and completed in 2018. MIDA is currently at the strategic planning phase of implementing the study's recommendations. The strategies derived will help address talent issues to build a sustainable yet highly skilled talent pool.

In 2018, a total of 28 projects (three projects more than 2017) with investments worth RM2.1 billion were approved in the medical devices industry.



There were nine new projects with investments of RM480 million and 19 expansion/diversification projects amounting to RM1.6 billion in investments. Domestic investments played a major role, bringing in investments worth RM1.5 billion (71.4%), while FDI totalled RM610 million (28.6%). These projects are expected to generate 5,085 new jobs. Of the projects approved, 24 projects (85.7%) with investments of RM646.2 million were for the manufacturing of medical devices other than medical gloves. These projects were mainly for high-end and high-value-added products.

Among notable projects approved was a new investment by JLL Malaysia Sdn. Bhd., a foreign-owned company to manufacture balloon catheters and electrophysiological catheters, with an investment of RM97.5 million. These products are used in the treatment of cardiovascular related diseases. The export-oriented projects will create approximately 42 jobs and 15 of the employees are in the managerial, technical, and supervisory category. Malaysia was deemed as the perfect location for the company's first factory outside of Japan, due to its good supporting infrastructure, skilled human resources, as well as the strong support from the Government.

Another approved investment was a new project to manufacture endoscopy and peripheral products by PENTAX Medical (Penang) Sdn. Bhd., a Japanese-owned company with estimated investments of RM76 million. PENTAX Medical is one of the top three endoscopic and surgical system manufacturers in the world. Endoscopic devices are crucial in surgeries using minimally-invasive techniques. The project will employ 193 employees, of which 148 are Malaysians; this is expected to increase to 440 employees by 2021. A total of 91 per cent are Malaysian managers, engineers/executives, and technicians.

This world-class and high-technology project will involve extensive R&D, technology transfer, and adoption of smart manufacturing elements. The project is expected to create positive impact in boosting the development of the medical devices ecosystem in Malaysia by providing new business opportunities for local vendors to supply equipment, machinery, machine tools, packaging materials, and services such as biocompatibility testing.

Pharmaceutical

The Malaysian pharmaceutical industry has grown steadily over the last decade, and has been identified by the Government as an economic engine of growth. Malaysian manufacturers possess the capability and capacity to produce pharmaceuticals in almost all dosage forms; these include sterile preparations, injectables, and time-release medications. The major pharmaceutical products produced in Malaysia are prescription medications, over-the-counter (OTC) products, traditional medicines, and health / food supplements.



The line-up of major home grown companies include Pharmaniaga, CCM Pharmaceuticals, Kotra Pharma, Hovid, and Xepa-Soul Pattinson. The pharmaceutical products by these and others are accepted globally, particularly in other PIC/S member countries since Malaysia is a member of the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation/Scheme (PIC/S).

As at 2018, a total of 259 facilities were licensed by the Drug Control Authority (DCA), Ministry of Health Malaysia (MOH), categorised into 161 (62%) facilities that produce traditional medicine, 89 (34%) that produce pharmaceuticals and 9 (4%) that produce veterinary products. A total of 23,027 pharmaceutical products are DCA-registered, including traditional products (51%), prescription medication (28%), non-prescription/OTC (8%), health supplements (10%), and veterinary medicine (3%).

To further nurture the growth of the pharmaceutical sector in Malaysia, MIDA initiated the 'Environmental Scan on Human Capital Issues within the Pharmaceutical Manufacturing Sector' study.

Among other things, the study aimed to identify challenges and gaps faced by the industry, and to develop key strategic recommendations and implementable short-term/quick wins and long-term action plans to overcome them. MIDA is currently at the strategy planning phase of implementing the study's recommendations.

A total of nine projects with investments of RM280 million were approved for the pharmaceutical industry in 2018. Of these, six were new projects with investments of RM261 million (93.2%), with three expansion/diversification projects worth RM19 million (6.8%). Foreign investments of RM200 million (71.4%) dominated the industry, with DDI making up the remaining RM80 million (28.6%). The projects approved are expected to result in 366 new jobs.

Among the projects approved was a new project by a foreign-owned company with investments of RM200 million to produce pharmaceutical formulation and biological products. This will generate 160 employment opportunities, of which 27.5 per cent will be in the science and technical fields. The project is in-line with the Government aspiration to further develop the biopharmaceutical industry ecosystem in Malaysia. By leveraging the parent company's expertise and 50 years of experience in the development and manufacturing of 250 formulations of pharmaceutical products for oncology, cardiac, anesthesia, hormone and gynaecology, the project enables technology transfer as well as upskilling of Malaysia's expertise.

Malaysia is an attractive location for the pharmaceutical industry, given its emerging R&D centres, readily-available and diverse patient population, as well as its highly-competitive clinical research costs. The introduction of new and innovative projects such as the production of biosimilars and biologics, will move the entire ecosystem towards producing more high-value-added products.

Through concerted efforts by the Government, the private sector, and other stakeholders, industry players in Malaysia are in a strategic position to support the technology transfer required to grow a robust manufacturing base. The Government's support of pharmaceutical companies has brought about the expansion of the industry, and continues to attract investments from both foreign and domestic sources.

Cosmetics and personal care is now a lucrative, dynamic, and fast-paced sub-sector. According to Allied Market Research, the global cosmetics market is expected to reach US\$429.8 billion in size by 2022. In another report by Grand View Research Inc., the global halal cosmetics market is expected to reach US\$52 billion by 2025. The market for halal cosmetics and personal care products is one of the fastest-growing consumer segments in Malaysia.



Many major players in this sub-sector are undertaking the manufacture of house brand products, as well as contract/private labelling. Malaysia's rich biodiversity makes the country an ideal part of the sub-sector's global supply chain, as consumers today are seeking more natural and organic products. This is a contributing factor for its steady expansion, particularly with regards to its supply of active ingredients.

Increasingly-affluent consumers are willing and able to pay for premium brands and expensive products, as long as they are convinced it is worthwhile to do so. This causes the demand for convenient and functional cosmetics and personal care products to grow. It is becoming more important that businesses keep abreast of changing trends and ever-advancing technologies. This way, they can act to increase their value propositions in terms of branding, promotion, and manufacturing processes.

On 23 April 2018, MIDA signed a MOU with Cosmetic Valley of France (CVF), a renowned point of reference for global cosmetics. The MOU is about developing a sustainable cosmetics and personal care industry cluster in Malaysia, through the sharing of information, mutual promotional initiatives and R&D efforts, particularly in the halal segment. Ultimately, this will contribute towards providing new and innovative products to the market and enhancing economic growth for both Malaysia and France.

Foreign companies have also leveraged on Malaysia's comprehensive halal ecosystem over the years. Malaysian halal products, including cosmetics and toiletries are renowned for their quality.

Biotechnology

As Malaysia is well-endowed with natural resources, the Government has positioned biotechnology as an economic growth engine that is critical in the journey towards sustainable development. Biotechnology, which refers to technology based on harnessing various biological processes to develop technologies and products, has applications in numerous fields. The biotechnology industry is generally classified into the biomedical, bioindustrial, and bioagricultural areas, with notable biotechnology companies in Malaysia including Biocon Sdn. Bhd. and CJ Bio Malaysia Sdn. Bhd.

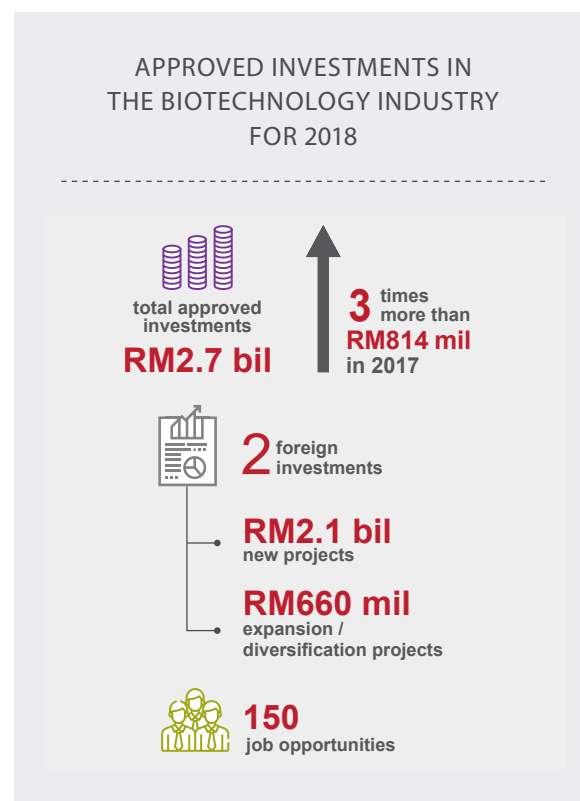
This wealth of biological resources gives Malaysia a competitive advantage to further develop technologies to convert these materials into commercially viable, higher value-added products.

Launched in 2005, the National Biotechnology Policy (NBP) outlines several key concepts and measures for developing the bio-based industry. As the first country in ASEAN to launch a bio-economy initiative, Malaysia is committed to providing investors in bio-based industries an effective, conducive platform, so that they can contribute to Malaysia's sustainable development agenda and improve the industry's competitiveness.

Being one of the world's 17 megadiverse countries (as identified by the World Conservation Monitoring Centre), Malaysia's rich biodiversity makes for a solid foundation to develop a successful biotechnology industry. This wealth of biological resources gives Malaysia a competitive advantage to further develop technologies to convert these materials into commercially viable, higher value-added products.

According to the NBP's third phase, 'Developing Global Business', the biotechnology industry is expected to make a contribution of five per cent to the national GDP by 2020, with investments of about RM15 billion and employment of 160,000. In light of this, more investments are encouraged, particularly into R&D projects for breakthroughs in agricultural productivity, new discoveries in healthcare, and the adoption of sustainable industrial processes.

The Biotechnology Transformation Programme (BTP) was launched in October 2012 to further emboldens participation of the private sector in channelling and maximising commercial biotechnology opportunities. Since its inception, biotechnology has transformed the industry from commodity products to high value-added ones, such as creating new industries like bio-based chemicals and bioplastics.



Two foreign-owned projects with investments totalling RM2.7 billion were approved in 2018. This indicates the growing potential of the biotechnology industry, particularly as these investments have more than tripled 2017's figure of RM814 million across six projects, with far higher capital expenditures per project. These projects are expected to generate 150 job opportunities. Both projects are a mix of new and expansion / diversification ventures, with values of RM2.1 billion and RM660 million respectively.

One of these approved investments is a new project by Leaf Malaysia OpCo Sdn Bhd to manufacture industrial sugars (C5 pentose and C6 hexose), refined glycerol and lignin with an initial first phase investment value of RM818.3 million, and planned expansion equalling a total of RM2.1 billion. The patented Glycell technology will convert biomass (empty fruit bunch fibre) into fermentable sugars which will be used as a major intermediate feedstock for bio-based chemicals, including bio-plastics. The process also yields refined glycerol and lignin as additional high-value by-products for renewable applications. Approximately 92 additional jobs will be created, of which 21 employees will receive salaries of RM10,000 and above.

These new foreign investments are a demonstration of the growing impact and importance of the global biotechnology industry. They are also aligned with the goals of the BTP and NBP.

Agriculture and Food Processing

The agriculture sector is composed of aquaculture and marine fisheries; cultivation of crops, fruits and vegetables; floriculture; ornamental fish farming; livestock farming; and apiculture. Of particular note are the livestock, fisheries, and fruits and vegetables sub-sectors, which have significant links to the Malaysian food processing sub-sector.

The use of advanced technology, which the Government is encouraging, will boost agricultural productivity, increase food security, and reduce dependency on imported agriculture products. Nevertheless, the country remains a net exporter of processed food.

In 2018, a total of 14 projects worth RM68.8 million were approved, all of which stemmed from DDI. This

is an increase of 53.3 per cent from 2017's figure of RM44.9 million. These approved projects were all for the cultivation of crops and aquaculture, and were expected to provide employment opportunities for 287 people.

Food processing

This sub-sector is defined to include all companies that are involved in value-added activities using agricultural or horticultural products, such as the production of cocoa and chocolate products, fishery products, cereals and cereal products, processed fruits and vegetables.

The sub-sector's well-known MNCs and LLCs include Nestle (Malaysia) Bhd., Mamee-Double Decker (M) Berhad, Ramly Food Processing Sdn. Bhd, Dewina Food Industries Sdn Bhd., Ajinomoto (Malaysia) Bhd., Charoen Pokphand Holdings (Malaysia) Sdn. Bhd., and Kerry Ingredients (M) Sdn. Bhd.

Malaysia is recognised as a leading global halal hub, as well as being the mainstream halal industry's reference and trade centre. Potential investors can therefore consider leveraging the nation's comprehensive halal ecosystem, particularly in the food industry.

As people worldwide are inclined towards maintaining a healthy lifestyle, healthy foods correspondingly rise in demand. Many food products are now available in low-calorie, low-fat, as well as less sugar/sugarless options. Food manufacturers are also adding functional ingredients to their products, such as vitamins and antioxidants, minerals, fibre and proteins.

Additionally, halal products are now gaining worldwide recognition. Malaysia is recognised as a leading global halal hub, as well as being the mainstream halal industry's reference and trade centre. Potential investors can therefore consider leveraging the nation's comprehensive halal ecosystem, particularly in the food industry.

Malaysia's food processing sub-sector is transitioning from the employment of conventional processes to the use of emerging technologies. Malaysian industry players are also moving towards more automated,

flexible, and efficient operations vis-à-vis Industry 4.0, as global competition for new and existing products intensifies within the industry. In light of this, MIDA organised various workshops in 2018 on the Automation CA incentive in the northern and eastern regions for the benefit of food processing companies in those regions.

Besides that, MIDA collaborated with multi-national conglomerate Siemens Malaysia to organise the inaugural 'Recipe for the Future 2018' seminar on 19 July 2018 at MIDA's headquarters in Kuala Lumpur. This effort aimed to integrate digitalisation into Malaysia's F&B industry. The two parties signed an MOU signifying their joint intent to improve the capacity and competitiveness of the industry through the adoption of digitalisation and technology.

Even though the industry has developed significantly over the years in terms of new technology and innovations, several challenges remain. These include a fragmented manufacturing environment and aging infrastructure that inhibit productivity. While the food processing industry is growing, it still accounts for only about 10 per cent of manufacturing output. MIDA encourages investors to take advantage of opportunities in advancing the level of technology, upskilling of talents, as well as improving R&D activities. Food industry players should leverage on MIDA's facilitation services, so that they can remain resilient against increasing global demands and the rapid changes in technology.

In 2018, a total of 56 food processing and beverage projects bringing in investments totalling RM1.6 billion were approved. Domestic investments made up a majority of the investments, or RM1.1 billion (68%), with FDI charting RM504 million (32%). The 35 new and 21 expansion/diversification projects are expected to provide 4,660 new jobs.

Of the total investments, production of cereals, flour-based products and food ingredients (18%) brought in the most, followed by animal feed (13%), beverages (11%); processed fruits, vegetables, tubers and meat products (9%); chocolate and sugar confectioneries and food supplements (5%); dairy products and seafood products (4%), and other food products.

One of the new projects was by Vivendi Asset Sdn. Bhd., a wholly-Malaysian-owned company with investments of RM81 million to produce frozen seafood and organic fish hydrolysate fertiliser. The liquid fish fertiliser is organic-certified, being made from fresh fish by-products. It is produced using cold-process hydrolysis; this allows nutrients such as omega-3, minerals, vitamins and proteins to be maintained.

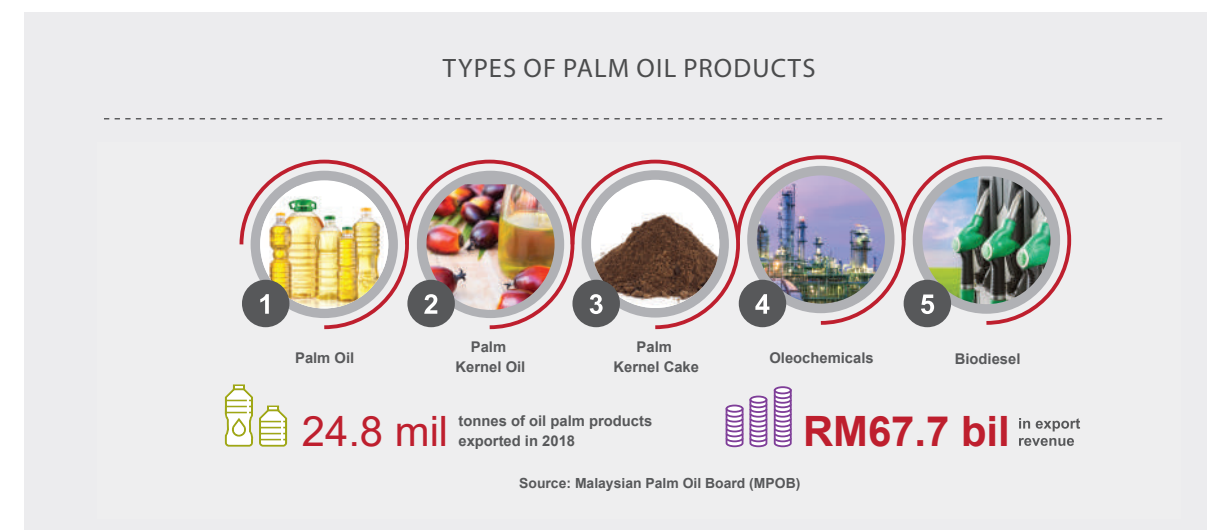
Another significant new project is by NHF Manufacturing (Malaysia) Sdn. Bhd., a majority-foreign-owned company with investments of RM61.7 million to produce halal-processed chicken and meat products, and will create 300 job opportunities. This joint-venture project is expected to cater to both domestic and export markets, such as Japan (for the upcoming Tokyo 2020 Olympics), Singapore, and the Middle East.

Oil Palm Products

Being the second-largest palm oil producer and exporter globally, Malaysia assumes an important role to sustainably fulfil the global need for edible oils and fats.



Found in almost 50 per cent of food products sold in supermarkets, palm oil allows for a wide range of manufacturing processes at a lower cost with no health risk to consumers. Containing the richest source of natural tocotrienols – antioxidants – it exhibits anti-inflammatory, cholesterol-lowering, cancer-preventive, radioprotective, and neuroprotective properties. It also consists of a balanced proportion of unsaturated and saturated fatty acids; however, when consumed, it behaves more like a monounsaturated fat and has no adverse impact on blood cholesterol levels.



Companies in the oil palm products industry manufacture and produce palm oil (CPO and processed palm oil), palm kernel oil, palm kernel cake, oleochemicals, biodiesel, and other palm products. According to the Malaysian Palm Oil Board (MPOB), Malaysia exported 24.8 million tonnes of oil palm products in 2018, contributing RM67.7 billion in revenue to the overall Malaysian economy. This was a slight drop compared to 2017 with exports valued at RM77.8 billion, but a slight increase to 2017's export figure of 24 million tonnes. India was the largest importer of Malaysian palm oil, followed by the European Union and the PRC.

The oil palm products industry has been facing demand challenges due to several factors. Firstly, there has been reduced demand from key importers. Demand for palm oil in India, for instance, has dropped due to higher import duties, a weak currency, and a credit crunch. Additionally, palm oil tends to become cloudier as temperatures drop, thus winter represents a slower season. This may be counterbalanced as companies based in the PRC possibly increase their purchases before the Chinese New Year festival in the first week of February 2019.

Perception challenges are also nothing new for the industry. The negative publicity stereotypically depicts palm oil producers as destroying rainforests and habitats.

Since 2017, the EU has made it a requirement for food manufacturers and retailers to use 'No Palm Oil' or 'Palm Oil Free' labels or logos for products sold there.

This move has attracted global attention, inducing a negative impact on the supply of palm oil.

Coupled with an increase in production and inventories, this drop in demand has deepened the supply glut in Indonesia and Malaysia. According to the MPOB, Malaysia's total palm oil stockpile stood at 3.2 million tonnes in 2018, however, this is expected to reduce to 2.5 million tonnes for 2019.

Being the second-largest palm oil producer and exporter globally, Malaysia assumes an important role to sustainably fulfil the global need for edible oils and fats.

US-PRC trade tensions have seen tit-for-tat tariffs creating chaos in agricultural markets and shifting trade flows. This is especially true for the soybean market, as soybeans are also used to produce oil. Given the uncertainty arising due to the trade war, investors remain nervous as they seek to adapt to the trade war's effects on vegetable oils. Under the right conditions, palm oil may be a winner in this situation.

Investors should take note that the Government is committed to promoting and growing the oil palm products industry. Throughout 2018, MIDA participated in various awareness and outreach programmes. From 24 to 27 July 2018, MIDA worked alongside the Malaysian Biomass Industries Confederation in the Sarawak International Palm Oil Week, which was held in Sibul, Sarawak. At the 38th Palm Oil

Familiarisation Programme, organised by MPOB from 12 to 18 of August 2018, MIDA gave an overall perspective of the Malaysian palm oil industry to overseas participants. In the final quarter, it continued to carry the baton by participating in the Palm Oil Refiners Association of Malaysia's Annual Forum 2018 on 26 October 2018 in Selangor.

MIDA will continue to intensify its promotional efforts to boost investments into the production of higher value-added palm oil-based products. These include the production of food substances, food ingredients, food additives, and nutraceutical products.

In 2018, a total of 12 projects with investments totalling RM384 million were approved in the oil palm products industry, with five new projects and seven expansion/diversification projects. Domestic investments dominated the industry, totalling RM332.7 million, with FDI amounting to RM51.3 million.

Among the investments approved were four projects involving the production of animal feed ingredients from palm oil-based products, such as palm stearin beads, blended vegetable waxes, blended waxes, and palmitic/stearic acids. These projects involved total investments of RM87.9 million and will create 59 employment opportunities.

A significant new project by Zenith Palms Sdn. Bhd., a majority Malaysian-owned company was approved to produce RBD palm oil, RBD palm olein, RBD stearin, palm fatty acid distillate, margarine, shortening, vanaspati, frying fat, cocoa butter substitutes/ equivalent and instant formula. The project brought in investments worth RM156.5 million.

The mandatory implementation of Malaysian Sustainable Palm Oil principles and criteria by 31 December 2019 is a significant joint undertaking by the Government of Malaysia and the industry to meet the requirements of consuming countries. However, it requires both the exporting producer and importing country to work closely together in good faith in order to achieve mutual gain and benefit.

Despite the EU's restrictions, some food players in Europe are still searching for plant-based substitutes to animal fat. Investors into the industry can gain an advantage if they present a clear strategy towards re-positioning palm oil as the optimal healthy choice. MIDA will continue to intensify its promotional efforts to boost investments into the production of higher value-added palm oil-based products. These include the production of food substances, food ingredients, food additives, and nutraceutical products.

Palm Biomass

Every year, Malaysia produces approximately 168 million tonnes of biomass. Of this, over 80 million tonnes is generated by the palm oil industry. Types of palm biomass generated include empty fruit bunches (EFB), palm kernel shell (PKS), palm oil mill effluent (POME), and palm kernel cake (PKC). To ensure the sustainability of these plantations and preserve soil fertility, the majority of this biomass is left on the fields (i.e. oil palm trunk and palm fronds) or returned to the fields as soil improvement or organic fertiliser (i.e. empty fruit bunches).

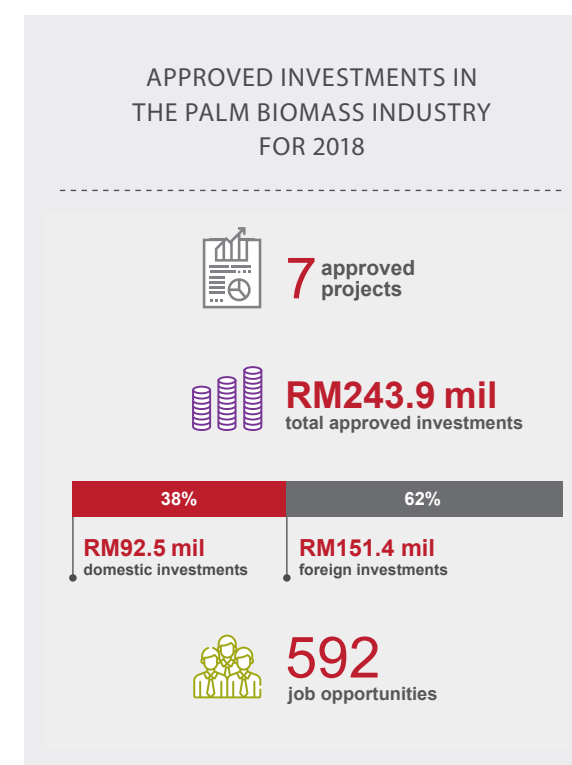
Aside from oil palm by-products, other types of biomass include timber waste, rice husks, coconut trunk fibres, and municipal waste. Malaysia could potentially benefit from an additional RM30 billion contribution to GNI, and 66,000 more job opportunities, solely by utilising biomass from the oil palm industry for higher value-added downstream activities.



As the production technology is mature and proven, with relatively low infrastructure development costs and quick return of investment, palm biomass production in the country mainly concentrates on the manufacturing of fibre, briquettes, and pellets.

The prevailing demand for pellets is driven by the renewable energy mandates in North Asian markets. Several foreign companies have shown some level of interest in getting involved in the production of palm pellets for energy generation purposes, but progress is gradual for many.

In the palm biomass industry, seven projects with investments of RM243.9 million were approved in 2018 – triple the investments of RM78.4 million in 2017. This represented a significant increase in capital investments per project. Foreign investments amounting to RM151.4 million represented 62 per cent of total investments, with DDI making up the remaining RM92.5 million. The approved projects are expected to generate 592 employment opportunities.



One of the significant projects approved was from Advance Fibre Sdn. Bhd. that proposes to produce veneer and plywood from oil palm trunks (OPT). The project has a proposed investment of RM74.1 million and a forecast of 150 job opportunities. The use of OPT in the manufacturing of value-added products such as veneer and plywood is encouraged by the Government, and potential investors should note that the market is not yet mature, with very few industry players and plenty of opportunities to enter it.

Chemicals and Chemical Products

The chemicals and chemical products industry is one of the key industries in Malaysia, ranking third in 2018 for its contribution towards manufactured goods in Malaysia's total exports and amounting to RM57.7 billion. Chemicals and chemical products have mostly been exported to Asian countries, with the PRC being the largest importer, followed by Indonesia, Thailand, Vietnam, and Singapore.

Malaysia's chemical and chemical products industry encompasses the production of agricultural chemicals, fertilisers, industrial gases, inorganic chemicals, paint, and printing ink. The ability to produce high-quality specialty chemicals and chemical products in the most efficient operational environment possible is key towards enabling the industry to achieve higher profitability. This requires significant capital investments into Industry 4.0 technologies, and employee education and training, as these are the two biggest challenges faced by industry players in becoming Industry 4.0-ready.

In particular, the environmental scan study on human capital commissioned by MIDA observed that many critical occupational roles for the chemicals and chemical products industry are higher level jobs with several years of relevant experience required, which generally cannot be filled by fresh graduates. Furthermore, several such occupations also require specific certifications from relevant commissions.

The ability to produce high-quality specialty chemicals and chemical products in the most efficient operational environment possible is key towards enabling the industry to achieve higher profitability.

Other key challenges faced by the industry include the need to sustain energy security, along with addressing environmental issues. At present, the industry is moving towards the creation and production of water-based or environmentally-friendly chemicals.

As in 2017, graphene remains high on the list of exciting new opportunities for potential investors. MIDA participated in the two-day Graphene Malaysia 2018 Conference as a strategic partner. The event,

organised by NanoMalaysia Berhad and Phantoms Foundation, was held on 29 and 30 October 2018 in Kuala Lumpur. During the event, four companies graduated under the National Graphene Action Plan 2020 (NGAP 2020) for successfully innovating graphene-infused products.

In 2018, a total of 48 projects representing investments worth RM1.84 billion were approved. Of these projects, 27 were new projects (RM950 million), while the rest were expansion/diversification projects (RM892 million). Foreign investments dominated the industry, making up over three quarters of all investments (RM1.46 billion, or 79.1%). Meanwhile, DDI amounted to RM386 million (20.9%). The approved projects are expected to create 1,643 new jobs.



One of the notable projects approved in 2018 in the chemicals and chemical products industry was an expansion/diversification project by Arkema Thiochemicals Sdn. Bhd. worth RM500 million to produce raw materials that could be used as a dietary supplement in poultry and animal feed, as well as an intermediate product in the production of pesticides, fungicides, and plastics.

Another investment approved was a project by Chromaflo Technologies (M) Sdn Bhd, a world leader in colourant technology to produce colourants and pigment dispersions in Selangor. The project, which strengthens Chromaflo's investment in Malaysia, will provide the company a strategic base in the ASEAN region. It will benefit from having a competitive manufacturing cost and an improved supply chain, both for its local customers and the wider ASEAN market. Chromaflo will train Malaysians through the transfer of its cutting-edge technology and specialised

global knowledge of colourants and pigment dispersions across a wide variety of innovative industries, as well as collaborative partnerships with local universities for R&D.

In general, the industry is a knowledge-intensive sector which generates a huge inflow of foreign exchange through exports. With its established infrastructure, Malaysia is well-positioned to attract higher value-added chemical projects into the country. It is vital that the chemicals and chemical products industry players in Malaysia take health, safety, and environment very seriously in order to attract more investors and properly promote the industry.

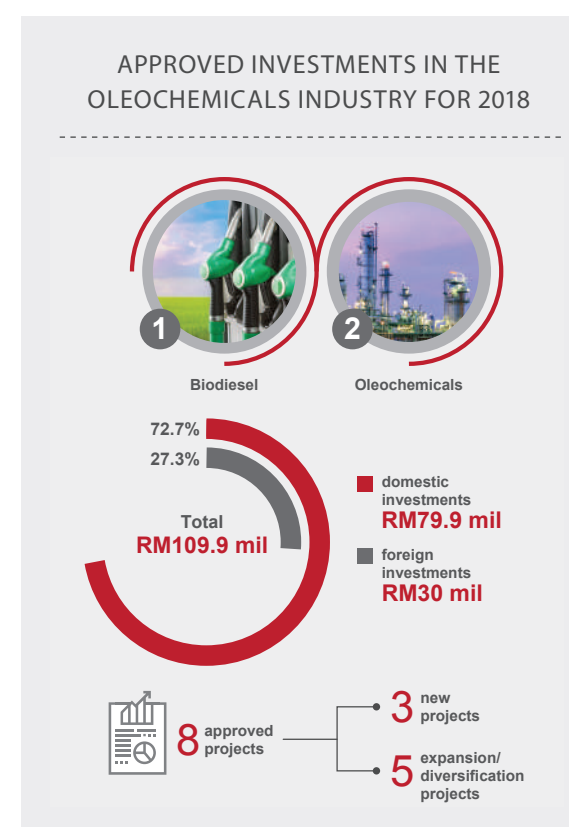
Oleochemicals

Malaysia is one of the largest producers of oleochemicals globally, contributing about 20 per cent to world production. Oleochemical products are generally derived directly from naturally-occurring fats and oils from organic (i.e. animal and vegetable) sources.

In Malaysia, however, it is mainly obtained from oils produced by the oil palm plant. Malaysia is one of the two largest producers of palm oil in the world (alongside Indonesia), housing 50 palm oil refineries that produce up to 26.2 million tonnes of palm oil annually. The country's primary focus is on producing basic oleochemicals (fatty acid, fatty alcohol, methyl esters, and glycerine), oleochemical derivatives (fatty esters, fatty amines, soap noodles, and metallic soaps), and palm-based constituents such as tocotrienols and carotene.

There are currently 19 oleochemical plants operating in Malaysia, which produced approximately 2.7 million tonnes of oleochemicals in 2018. Some of these companies are vertically integrated (i.e. active in both upstream and downstream activities, from oil palm plantation management to the actual manufacturing of oleochemicals), such as IOI, KLK, Sime Darby, and FGV.

In light of this and recent policies, investors looking to enter the industry should consider the potential of biodiesel (palm methyl ester). To increase the demand for palm oil and enhance the sustainability of energy resources, Budget 2019 announced that the Government will implement the B10 biodiesel



programmes for the transportation sector and B7 for the industrial sector next year. These programmes will mandate a minimum amount of palm methyl ester in biodiesels; that is, 10 per cent for B10 and seven per cent for B7. At present, there are 15 biodiesel manufacturers in operation with a total processing capacity of two million tonnes per year.

Forging ahead, MIDA took the initiative to further develop the industry and market by facilitating an annual discussion with the Malaysian Oleochemical Manufacturers Group in October 2018. Facing various challenges by Western counterparts in the form of policies against palm oil importation, anti-palm oil campaigns, and regulations creating barriers to entry, the session also defined ways to mitigate these false perceptions of the industry.

Furthermore, stiff competition from Indonesia – in terms of costs of production and talent flight – saw many skilled talents lured to the neighbouring region. Vying to retain markets in developed countries, the vertical integration of local oleochemical companies, in compliance with Roundtable on Sustainable Palm Oil (RSPO) standards, was established.

Taking another step forward to further develop and manage the industry's talent pool, MIDA completed a

study to develop a profile of the current workforce and future human capital demands in the oleochemicals industry. The challenges identified included reliance on foreign labour to fill low-skilled roles; and fresh graduates as well as entry-level safety officers, chargemen and boilermen that were not industry-ready, thus creating the need to undergo training before they were up to the mark.

The study revealed the obligation of oleochemical industry players to increase the automation of their production and operation systems by reducing reliance on foreign labour, and, in turn, equipping their employees with the relevant IT-based knowledge and skills to control production processes.

In 2018, eight projects were approved in the oleochemical industry with a total investment of RM109.9 million. Approved domestic investments dominated the industry, amounting to RM79.9 million, while FDI amounted to RM30 million. Of these approved projects, three were new projects while five focussed on expansion/diversification, leading to the creation of 147 jobs.

Among the major projects approved was an expansion/diversification project by Lipidchem Sdn Bhd., a local company to produce oleochemical derivatives. The company aims to provide its global customers with a broad range of products in the fields of pharmaceuticals, nutraceuticals and supplements; food; cosmetics and personal care; livestock and poultry; waxes; and candles.

Knowing that Malaysia has high capabilities in terms of know-how and technology in producing high value-added oleochemical derivatives, investors in this industry should take full advantage of the Government's facilitations.

MPOB has taken the lead in industry R&D efforts to find and commercialise new oleochemical applications downstream. Knowing that Malaysia has high capabilities in terms of know-how and technology in producing high value-added oleochemical derivatives, investors in this industry should take full advantage of the Government's facilitations.

Petroleum Products including Petrochemicals

The petroleum products including petrochemicals industry is one of the leading industries in Malaysia, covering natural gas, petroleum products, and petrochemical products. Petroliaam Nasional Berhad (PETRONAS), the national O&G company, has been recognised as a Fortune Global 500 company for the past 22 years. Other influential companies in the industry include BASF, Lotte Chemical Titan, Toray Group, and Kaneka.



The improving lifestyle of Malaysians has led to a higher demand for petrochemical products, not to mention the availability of hydrocarbon feedstocks from the indigenous O&G supply. In the past few years, the trend of investments in this industry has been towards increasing feedstock availability, expanding capacities, enhancing the value of existing products, and broadening the range of petrochemicals produced in the country.

The petrochemical products including petrochemicals industry is facing pressure to step up and diversify production into a more knowledge-based chemical portfolio in the derivative and specialty markets, given the ever-changing demand from consumers due to better lifestyle choices. Therefore, there is a need for petrochemical producers to innovate and formulate superior petrochemical derivatives in the upper tier of the petrochemical value chain. Industry players are also challenged to take on a greater role in balancing economic, environmental, and social needs. Sound governance and ethical business practices are prerequisites to gain and maintain social approval, and to stay relevant.

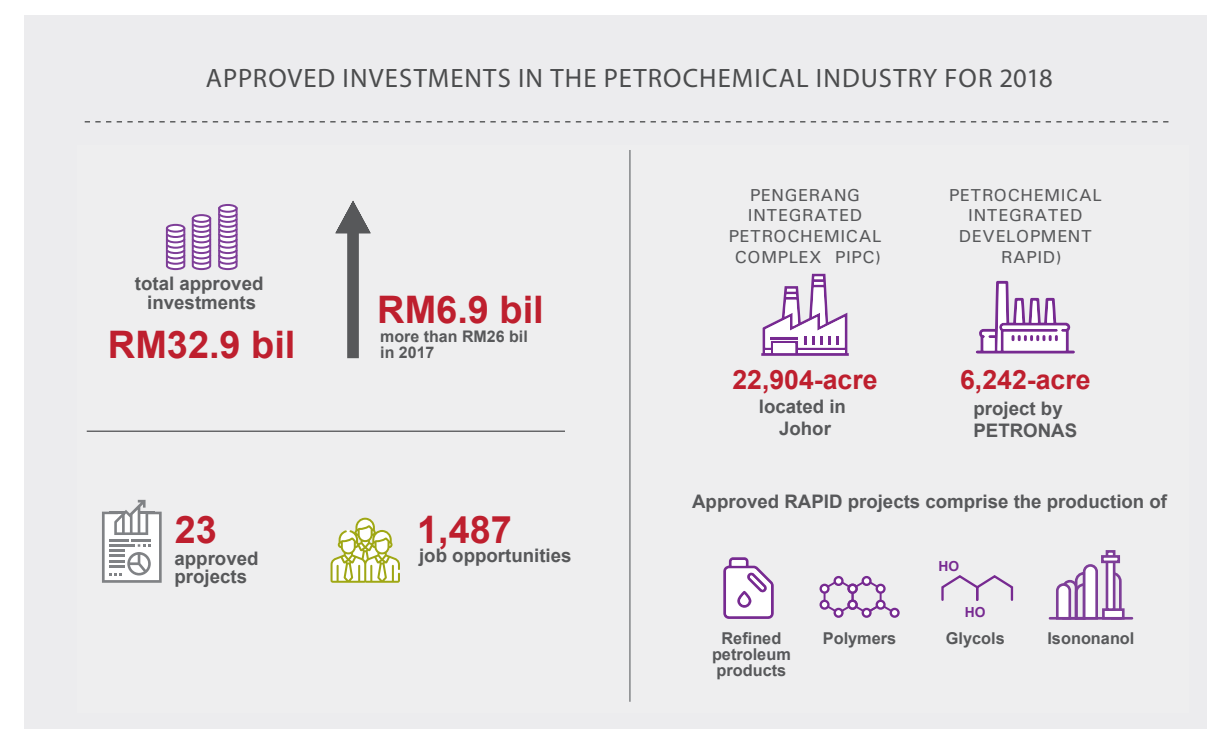
A profile study of the petrochemical industry's current workforce and future human capital needs by MIDA was completed in 2018. The study observed that the industry employs a relatively-small number of foreign workers, yet expatriates were employed in high-level positions. On the other hand, this industry has no difficulty to hire entry-level staff, with a high availability of process technicians with diplomas/degrees from local academic institutions.

In 2018, the industry attracted approved investments of RM32.9 billion across 23 projects, creating 1,487 employment opportunities. This was more than double the number of 2017's approved projects (9) and over RM16 billion more in terms of total investments (RM16.6 billion). Of the projects approved, there were 14 new projects totalling RM28.9 billion, while expansion/diversification projects totalled RM4 billion. FDI contributed investments worth RM19.1 billion (58%), while RM13.8 billion (42%) came from DDI.

The successful development of the 22,904-acre Pengerang Integrated Petrochemical Complex (PIPC) in Johor is one of the industry's highlights. Within the PIPC, a land parcel of 6,242 acres in size is home to the Refinery and Petrochemical Integrated Development (RAPID) project by PETRONAS. RAPID's construction has been progressing as scheduled, and the refinery facility will be commissioned by Q1 2019. According to PETRONAS, the refinery facility will be ready for commercial operations by Q4 2019.

The petrochemical products including petrochemicals industry is facing pressure to step up and diversify production into a more knowledge-based chemical portfolio in the derivative and specialty markets, given the ever-changing demand from consumers due to better lifestyle choices.

Approved RAPID projects comprise the production of refined petroleum products, polymers, and glycols, as well as a new project worth RM1.9 billion to produce isononanol, (a key chemical building block in plasticisers used in the automotive and building industries).



A majority-foreign-owned company, Pengerang Energy Complex Sdn Bhd, was approved in the PIPC with investments worth RM14.03 billion to undertake a Condensate Splitter and Aromatics project. The project secured long term supplies of feedstock from oil companies, and Japanese Trading Houses have committed to offtake the aromatics products. Technology has been selected for the project from one of the foremost technology providers in this field, and a leading European contractor has been appointed for the Engineering, Procurement, Construction and Commissioning (EPCC). The plant is expected to go into production by end 2022, and at full capacity will contribute to over RM20 billion per annum to Malaysian exports.

The RAPID project is expected to catalyse the development of the petrochemical landscape in Malaysia by providing an additional range of raw material supplies to potential new investors. Given this, Malaysia's aspiration to become the leading petrochemical hub will soon be a reality. Once in operation, the total petrochemical production capacity of PCG will increase to 14.6 million MTPA (metric tonnes per annum).

Additionally, an approval was given to Hengyuan Refining Company Berhad (HRC) to produce EURO 4M mogas. Once commissioned, the project will allow

HRC to produce up to 1.15 million tonnes of gasoline per annum. Other than HRC, a comparable project was approved to a local company to produce EURO 5. These projects are envisioned to support the country's self-sufficiency in environmental friendly gasoline and reducing imports as a result. In addition, the project provides significant economic benefits as it creates hundreds of job opportunities at peak construction period for skilled and competent local workers.

Malaysia will also witness another methanol project with an investment worth approximately RM5.7 billion by Sarawak Petchem Sdn. Bhd. This project forms part of the Sarawak State Government initiative to develop Bintulu as a Petrochemical Hub in Sarawak. It will be implemented with Natural Gas as feedstock from PETRONAS and product off take by PETRONAS Chemicals Marketing (Labuan) Ltd. The proposed site of the methanol plant is located at Tanjung Kidurong, Bintulu, Sarawak. The plant is designed with a capacity of 5,000 Metric Ton Per Day and expected to start production by Q4, 2022.

A notable new project approved with investments of RM400 million was from Idemitsu Chemicals (M) Sdn. Bhd., with their production of Syndiotactic Polystyrene (SPS) resin. This is a new version of polystyrene with superb chemical and mechanical properties that is also

environmentally friendly. The establishment of the SPS project in Johor will further enhance and complement the industry's ecosystem in Malaysia.

Another highlight from 2018 is an investment from Toray Plastic (Malaysia) Sdn. Bhd. worth RM1.1 billion, with its expansion project of producing advanced engineering plastic products. The Japanese company has been operating in Malaysia since 1970, and its huge investment decision on the expansion project demonstrated its continued confidence in Malaysia.

Plastic Products

With approximately 1,300 companies operating, the plastic products industry is one of the most vibrant industries in Malaysia's manufacturing sector. These companies manufacture a wide variety of products, ranging from common household items and packaging materials, to higher end parts and components for the E&E products, automotive, office automation, ICT, construction, and agricultural industries. Several advanced technologies in use by the automotive, aerospace and medical sectors also depend on various high-performance plastics, making this sub-sector a fast growing one.



By roping in the petrochemical industry in providing a steady supply of raw material to the plastic products sector, Malaysia's world-class resin production facilities can produce a variety of downstream plastics, including polyethylene (PE), polypropylene (PP), polyvinylchloride (PVC), polystyrene (PS), acrylonitrile butadiene styrene (ABS), polyacetal (PA), polyester copolymers, styrene acrylonitrile (SAN),

and polybutylene terephthalate (PBT). Additionally, with GGP and MyHIJAU certification, manufacturers have been motivated to produce high-quality and environmentally-friendly plastic packaging products and household wares at competitive prices.

In the spirit of positioning Malaysia as a leader in biodegradable technology as outlined in the roadmap, Budget 2019 has reintroduced the incentive for producers of environmentally-friendly plastics.

Several new policies that the Government introduced in 2018 will have significant impacts on the industry. For one, in efforts to implement a circular economy by encouraging the 3R activities – namely, Reduce, Reuse, and Recycle – the Ministry of Science, Technology, Environment and Climate Change (MESTECC) launched its Roadmap Towards Zero Single-Use Plastics 2018-2030 on 17 October 2018. This comes hand-in-hand with the development of enhanced biodegradable technology.

Besides that, industry players face an uphill challenge in addressing the market distortion and clarifying the misconception of all plastics destroying the environment. Defining straws and carrier bags as single-use plastic products and imposing a "pollution charge" and "no straw by default" policies has inevitably led to a reduced demand for local manufacturers' products.

The plastic industry, which includes the recycling of plastic waste and scrap activities, saw an increase in the importation of plastic waste and scrap. To mitigate this, the Import Licence (AP) for plastic waste, parings, and scrap under HS Code 3915 was suspended for three months from 23 July 2018. Since then, the Ministry of Housing and Local Government has been actively reviewing the issuance of APs for both existing and new plastic waste and scrap recyclers. Given that the nation's waste collection and separation systems are not sophisticated enough to meet local demand for recyclable plastics, this move has resulted in some licensed plastics waste and scrap recyclers facing a shortage of raw materials.

More positively, and in the spirit of positioning Malaysia as a leader in biodegradable technology as outlined in the roadmap, Budget 2019 has reintroduced the incentive for producers of environmentally-friendly plastics. A partial incentive of either Pioneer Status or Investment Tax Allowance will be granted to companies that produce environmentally-friendly plastics based on bio-resin and biopolymer.

The plastic products industry has seen noteworthy growth in 2018, with a total of 61 projects approved with investments of RM1.86 billion, or well over double of 2017's figure of RM714.2 million. This had led to the creation of 2,841 employment opportunities, with a CIPE of RM656,189, which is 79 per cent higher than 2017, which charted RM366,462. Foreign investments made up almost two-thirds of total investments, or RM1.18 billion (63.4%), with DDI contributing the remaining 36.6 per cent of investments totalling RM682 million. The approved investments comprised 32 new projects amounting to RM981 million, and 29 expansion/diversification projects totalling RM882 million.

One approved project worth mentioning is the production of biodegradable plastic bags and compostable plastics using lemongrass and starch by a local company, Anarich Sdn. Bhd. The project

is aligned to the Roadmap Towards Zero Single-Use Plastics 2018-2030. Committed to strengthening the manufacturing ecosystem of the country, another project approved was Panac Advanced Film Malaysia Sdn. Bhd., a foreign-owned company to produce complexed multi-layered protective film and other high-functional film for E&E and automotive industries.

The versatility of plastic makes it the perfect option for a myriad of applications. With ample resources devoted towards R&D, new technologies will eventually be developed to make plastics that are both biodegradable and compostable within a reasonable time frame.

On the other end of the scale, the Environmental Scan study of the plastic products industry commissioned by MIDA observed that fresh graduates lack interest in the plastic manufacturing industry. This is coupled with high turnover rates of local operators, due to unappealing work environments – especially the high temperatures and the shift-based working hours. The study also identified and highlighted a gap in the education system for courses specific to the plastic products industry, such as plastics mixing, plastics extrusion, and polymer science. The study recommended that companies look at improving the conditions in their manufacturing plants, and for academia as well as industry to collaborate on creating relevant industry-specific courses in the tertiary education and technical training fields in the future.

To address the labour-intensiveness of this industry, a number of plastic producers have been gearing up to automate their factories and processes. This is clearly demonstrable from more than 20 applications received for the Automation CA introduced in Budget 2015.

Despite the current challenges faced, manufacturers in the plastic products industry will continue to have high demand for their products. The versatility of plastic



makes it the perfect option for a myriad of applications. With ample resources devoted towards R&D, new technologies will eventually be developed to make plastics that are both biodegradable and compostable within a reasonable time frame.

At the same time, with greater public awareness on the responsible use of plastic products, the idea of developing a circular economy will become a reality, and concerns about environmental pollution caused by plastics will hopefully become a thing of the past.

Rubber Products

The rubber products industry is a prime economic driver for Malaysia. This is because the industry has been identified as one of the biggest potential contributors to GNI, and its downstream applications have a large cross-industry effect.



Malaysia's competitive advantages ensure that it remains a global player, supplying the world market with a wide range of rubber products. The Malaysian rubber products industry consists of tyres and tyre-related products, latex products, as well as industrial and general rubber products. Presently, there are about 300 companies in the industry.

In 2018, RM20.5 billion of rubber products were exported, compared to RM26.3 billion in 2017. Malaysian rubber products were exported to more than 195 countries, with the five largest export destinations being the USA, EU, the PRC, Japan, and Thailand.

MIDA participated as one of the exhibitors in the 9th International Rubber Glove Conference and Exhibition 2018 held from 4 until 6 September 2018 in Kuala

Lumpur as part of its on-going promotional activities towards growing the industry.

The event was hosted by the Malaysian Rubber Glove Manufacturers Association (MARGMA), and supported by various other rubber industry associations. MIDA also briefed members of the Malaysian Rubber Products Manufacturers Association (MRPMA) on Industry4WRD during a seminar in December 2018 at Prai, Pulau Pinang.

Malaysia's competitive advantages ensure that it remains a global player, supplying the world market with a wide range of rubber products.

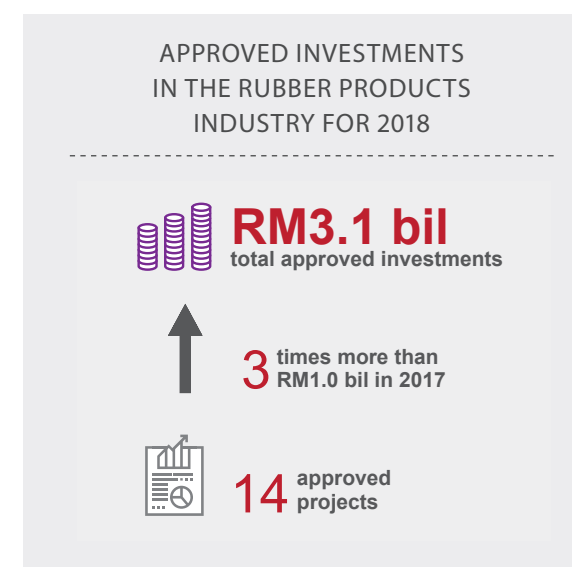
MIDA's Environmental Scan: Human Capital Issues in the Chemical and Petrochemical Industry study, which was completed in October 2018, revealed very few local applicants were interested in applying for machine operator positions due to harsh factory environments.

Additionally, industry players faced significant challenges in their efforts to hire people to fill various important positions, such as R&D managers, rubber technologists, and product development managers in their R&D department. As a result, investors have great opportunities to help resolve the industry's need to upskill local talent and position them in value-enhancing activities, while phasing out foreign workers.

Malaysia's Industry4WRD policy on Industry 4.0 (see box article on page 64) stressed the need for Malaysia's rubber products industry to adopt greater automation for increased efficiency and productivity, thus helping to reduce dependency on foreign workers. The policy also noted that the industry had to continually innovate and add value to its products in order to better compete in the global market.

Based on the number of applications received for Automation CA since 2015, manufacturers of rubber products have indeed been investing in automation technologies to reduce dependency on foreign labour.

The potential of the rubber products industry remains quite large, as evidenced by the growth in investments as compared with 2017. In 2018, a total of 14 projects were approved, amounting to a total investment of RM3.1 billion – or triple the 2017 figure of RM1.0 billion. Of that, the vast majority of the investments stemmed from FDI totalling RM2.9 billion, or approximately 94 per cent of the total investments. In all, these projects are expected to lead to the creation of 2,826 new employment opportunities. The approved investments comprised seven new projects amounting to RM2.3 billion and seven expansion/diversification projects amounting to RM817 million.



Wood-based Industry

Malaysia is an important player in the international market for tropical wood and wood products. Besides being the largest exporter of tropical logs and sawn timber, Malaysia is also the 2nd-largest supplier of plywood and 9th-largest exporter of wooden furniture globally. The Government through NATIP (the National Timber Industry Policy) has set an annual growth target of 6.4 per cent for the timber export industry, which is estimated to be worth RM25.6 billion by 2020, comprising 60 per cent value-added downstream products and 40 per cent primary products. Out of this target, exports of furniture products are expected to record RM12 billion by 2020.

The industry depends on having a sustainable supply of raw materials – in particular, timber. The Malaysian Timber Industry Board (MTIB) has introduced the

Forest Plantation Development Programme (FPDP) to ensure that there are alternative sources of timber for the local industry. Other forest plantation programmes and sustainability initiatives were also conducted by the private sector and state forest departments throughout 2018. For example, in May 2018, the Sabah State Government banned the export of logs from the state, in order to ensure sufficient timber for its factories.

Malaysian manufacturers have started to raise capital expenditures for technological investments despite the associated high costs, enabling them to start venturing into automation and Industry 4.0. Manufacturers such as Mentakab Veneer & Plywood Sdn. Bhd. have taken advantage of the Automation CA incentive introduced under Budget 2015 to do so.

The wood, wood products, and furniture industry is transitioning, with the Government encouraging local companies to producing more high-value-added products such as furniture, engineered wood, mouldings and builders' joinery and carpentry.

The industry, particularly the furniture sub-sector, is still regarded as a labour-intensive one, with low productivity and a relatively-high level of dependence on foreign workers. To maintain a competitive edge in the global market, the industry needs to harness automation and to employ more highly-skilled workers.

The wood-based industry is encouraged to focus on creativity and innovation in their production processes, moving up the value chain to become original design manufacturers (ODMs) and original brand manufacturers (OBMs).

To this end, the Government through MTIB established the Wood Industry Skills Development Centre (WISDEC) to undertake technical training and facilitate product development. It has also been mandated to coordinate the Malaysia Skills Competition (CPM).

Another initiative carried out by the Government to assist the industry's growth and development is the Muar Furniture Park (MFP) which aims to centralise

all furniture-related manufacturing activities in the industry value chain at one location. Known as the 'Furniture City of Malaysia', it is expected to house 117 companies. According to MTIB, to date 112 companies are planning to move their operations into MFP.

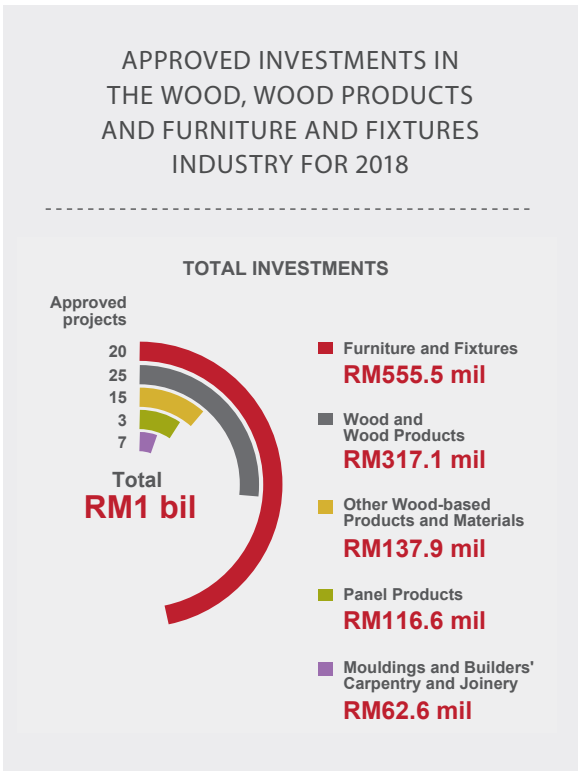


Given the Government's directive to promote the production of high-value-added products, the industry is encouraged to focus on creativity and innovation in their production processes, moving up the value chain to become original design manufacturers (ODMs) and original brand manufacturers (OBMs).

MTIB has established the Tanggam Design Centre (TDC), a design hub providing design-related services for industry stakeholders. The design centre has hired a young and talented workforce with global experience in furniture design to further enhance the timber industry's continual industrialisation and upgrading.

The furniture and fixtures sub-sector attracted RM555.5 million across 20 projects. Of these, 15 were new projects with investments of RM468.9 million, while the remaining were expansion/diversification projects worth RM86.6 million. Foreign investments made up 80 per cent of total investments (RM442.9 million), while domestic investments accounted for the other RM112.6 million.

While for wood and wood products sub-sector, a total of 25 projects were approved with investments of RM317.1 million, of which 23 were new investments of RM309.7 million and two (2) were expansion/diversification projects with investments of RM7.4



million. Domestic investments amounted RM257.1 million while foreign investments totaled RM60 million. The panel products sub-sector and the mouldings and builders' carpentry and joinery sub-sector had three projects and seven project approved respectively, with investments totalling RM116.6 million and RM62.6 million. In addition, 15 projects with investments of RM137.9 million were approved for the manufacture of other wood-based products and materials such as sawn timber, wood chip, and laminated board and biomass products.

Paper, Printing, and Publishing

The three large sub-sectors within Malaysia's paper, printing, and publishing industry include pulp manufacturing; paper and paper product manufacturing; and printing and publishing.

The production of paper primarily uses wood as its raw material; however, the use of fibre from recycled paper products have increased significantly, due to a rise in demand for packaging paper. In Malaysia, virgin pulp for paper is generally produced using wood from acacia and eucalyptus trees. As there are no locally-based virgin pulp producers, this has to be imported; mostly from the USA and Europe.

According to the Malaysian Pulp and Paper Manufacturer Association (MPPMA), a total of 1.4 million metric tonnes of waste paper were collected and processed in 2017.

The industry's performance remains steady, with over 20 paper mills in the country with a total production capacity of 1.9 million metric tonnes annually. Some of the biggest producers that specialise in the production of packaging paper are Muda Paper Mills Sdn. Bhd., GS Paperboard & Packaging Sdn. Bhd., and Passcorp Paper Industries Sdn. Bhd.

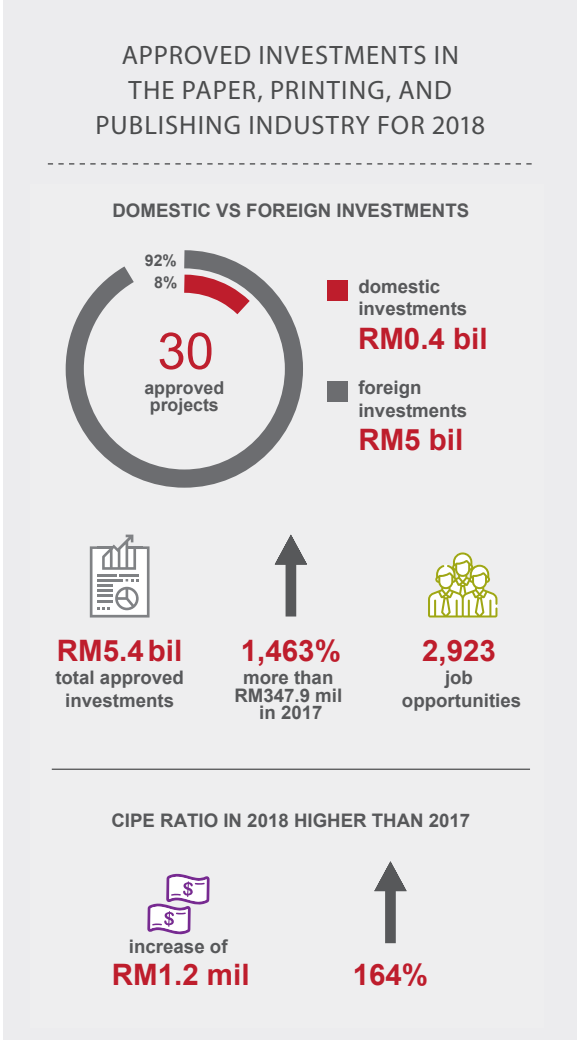
Opportunities abound for investors in this industry. For instance, paper can also be produced from palm biomass. As to date, only one company, Eco Palm Paper Sdn. Bhd. is in operation to produce paper from empty fruit bunches (EFB). With 5.8 million hectares of oil palm plantations, Malaysia has a competitive advantage in this regard. Investors can consider funding studies and research into improving the production technologies and quality of paper made from EFB.

Industry investors can also consider joint ventures or other strategic partnerships with Chinese manufacturers. The Ministry of Environmental Protection in the PRC has announced a series of restrictions on imported materials, such as an outright ban on recycled materials – including waste paper – by end-2017. As a result, MIDA has received numerous enquiries and visits from interested top PRC paper producers looking to expand their operations in Malaysia, either by starting a new project, or undertaking joint venture projects with existing Malaysian players.

In comparison with global paper manufacturers, much of the technology in use by Malaysian paper manufacturers is considered outdated. Local players are encouraged to upgrade themselves by venturing into new technologies in order to adapt to disruptive changes for operational sustainability. The Government has introduced the Automation CA for industry players, empowering them to transform their processes whilst producing higher-value products.

The paper, printing, and publishing industry recorded a tremendous jump in growth as compared with its 2017 performance. A total of 30 projects were approved with investments of RM5.4 billion in 2018, or a massive 1,463 per cent increase over 2017's figure of RM347.9 million. The industry's CIPE also recorded an increase of RM1.2 million (164%) over 2017's CIPE of RM704,000. These projects will provide 2,923 employment opportunities, with the majority of investments totalling RM4.3 billion (80%) coming from 13 new projects. Foreign investments dominated the industry, totalling RM5.0 billion (92%).

The significant projects approved in 2018 were from two foreign-owned companies to produce wet pulp board, high grade kraftliner, kraftliner board, corrugated medium, uncoated white top kraftliner and recycle pulp with total investments of RM4.1 billion. These two projects will provide 1,774 job opportunities.



Industry4WRD – Manufacturing's Next Act

Malaysia's manufacturing sector has continued to assume a key role in the economy, turning Malaysia into a major player in the global value chain as the nation marches towards industrialisation. The manufacturing sector has been contributing around 22 per cent to the GDP in the last five years. Its growth stimulates jobs, attracts investments, and creates business opportunities.

In this context, the Fourth Industrial Revolution (Industry 4.0) is where the digital, physical, and biological spheres converge and create synergies. This enables new and disruptive technologies to be applied to areas such as the environment, occupational health and safety, waste management, and efficiency in managing supply chains, resources, and delivery systems.

Launched on 31 October 2018, Industry4WRD is Malaysia's national policy on Industry 4.0, which calls for a smarter and stronger manufacturing sector driven by people, processes, and technology. It is a pivotal step towards Malaysia becoming a developed nation that is equitable, sustainable, and inclusive over the next few years.

Industry4WRD is a collaborative effort between the Government, industry, and academia, aiming for enhanced productivity, greater job creation, and the creation of a high-skilled talent pool in the manufacturing sector. Further, it encourages the development of the sector's innovative capacity and capability to create Malaysia's own technologies, products, and services. The Government will act as an enabler in the overall digital transformation of companies in the manufacturing sector and related services, particularly the small and medium enterprises (SMEs).

The primary aims of Industry4WRD is summarised below:

- Attract stakeholders to Industry 4.0 technologies and processes;
- Create the right ecosystem for Industry 4.0 technologies to be adopted and to nurture innovations; and
- Transform capabilities of the manufacturing industries to be Industry 4.0-ready in a holistic and accelerated manner.

The Government has also developed an Industry4WRD Readiness Assessment Programme to enable businesses to assess where they are, the current gaps existing in their manufacturing lines, and the way forward into Industry 4.0, through the targeted intervention of experienced assessors.

As a clear strategic direction for the nation, Industry4WRD marks the starting point for Malaysia to fully embrace Industry 4.0, with smart manufacturing eventually leading to the emergence of smart cities, smart grids, and smart services. With this policy in place, the Government anticipates that by 2025, Malaysia will be one of the primary destinations for high-tech industries and ranked among the top 30 nations in the Global Innovation Index.

THE ESSENCE OF INDUSTRY4WRD



The four overarching national goals:

- (i) Drive continuous growth in manufacturing GDP;
- (ii) Increase national productivity;
- (iii) Create high skill employment opportunities; and
- (iv) Raise innovation capabilities and competitiveness.

The five Strategic Enablers (F.I.R.S.T.) for the digital transformation of companies (particularly SMEs) in the manufacturing and related-services sectors:

- **Providing funding and outcome-based incentives**
 - Encourage investments in the introduction and adoption of Industry 4.0 technologies and processes, followed by dynamic and innovative financial products.
- **Creating enabling ecosystems and efficient digital infrastructure**
 - Strengthen digital connectivity in and between industrial, educational, and training hubs; while enhancing the digitalisation and integration of Government processes along supply and manufacturing value chains.
 - Link Industry 4.0 service providers to manufacturing firms in order to help implement technology, process, and skill development.
- **Ensuring regulatory framework and industry adoption**
 - Increase awareness of the opportunities provided by Industry 4.0 technologies and processes among manufacturing firms.
 - Create a platform to help such firms, especially SMEs, assess and develop their Industry 4.0 capabilities.
 - Improve data integrity, standards, sharing, and security capabilities to facilitate seamless integration of manufacturing value chains and support intra-ministerial coordination for effective Industry 4.0 programmes.
- **Upskilling existing and ensuring future talent is produced**
 - Design national development programmes for manufacturing sectors to ensure the availability of future talent by equipping students with the necessary Industry 4.0 skill sets.
- **Providing access to smart technologies**
 - Establish digital/technology labs and collaborative platforms through public-private partnerships (PPPs) to foster the adoption of new technologies and facilitate the transfer of knowledge.
 - Intensify Research, Innovation, Commercialisation and Entrepreneurship programmes to support advanced priority sectors.

Transforming the Domestic Investment Landscape

Since 2017, MIDA has been spearheading initiatives to connect local companies and SMEs with multinational companies (MNCs) and large local corporations (LLCs) through many platforms including Supply Chain conferences. These conferences were attended by representatives from various industries and held in Kuala Lumpur and the four main economic regions, namely the East Coast Region, the Northern Region, the Southern Region and the East Malaysia Region (Sabah and Sarawak).

At these Business-to-Business (B2B) meetings, MIDA learned through feedback received that most local companies were limited in terms of financial resources and technology which hindered them from being part of the MNCs'/LLCs' global supply chain network.

Taking into account that the various incentives and grants currently provided by the Government were insufficient to address the need of local companies, MIDA kick-started a new initiative known as the Investment Coordination Platform (ICP) in 2018. The ICP was formed by establishing a dedicated team to assist local companies or SMEs by bridging or narrowing their financial and technology gaps through strategic collaborations and joint ventures with financial institutions, equity firms, and technology providers.

The ICP team provides a range of advisory services and types of facilitations including business match-making, access to sources of capital (debt and equity), assisting in initial public offering (IPOs) as well as coordinating and arranging for M&A, divestments, and takeovers. Over 160 manufacturing, services, and plantation companies and 50 strategic technology and funding partners such as equity and venture capital firms, corporate finance advisory firms, government agencies, and real estate investment trusts (REITs) have engaged with the ICP team.

As to date, 40 B2B meeting sessions have been conducted between anchor companies and their respective local and SME counterparts to discuss strategic collaborations. Among the planned B2B arrangements is the adoption of advanced technology and applications by a major plantation company to substitute foreign labour and to improve productivity through strategic partnerships with technology providers and research institutions.

Another such collaboration resulted in a large local corporation in the pharmaceutical industry coming up with business expansion plans involving the acquisition of Government-owned companies and facilities.

Other business expansion plans that came about through the ICP team's facilitative work include equity funding for a local solar company, as well as a joint-venture partnership with a foreign technology provider for a local oil and gas company in setting up a plant for downstream activity.

A third collaboration is the development of a Centre of Excellence and Technical and Vocational Education and Training (TVET) programmes specialising in new technology in the bioplastic industry through joint partnerships between a foreign technology provider, a local research institution, local universities and foreign universities.

The ICP team's IPO services enabled a local steel company to meet the requirements for listing on the ACE market of Bursa Malaysia. At the same time, corporate restructuring services provided by the ICP team have led to the business divestment of a local logistics company as well as a large local corporation in the oil and gas services sector diversifying its business into renewable energy through joint partnerships with solar and hydro power players. The ICP team has also been involved in the development of new industrial and commercial zones in Peninsular Malaysia involving multiple stakeholders.

Meanwhile, MIDA has collaborated with the Federation of Malaysian Manufacturers (FMM) to organise a nationwide forum series on industrial parks themed "Strengthening the Manufacturing Ecosystems". The main objective of the forum was to create awareness and to persuade relevant stakeholders to rethink their approaches towards the development and management of industrial parks. All relevant stakeholders such as property developers, local authorities/councils, utility providers, service providers, international business chambers, local SMEs and Government agencies were brought together during the forum.

The reason for this forum series was to provide an avenue to look at the development of industrial parks in a holistic manner. The availability of integrated and well-managed industrial parks is a key determinant of how potential investors select their investment destination.

In 2018, MIDA successfully organised four Industrial Park forums in four regions; namely, Central Region (Subang Jaya, Selangor), Southern Region (Johor Bharu, Johor), Northern Region (Ipoh, Perak) and East Malaysia Region (Kota Kinabalu, Sabah). More than 1,000 participants attended the forums. Following this series, MIDA together with FMM will launch the "Directory of Industrial Parks" in Malaysia by the first half of 2019. MIDA's initiative will further spur domestic investment and assist Malaysia to drive the national investment agenda and transform the domestic investment landscape.



Constructing the Future

In Malaysia, the Industrialised Building System (IBS) is how prefabricated buildings are created and put together. IBS is defined by the Construction Industry Development Board (CIDB) as a “construction technique in which components are manufactured in a controlled environment (onsite or offsite), transported, positioned and assembled into a structure with minimal additional site work”. The global prefabricated building market is expected to exceed more than US\$135 billion by 2023, with a compound annual growth rate (CAGR) of 5.54 per cent.

IBS had its start in 1964, when the Ministry of Housing and Local Government visited several European countries to evaluate their housing development programmes. Following this, the Government started its first IBS project to speed up the build time of affordable and quality houses. About 22.7 acres of land along Jalan Pekeliling, Kuala Lumpur was dedicated to this project.

The Malaysian construction industry is moving towards the use of IBS, driven by Government initiatives, the expected growth in residential property construction, and a growing awareness about the benefits of IBS products. There are six common types of IBS; namely precast concrete, formwork systems, steel framing systems, blockwork systems, timber framing systems, and innovative systems.

Top domestic IBS companies include Gamuda IBS Sdn Bhd, Brick DotCom (Johor) Sdn Bhd, Matrix IBS Sdn Bhd, and MDC Precast Industries Sdn Bhd. Top foreign companies include CGPV IBS Sdn Bhd, Sany PC Manufacturing Sdn Bhd and Scandinavian IBS Sdn Bhd.

In 2018, a total of 14 projects were approved in the IBS industry with an investment of RM575.1 million. Of these, RM335.8 million (58%) were from local companies and RM239.3 million (42%) were from foreign companies. These investments created 918 job opportunities.

Benefits and challenges

IBS can enhance construction productivity and improve quality by reducing construction time, lowering overall construction costs, and reducing the amount of waste generated on-site. The use of prefabricated components can lead to enhanced durability and greater material conservation as they are manufactured off-site. IBS is more environmentally-friendly, resulting in reduced emissions, as well as energy and water consumption. It also helps with occupational health and safety.

As a result, the Government of Malaysia has put a lot of effort into IBS, requiring its implementation in construction contracts, and creating a roadmap for IBS in 2010. However, a number of industry stakeholders are indifferent and resistant towards its adoption, likely due to either ignorance of its benefits or the cost of technology transfer.

In particular, IBS is not popular with building designers, as there is a perception that buildings constructed with IBS have poor aesthetics. Contractors are also slow to adopt IBS; there is little standardisation, whether it be in terms of the prefabricated components' joints, design, adaptation, or chemistry. Financial

issues hindering adoption include an uncertain return on investment, higher current construction costs, and limited financial assistance to make the initial investment.

IBS in general also has to deal with the lack of uniformity in the Uniform Building By-Laws (UBBL) and Malaysian standards, a lack of coordination between the various relevant agencies, and issues of volume and economies of scale.

IBS moving forward

The low market penetration of IBS products in Malaysia provides growth opportunities for existing participants and new entrants. MIDA and CIDB had signed a Memorandum of Understanding (MOU) in August 2016 to promote the acceleration of IBS adoption in Malaysia.

Several Government initiatives are being undertaken to increase the adoption of IBS in Malaysia, namely:

- Private construction projects worth RM50 million and above must achieve a minimum IBS score of 50 by 2020;
- Elimination of import duties for heavy machinery and equipment for IBS projects;
- Mandatory for Deed of Assignment for federal projects to be implemented via IBS; and
- IBS specialisation is required in the tender advertisements for Government IBS projects.

The Government has additionally provided various financial incentives for IBS:

- Pioneer Status or Investment Tax Allowance under Section 112 or 113 Income Tax Act 1967 to produce IBS components. The IBS project must be certified by CIDB to enjoy this incentive;
- Full exemption of the 0.125 per cent levy imposed by CIDB for housing projects with an IBS score of more than 50; and
- Incentive for Automation CA Expenditure: Category 2. An automation capital allowance of 200 per cent will be provided on the first RM2 million expenditure incurred within five years of assessment from 2015 to 2020.

The CIDB introduced the Construction Industry Transformation Programme (CITP) to transform the construction industry, where MIDA was actively involved as Co-Chair and in the main committee for the Initiative Working Group (P3)-Productivity. One of the 21 initiatives outlined is ‘accelerate adoption of IBS, mechanisation and modern practices’.

MIDA and CIDB also co-developed a directory of over 4,000 construction companies and relevant stakeholders in Malaysia called ‘The Industrialised Building Systems (IBS) and Building Materials Supply Chain 2017/2018 Directory’. The directory is a point-of-reference containing the contact details of local building materials suppliers and manufacturers.

2.3

PERFORMANCE OF THE SERVICES SECTOR

Powering On

The ever expanding services sector maintains its position as the mainstay of the Malaysian economy, with increasing focus on sustainable growth, providing competitive advantages for other industries in the country

The Services Sector is On Track

The services sector continues to be the cornerstone of the nation's economic growth in 2018. In the four years since the Service Sector Blueprint (SSB) was launched in 2015, with strategies to tap the full potential of the services sector and to transform it to become more knowledge-intensive and innovation-led, the services sector has recorded remarkable growth.

In 2018, the services sector showed a contribution to GDP of 55.5 per cent, compared with 51.2 per cent in 2010, and 53.6 per cent in 2015. In line with this promising positive growth, the Government is optimistic that the country is well on track to reach the services sector's targeted 58 per cent share of GDP as a developed nation in 2020.

The services sector was the largest contributor of approved investments, with about half (50%) of approved investment in 2018.

The sector attracted investments in 4,103 approved projects in 2018, with investments amounting to RM103.4 billion. Of this amount, domestic investors contributed the lion's share of RM86.9 billion with foreign investors contributing RM16.5 billion. The real estate sub-sector continued to lead services with investments totalling RM47.9 billion followed by utilities at RM9.8 billion, financial services at RM9.7 billion, global establishments at RM7.5 billion, and distributive trade at RM7.3 billion.



Malaysia ranked fourth among emerging market peers, keeping its position for the fourth consecutive year according to the Agility Emerging Market Logistics

TOTAL APPROVED INVESTMENTS IN THE SERVICES SECTOR FOR 2018



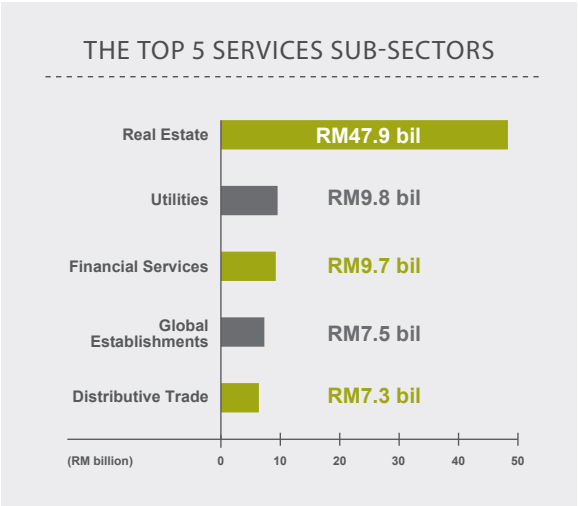
Index 2018. The Index is a gauge of emerging markets' competitiveness, namely in the logistics arena. The top three markets are China, India, and the UAE, which remained in the same position year on-year. Other ASEAN neighbours weighed in at fifth place (Indonesia), 15th place (Thailand), and 19th place (Vietnam). The three index criteria that countries were judged upon are market growth, market connectedness, and market compatibility of which Malaysia's best performing index was market connectedness.

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The ongoing support of the Government with business-focussed policies and tax incentives plays a big role in attracting investors to Malaysia.

Results scorecard at a glance

The real estate sub-sector continued to lead services with investments totalling RM47.9 billion, followed by utilities at RM9.8 billion, financial services at RM9.7 billion, global establishments at RM7.5 billion, and distributive trade at RM7.3 billion.



In addition to being a prime sector in its own right, the services sector provides crucial support to businesses in all sectors of the economy. For example, the global establishments and end-to-end supply chain management services are key components in the ecosystem of the nation’s economy. These services increase trade efficiency and competitive advantages for other Malaysian industries. The Government is now focussing on selected strategic areas that will enhance and energise the overall economy as well as those with strong links and interconnectivity to other sectors of the economy. These include green technology, supply chain management, innovation, R&D and design activities.

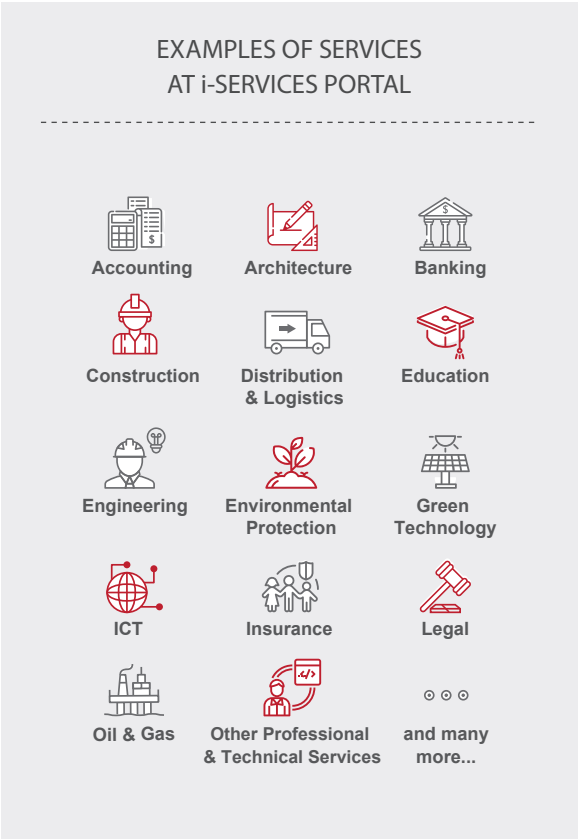
Churning Local Champs

The services sector is dominated by domestic players and, as such, the Government has introduced various initiatives to enhance their capabilities. According to the Economic Census 2016: Establishment Statistics issued by the Department of Statistics Malaysia (DOSM), about 88.5 per cent of business establishments in Malaysia are concentrated in the services sector, of which 89.2 per cent are in the SME category. MIDA implemented several initiatives in 2018 to provide more business opportunities for Malaysian service providers as an avenue to further hone their capabilities and become more competitive in the local market,

as well as to ready them to compete in global markets. The export of local services will help close the gap of the services trade deficit that has been growing since 2012 and which stood at RM22.8 billion by 2017.

To increase the business prospects for local service providers of high-end professional services, it has become a requirement stipulated in the Manufacturing Licence approval for investors to appoint locally registered professional architectural and engineering companies in Malaysia when setting up their manufacturing facilities. In addition, MIDA has also imposed the use of local services as one of the incentive conditions for approved projects in the manufacturing and selected services sectors, beginning on 2nd May 2018 to ensure that the approved projects create linkages to local companies. This initiative focusses on five types of services; namely, transportation, banking, insurance, legal and ICT services.

To facilitate investors in the utilisation of local services, MIDA has developed and launched the i-Services Portal, (refer to article on page 74) a convenient web-based one-stop centre to connect investors with local service providers offering various professional services ranging from accounting to architecture, banking, engineering, ICT, legal, and many more.



In its continued efforts to encourage more local services companies to move up the value chain, MIDA also expanded the scope of the existing Domestic Investment Strategic Fund (DISF) in April 2018 to further include selected services sub-sectors. Among the additional services sub-sectors included are development, calibration, architectural, ICT solution providers related to automation and Industry 4.0, and integrated green technology projects. With the expanded scope, more services companies can now avail themselves to the DISF, which can be utilised for the purpose of training and R&D activities, modernisation and upgrading of facilities and tools, obtaining international standards and certifications, as well as licensing and purchase of new high-tech equipment to complement and upgrade their businesses.

An unstoppable digital revolution

The rise of disruptive digital technologies – such as mobile internet, big data, cloud technology, IoT, and automation is poised to unleash new types of services and revenue streams; increasing efficiency and boosting productivity across the board. It is profoundly changing the way we live and work. It has been estimated that in the ASEAN region these technologies could parlay a worth of up to US\$625 billion by 2030, which would account for eight per cent of ASEAN’s GDP. Not surprisingly, digitalisation is increasingly assuming a larger proportion of GDP in Malaysia as well as in many Asian economies.

According to the IMF’s Regional Economic Outlook for Asia Pacific, seven of the world’s top 10 economies with the largest ICT to GDP ratio are in Asia, including Malaysia and Singapore. In Malaysia, the contribution of ICT to the national economy recorded 18.3 per cent in 2017, as compared to 16.5 per cent in 2010. The ICT industry’s growth rate has been on an upward trend, expanding at an average annual growth rate of nine per cent over a seven year period. This bears testament to the potential that digitalisation has to boost the country’s future growth.

The integration of digital technology into everyday life is inevitable in today’s technology-dependent world. Products, services, and support services are becoming more customisable and individualised, with the focus shifting to meet the needs of the user as a consumer, an employee, patient, citizen, or tourist. Hence, to

ensure that Malaysia remains competitive, MIDA is encouraging the adoption of the latest technologies through the use of Smart Services in Industry 4.0. In Malaysia, industry players such as those in healthcare, green technology and logistics are riding on the wave of technological changes made possible by Industry 4.0 to boost productivity and increase competitiveness. Some examples of the adoption of smart technology include a hospital which is integrating the use of artificial intelligence (AI) in its treatment of cancer patients, and a green technology service provider that is using intelligent energy management systems to monitor usage.

E-commerce features strongly in the nation’s economic growth from both the business as well as consumer front. Malaysia ranked fifth among the top 10 developing economies in Asia for its readiness to support online shopping, based on the 2018 United Nations Conference on Trade and Development (UNCTAD) Business to Consumer (B2C) e-commerce index. More than a third of the population made online purchases in 2017 and the country has one of the highest proportions of B2C sales to GDP in the world.

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The logistics industry has also evolved with the emergence of digitalisation, seeing the rise of new market entrants in the last mile delivery services as well as some adopting the e-fulfilment business model, whereby entire supply chains are digitised in order to compete in the new digital era. MIDA provides the Digital International Integrated Logistics Services (DIILS) status to cater to digital trade facilitation and related value-added services. Companies that are granted the DIILS status will be able to participate in digital trading in the DFTZ. Among the services that are offered by companies with DIILS are electronic declaration and e-custom clearance to facilitate digital trade in a more efficient way as well as to harness intelligence from big data analytics in relation to digital trade such as trade financing, trade assurance, foreign exchange, and logistics services.

i-Services Portal: MIDA's Bid to Reduce the Services Sector Deficit

One of the ways to close the deficit in the services trade current account is to reduce dependency on foreign services and to export home-grown services into the world market. In its ongoing support to strengthen the services sector as a leading growth engine for the nation, MIDA has launched the i-Services Portal which is a business connection platform to link service providers and their potential clients. Local service providers are encouraged to register their businesses on the portal in order to be more visible and accessible to potential customers. This gateway will be an avenue to market local service providers' services and solutions both locally and abroad.

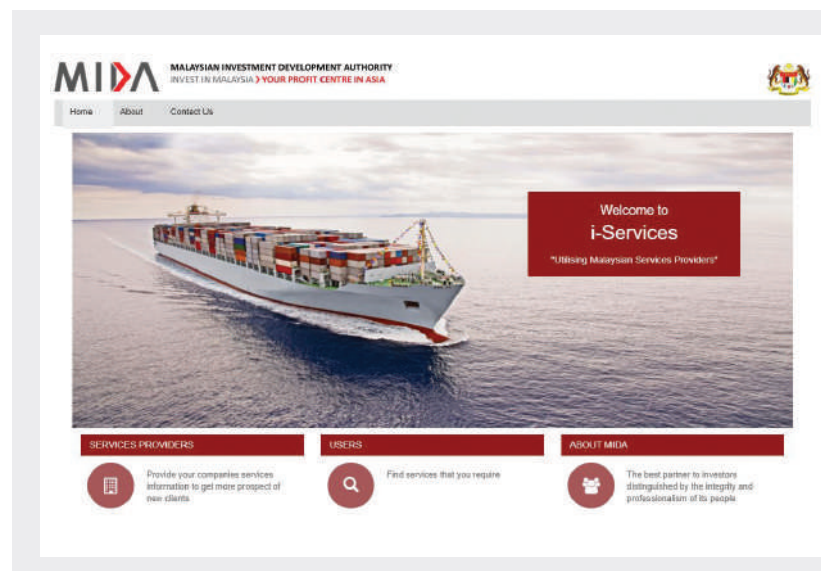
The MIDA i-Services Portal was launched by YB Datuk Darell Leiking, Minister of International Trade and Industry (MITI) at the National Investment Seminar 2018, held on 30 October 2018.

Accessible via <http://iservices.mida.gov.my>, the portal can be utilised by both registered service providers as an avenue to showcase their companies' profile and business offerings to potential clients; and by registered users/potential clients to obtain information from the database on local suppliers based on category of services.

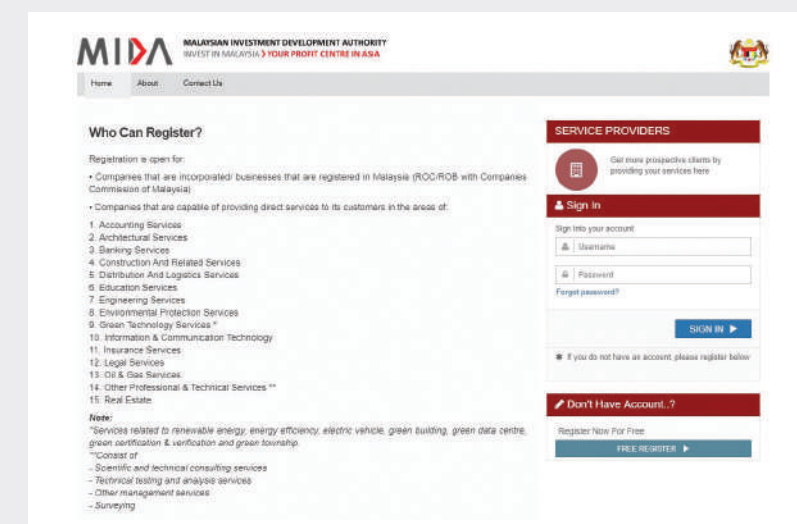
Services trade deficit

Malaysia recorded a deficit in its services trade current account from 1947 until 2017 (excepting the years from 2007 to 2011). This deficit has been widening since 2012 and last stood at RM22.8 billion in 2017. Malaysia's major sources of services exports were travel, especially personal travel and other business services such as research and development services, professional and management consultancy services, and technical, trade related and other business services. On the other hand, services imports were mainly derived from higher payments for travel, transport and construction.

Although exports of services have been in the upward momentum since 2010 (increasing by RM47.7 billion within the last 7 years), corresponding imports have accelerated at an even faster pace with a value of RM77.1 billion, resulting



The three main objectives of the portal are to assist investors who are looking for local service providers, to promote and encourage the utilisation of local service providers for investment projects, and to facilitate connections to other programmes organised by MIDA or other agencies. Some of the high-end services by local experts featured in the portal include accounting services, architectural services, banking services, construction and related services, distribution and logistics services, education services, engineering services, environmental protection services, information and communication technology, insurance services, legal services, oil and gas services, real estate, and other professional and technical services.



in a widening of deficit in the services trade current account. In fact, the Malaysian Institute of Economic Research (MIER) in its Malaysian Economic Outlook 2018 expects that the trend will persist this year, owing to the nation's high dependency on foreign services, particularly for freight and haulage.

Local service providers should leverage on this portal as a medium to expand their markets and catapult their business activities in today's globalised and rapidly changing business environment. Domestic and international companies could also avail themselves to this portal as a gateway to source local services, which provides a cost-efficient and convenient way of conducting business.

2.4

PERFORMANCE OF SERVICES SUB-SECTORS

Scanning the Ground



Investments in the services sector point to digital disruptions being an inescapable reality of the services landscape, which spells exciting new business and investment opportunities for local players provided they up-the-ante and shift with what is trending in the digital era

Global Establishments

Principal Hubs: Anchored in Malaysia

Multinational companies (MNCs) are increasingly shifting their business models away from the traditional hierarchies to a more decentralised organisational concept to adapt to changing global economic trends. These nimble giants will have the competitive edge with quick decision making processes and being ready to pounce when opportunities are presented. The ASEAN region has been a draw for MNCs as it is one of the most dynamic and fast-growing economies in the world with cost effective overheads.

Malaysia being at the geographical heart of ASEAN is well positioned to attract MNCs to drop anchor and set up their global and regional bases within its borders. Despite competition from neighbouring Singapore and Thailand, Malaysia has many compelling attributes such as a mature financial structure and robust business ecosystem, accompanied with a reasonable standard of living and cost of operations.

The Principal Hub (PH) is a concept mooted by the Government in 2015, whereby Malaysia is made the centralised operating base for multinational companies serving as a nerve centre to conduct its regional and

global businesses. The key functions of a principal hub include management of risks, decision making, strategic business activities, trading, finance, management and human resource. The Government offers many attractive tax reliefs and benefits for this long term commitment.

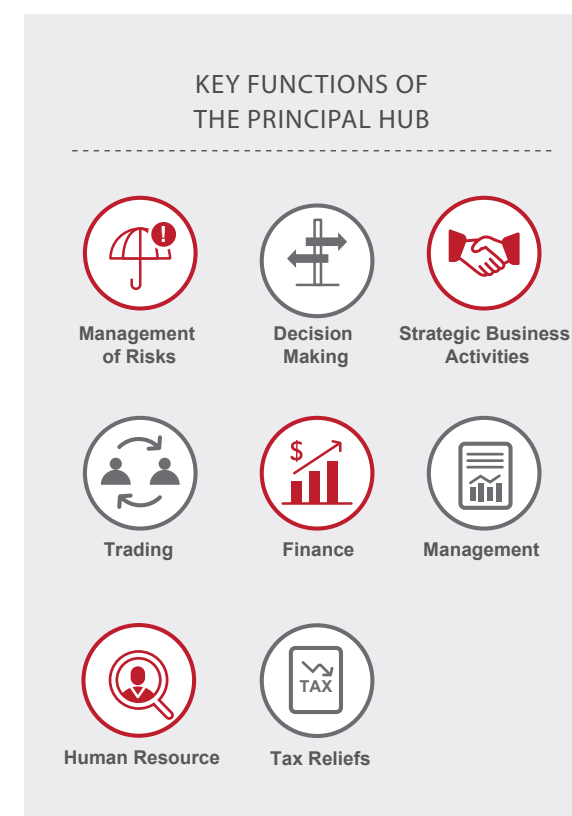
Malaysia being at the geographical heart of ASEAN is well positioned to attract MNCs to drop anchor and set up their global and regional bases within its borders.

Since its inception, the PH scheme has proven to be a great success. Many large E&E MNCs such as Honeywell, Sharp, Broadcom and IDT that are already in Malaysia through their manufacturing presence have made the strategic decision to centralise other functions such as R&D, supply chain management and distribution in the country. In line with the Government's agenda to promote high value job creation, E&E companies under the Principal Hub scheme employ Malaysians in more diversified and strategic areas such as R&D, supply chain control and IP management. E&E companies have shown commitment to hire Malaysians and develop their capabilities to meet international standards.

This PH conversion success can be attributed to the fact that the Government is making the scheme even more attractive with a change in the tax treatment, announced for PH applicants with existing operations in Malaysia in Budget 2019, which will be for a concessionary tax rate of 10% on full statutory income instead of the full tax exemption on value added income imposed currently. This will encourage other MNCs to remain and re-invest in Malaysia. The outlook for this sector is in line with the Government's continued support and favourable pro-investor policies.

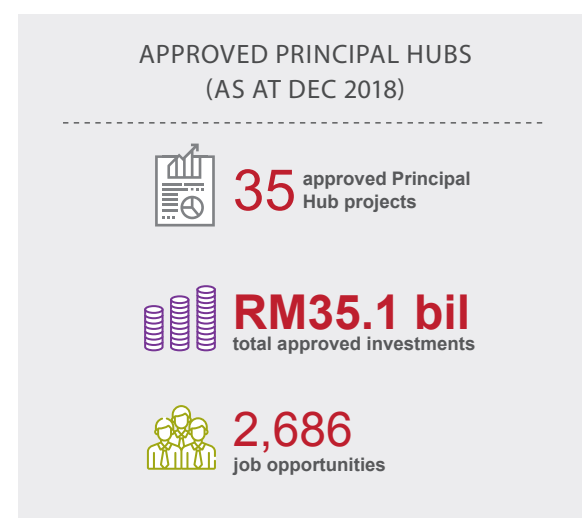
Principal Hub Projects Approved

The PH scheme has seen a steady increase in approved projects since its introduction in 2015. To date, MIDA has cumulatively approved a total of 35



Principal Hub projects, with companies committing to a spending of RM35.1 billion, engaging the use of local ancillary services worth RM5.5 billion and creating 2,686 high-value jobs. Of these, half will be reserved for Malaysians over the span of the next 10 years, with E&E companies being among the major investment contributors.

In 2018, a total of eight new Principal Hub projects were approved, with committed business spending of RM7.1 billion. This is to result in a potential spill-over effect of spending on local ancillary services worth RM3.2 billion and the creation of 698 high-value jobs, with opportunities for knowledge transfer to Malaysians over the next 10 years.



Walking the talk

Of this number of approved PH projects as at 2018, a total of 18 Principal Hub companies have begun their operations and created 2,175 job opportunities - of which half the jobs are slated for Malaysians - and incurred business spending of RM5.7 billion and local ancillary spending of RM346.1 million. Most of these companies significantly exceeded their commitments under the Principal Hub incentive in the first year of operation.

The four significant PH projects approved in 2018 were Jobstreet, one of Asia's leading online employment marketplaces, Smart Modular Technologies - a global specialty memory solutions provider, Frencken - a high-tech capital and consumer equipment service provider, and Onwards Media Group (OMG) - a technology company specialising in video processing and real-time communications.



JobStreet made Malaysia its base for regional expansion through the establishment of its Operational Headquarters (OHQ), JobStreet.com Shared Services Sdn. Bhd. since 2011. Acquired by the Seek Group in 2014 (the global leader for online job portals), JobStreet.com Shared Services Sdn. Bhd. was chosen to be a Principal Hub, and will house the Group's Asia Management Team and lead the strategic direction of its regional business.

The Principal Hub will undertake global R&D and other key functions such as Regional Profit and Loss Management, Brand Management, IP Management, and Technical Support. JobStreet's Principal Hub operation has committed to a business spending of RM420 million over a period of 10 years and will contribute considerably to Malaysia's economy by creating 212 new jobs for Malaysians.

Since selecting Malaysia as a critical base for expansion, US-based Smart Modular Technologies has steadily scaled up its operations in the country over the years; evolving from manufacturing activities to undertaking strategic services such as procurement, business systems support and finance shared services. In 2018, Smart Modular Technologies established its Smart Supply Chain Services Management Centre and became the first company in Malaysia's electronics industry to undertake supply chain management from 3rd party suppliers to 3rd party customers.

In 2018, a total of eight new Principal Hub projects were approved, with committed business spending of RM7.1 billion.

In line with the company's global adoption of Industry 4.0, Smart Modular Technologies will utilise Big Data, Cloud Computing and real-time analytics technology to efficiently manage its global supply chain, which will involve over one million components, 220 suppliers and network companies in 1,000 locations. This project entails a business spending of RM200 million and translates to employment opportunities for 90 Malaysians.



Headquartered in Singapore, Onwards Media Group (OMG) is a company that specialises in video processing and real-time communications. OMG established a Principal Hub in Malaysia to support the Group's projects in Singapore, Hong Kong, China and the USA by undertaking its Regional Profit and Loss Management, R&D, Strategic Sourcing, Procurement and Distribution, and Data Centre Management functions. Through its presence in Malaysia, OMG will introduce its expertise in the development of Over-The-Top (OTT) platforms which feature high definition content, facial recognition technology, data analytics capabilities and content security and protection. OMG's Principal Hub operation will create 60 employment opportunities and incur a business spending of RM73 million over the next 10 years.

Frencken Group, another Singapore based company, is a high-tech capital and consumer equipment service provider. The Group serves customers in 50 countries worldwide and supports various industries such as automotive, analytical, aerospace, semiconductor, healthcare, and industrial automation. Through its

newly established Principal Hub, Frencken Group has shifted the global supply chain management of its Integrated Manufacturing Services division from Singapore to Malaysia, centralising strategic services such as Regional Profit and Loss Management, Business Development and Strategic Sourcing, and Procurement and Distribution.

The company has also established a Centre of Technology which will oversee the Group's global implementation of Industry 4.0 and automation initiatives to increase its manufacturing efficiency. Frencken's Principal Hub operation will incur a business spending of RM89.9 million over the next 10 years and will train 30 employees in areas such as strategic supply chain management and financial planning.

Regional / Representative Offices (ROs / REs)

Foreign companies that want to set up operations in Malaysia or the region will often start by setting up Regional/Representative Offices (ROs/REs) to coordinate and support their operations. The establishment of these REs and ROs are considered an initial stage initiative to undertake feasibility studies on investment opportunities, looking toward future long-term operations in the country, as well as to coordinate business activities for their parent companies regionally.

Malaysia has certainly garnered global interest as a potential business hub within the ASEAN region.

A total of 196 new REs/ROs were approved in 2018 with a total investment of RM326.5 million. This is expected to create employment opportunities for 467 Malaysians out of the total number of 637 jobs created. From the 196 REs/ROs approved, 118 projects (60%) were REs while 78 projects (40%) were ROs.

Malaysia has certainly garnered global interest as a potential business hub within the ASEAN region as there were companies from different countries,

including the USA, Japan, China, Singapore, Hong Kong, Germany, UK, France, Japan, Korea, Australia and India. The highest number of REs/ROs approved were from Singapore, with 30 approvals. This was followed by the USA (16), UK (16), Korea (16), Japan (15), Germany (12), and France (12).

The approved establishments were involved in machinery and engineering support, oil and gas, E&E, automotive, chemical, medical devices as well as IT and software sub-sectors.

Trends to watch: Logistics in the digital economy

The logistics industry forms the backbone of the e-commerce supply chain and is indisputably the main link which stimulates trade, facilitates business efficiency and spurs economic growth. Malaysia's strategic placement in the middle of ASEAN, as well as the greater Asia Pacific, translates to it being an ideal logistics hub location to service the region, as time to delivery is key in e-commerce.



With the explosive growth of e-commerce in Malaysia, players in the logistics arena need to step up their game by going digital in order to meet the demands of a growing consumer appetite for customised high-value products and the mounting expectation for fast and seamless purchase of goods. The logistics industry must evolve to accommodate the needs of e-commerce businesses and their customers, which in turn will drive demand for smart warehousing and e-fulfillment centres.

In light of the projected double-digit growth of e-commerce in the region, Malaysia is ready to take part in transforming the existing digital landscape

into a bright digital future as charted by Malaysia's National e-Commerce Strategic Roadmap, which targets doubling the country's e-commerce growth to 20.8 per cent by 2020, compared to the 11 per cent CAGR at present.

Integrated Logistics Services (ILS)

Logistics is the service enabler for all forms of trade and distribution activities and has seen positive growth over the years. The ILS sub-sector includes freight forwarding, warehousing, transportation and other value-added services such as distribution, procurement, and supply chain management. Ten ILS projects were approved in 2018 with investments totalling RM598.5 million and potentially creating 522 employment opportunities. A cumulative total of 93 ILS projects have been granted incentives as at December 2018.



Two noteworthy approved ILS projects are M Xpress and Taipanco. M Xpress is one of the fastest growing express delivery services in the country. The company has developed various proprietary technologies to enhance its services, such as CORUS™ (Courier Online Real-Time Update System), which won an award for innovation by the Malaysian Communications and Multimedia Commission in 2017. This technology allows clients to track delivery status in real time as well as see the image of the proof of delivery (POD). The company plans to expand its warehouse to cope with increased demand for its services, in line with the growth of e-commerce.

Under this expansion project, M Xpress will invest a total of RM20.1 million and create 278 new employment opportunities for Malaysians.

Taipanco started out as a container haulage service provider and has since expanded to become a leading integrated logistics player in Malaysia. Taipanco Sdn. Bhd. has leveraged on MIDA's incentive to expand its commercial vehicle capabilities and container depot facilities with an investment of RM58.8 million and will create 51 new local job opportunities. This project will enable the company to maintain its position as one of the largest container transportation operators in Northport and Westport. The company's project will also help alleviate port congestion due to limited storage capacity which causes delayed services.

International Integrated Logistics Services (IILS)

An IILS is a status granted to a logistics company that provides integrated and seamless logistics services (door-to-door) along the logistics value chain as a single entity on a regional or global scale. A Customs Agent Licence will be issued to qualified IILS companies.

With the expansion of e-commerce, more last mile delivery operators have stepped in to the arena to cater to the demand. In 2018, a total of 23 Malaysian companies were approved IILS status as compared with 17 IILSs approved companies in 2017.

Digital Content and Creative Technology Serious Fun

Digital Games is one of the most flourishing sectors of the Global Media and Entertainment Industry, and comprises games played on PCs, mobiles and consoles. With the exponential growth of technology, the trend of playing games has shifted from being played offline on specific individual devices to multi-player gaming across borders and platforms.

According to the Global Digital Gaming Market Report 2018-2023, the digital games market is expected to grow at a CAGR of 18.98 per cent leading to a global digital gaming market size of US\$323.91 billion by 2023.



The digital gaming industry has evolved from the domain of young developers into a billion-dollar industry, mainly due to increased internet and smartphone penetration across the globe. Mobile gaming is the fastest growing segment of the market and is forecasted to grow at a high CAGR through 2018-2023.

The demand for digital content creation is growing at a staggering rate, creating a demand for highly skilled professionals in the areas of graphic material digitisation, programming of digital sound and characters, and creation of creative content.

One notable project in this sub-sector is by Passionrepublic, a video gaming outsource company. Passionrepublic began its operations in 2007, specialising in animation for commercials, cartoon series and television content. It has now transitioned into arts and animation catered for video games. With a team of 90 high-skilled artists, Passionrepublic produces digital content for top international clients including Sony, Microsoft Games, Warner Bros. Games Square Enix, and many more.

Passionrepublic was approved the DISF grant to improve its technological capabilities. This will allow it to upscale its outsourcing jobs, enabling it to earn more lucrative work and launch its services into the global market. Passionrepublic also intends to undertake R&D activities and create prototypes which could potentially lead to new Intellectual Property creation in Malaysia.

R&D APPROVED INVESTMENTS FROM 1995 - DEC 2018 IN VARIOUS CATEGORIES

1995 - December 2018					
Type of R&D	Number	Employment	Domestic Investments (RM Million)	Foreign Investments (RM Million)	Total Capital Investments (RM Million)
R&D Contract	77	1,508	391.5	207.3	598.8
R&D Company	30	631	87.6	110.0	197.6
R&D In-house	58	3,378	709.0	1,202.0	1,911.0
R&D Status	19	1,082	140.7	120.9	261.6
Total	184	6,599	1,328.8	1,640.1	2,969.0

Research and Development Get ready for the future

Research and Development (R&D) plays a critical role in the long term success of companies which in turn, translates to the growth of their respective economies. In Malaysia, the Finance Bill which was gazetted on 27th December 2018 defines it as "any systematic, investigative and experimental study that involves novelty or technical risk carried out in the field of science or technology with the object of acquiring new knowledge or using the results of the study for the production or improvement of materials, devices, products, produce, or processes."

The acquisition of new knowledge, techniques, and technologies are some direct results of R&D which lead to improved products, processes, and services. The R&D and innovation link serves as a reminder for businesses to be innovation-minded, since agility and future-readiness are keys to achieving success in today's changing world.

Although R&D is a cost intensive activity, it is one that reaps benefits in the long term. The primary indicator for R&D activities of a nation is measured by its Gross Expenditure on Research (GERD) as a percentage of its GDP. In Malaysia's 2016 national survey, the nation recorded an R&D spending per GDP of 1.3 per cent, a small improvement against the previous year's 1.1 per cent, as compared to the targeted two per cent by 2020.

In light of this, should the present rate of increase in GDP be maintained, Malaysia may only reach the targeted two per cent by 2022. As a comparison, the country with the highest R&D spending in the world is the Republic of Korea with 4.3 percent per GDP. Despite Malaysia's upward trend, there is much room for improvement, with further efforts needed in encouraging R&D investments.

The Government continually supports companies in a wide spectrum of industries to achieve their R&D aspirations through various incentives and financial assistance, which covers the value chain of innovation, from ideation to commercialisation. The efforts of the Government and industry collaborations on R&D and innovation have made an impact, as Malaysia has leapt to the number two spot in the Global Innovation Index 2018, as compared to 34 of its peers in upper-middle income economies.

Malaysia comes in 35th position overall, moving up two positions from the previous year. In the same report, it was highlighted that Malaysia's strengths lie both in high-tech imports as well as high-tech exports, where we rank number one globally. This attests to the effectiveness of the Government's policies and MIDA's incentives for high-tech investors.

To date, a total of 184 R&D projects have been approved for incentives under the Promotion of Investment Act 1986 to undertake research and development activities, with a total capital investment of RM2.97 billion, which has created more than 6,500

high-tech job opportunities. In 2018, two companies involved in R&D activities were approved. Total investments in these projects amounted to RM94.8 million, comprising domestic investments of RM8.9 million (9.4%) and foreign investments of RM85.9 million (90.6%). A total of 163 employment opportunities are expected to be created by these projects.

One of the notable R&D projects is by Galaxy FCT Sdn. Bhd., which was incorporated to undertake R&D activities in the hydrogen generation for fuel cell application to be used as an advanced alternative energy system, especially in the mobility sector. The project is initiated and fully owned by Malaysians, and this project will create approximately 26 job opportunities and provide a salary of more than RM5,000 per month to more than 90 per cent of its employees.

R&D Persuasion

SMEs are encouraged to adopt R&D as part of their main business functions to improve efficiencies and become more competitive in the local as well as global markets. MIDA continually encourages and engages with local businesses for the expansion diversification of their activities through a number of domestic specific project missions (DSPM) throughout the country. In 2018, The DSPM to Sarawak was organised to promote investments in the R&D sector with the focus of harnessing the local wealth of natural biodiversity.

Industry and higher education collaborations are important in order to streamline industry-relevant research. MIDA continues to step up its efforts to drive stronger R&D linkages between the industry and tertiary and research institutions. These efforts, together with other dynamic Government enabling policies, will help the nation achieve innovation-led growth.

In strengthening efforts to promote R&D adoption among SMEs, MIDA signed a MOU with Industrial Technology Research Institute (ITRI), Taiwan. The MOU affirms the commitment of MIDA and ITRI in facilitating and promoting economic cooperation in the areas of trade, investments and SME development; particularly in Smart Manufacturing and Industry 4.0, IoT and Circular Economy. Malaysian industries stand to benefit from ITRI's expertise and network with other research and technology institutes in Taiwan through collaborations in new technologies

and applications such as artificial intelligence, big data analytics, machine learning and, vision and sensing technology. MIDA is optimistic that this initiative with ITRI will increase technology capabilities and capacities, furthering investments in new and emerging technologies.

Green Nation Watching Carbon Footprint

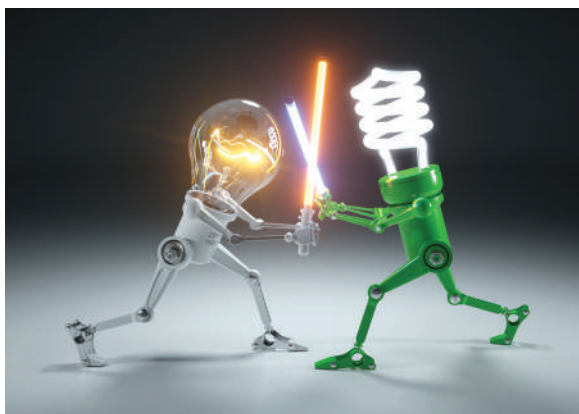
As a responsible steward of the environment, Malaysia aims to create a low-carbon and resource-efficient economy through the farsighted and right-stepping framework of the Green Technology Master Plan (GTMP, 2017-2030).

With the increasing adoption of green technology (GT), all sectors will play a role in reducing the nation's energy consumption and carbon footprint reduction, and subsequently become a major GT innovator and producer in the global market.

The GTMP has outlined Malaysia's determination to reduce carbon emissions by 45 per cent by 2030 and to be fully carbon neutral by 2050, thus balancing the green growth and sustainable development of this country.

According to the Global Energy Transformation 2018 report by the International Renewable Energy Agency (IRENA), the adoption of both renewable energy (RE) and energy efficiency (EE) can provide over 90 per cent of the CO2 emission reductions from energy production targeted under the Paris Agreement. This underscores the importance of the green technology services focussing on these two sectors in pursuit of sustainable economic growth.

Under the National Green Technology Policy (NGTP), green technology (GT) is applicable across various sectors – namely energy, building, waste management, and transportation. With the increasing adoption of GT, all sectors will play a role in reducing the nation's energy consumption and carbon footprint reduction, and subsequently become a major GT innovator and producer in the global market.



Mainly Sunny

Renewable energy refers to any form of primary energy which originates from non-depleting resources. Malaysia has a rich array of opportunities to be tapped – mainly solar, biomass, biogas, and hydro power. The targets set out in the 11MP in relation to increasing the renewable energy share of the power generation mix is from its current level of 5 per cent to 20 per cent by 2020 and 30 per cent by 2030. The current mix of power generation in Malaysia is about 53 per cent from fossil fuel (mainly coal), 42 per cent from natural gas, and the balance from renewable energy.

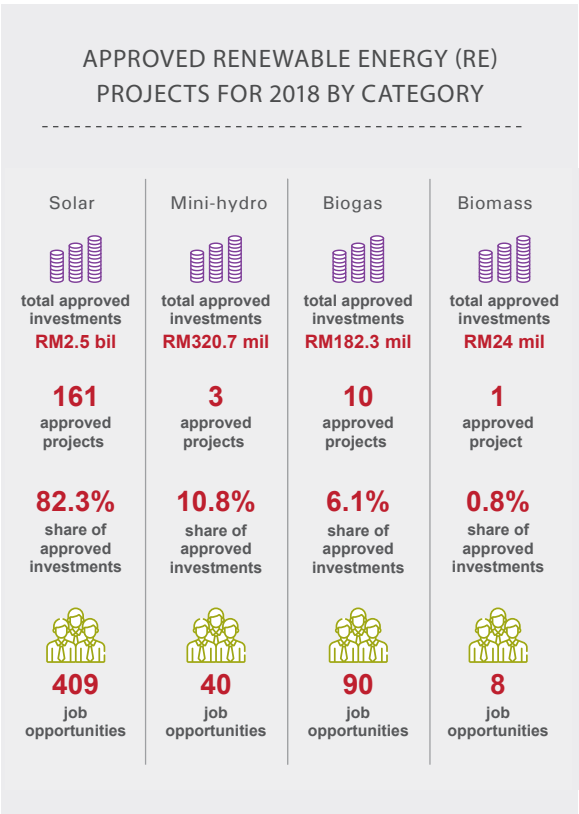
TARGETS IN THE ENERGY SECTOR			
Sector / Areas	2020	2025	2030
Renewable Energy (RE)	20% RE mix (Installed capacity)	23% RE mix (Installed capacity)	30% RE mix (Installed capacity)
Energy Efficiency (EE)	—	10% Reduction in electricity consumption	15% Reduction in electricity consumption

Solar energy has become one of the most prominent renewable energy sources as Malaysia lies in the Global Sun Belt, with more than sixty per cent of installed capacity of renewable energy coming from solar photovoltaic projects. In addition to that, the entry level cost is relatively lower than other RE technologies and the ease of setting up solar PV adds to its attraction. To boost RE growth, the Government has announced various schemes for investors, such as large-scale

solar photovoltaic (LSSPV), which will be going through its third phase under Energy Commission (EC); a revised and more attractive Net Energy Metering (NEM) plan, which is akin to Solar Leasing; and Feed-in-Tariff (FiT) through an e-bidding system under the Sustainable Energy Development Authority (SEDA) for biomass, biogas, and mini-hydro plants.

In 2018, a total of 175 renewable energy projects were approved with total investments of RM3.0 billion, of which 95.4 per cent were contributed by domestic investments and 4.6 per cent by foreign investments. Solar energy projects led with 161 projects amounting to RM2.5 billion, while the remaining was made up by 10 projects in biogas (RM182.3 million), three projects in mini-hydro (RM320.7 million), and one project in biomass (RM24 million).

A noteworthy project is the Tadau Energy Sdn. Bhd. ("TESB") 50MW Large-Scale Solar Photovoltaic Plant (LSSPV) project located in Kudat, Sabah with an investment of more than RM300 million. This project is the first 50MW LSSPV connected to the grid. It was financed by Green Sukuk, which made headlines as it was first of its kind in the world, a historic milestone for the Malaysian capital markets financed through Sustainable and Responsible Investment (SRI) Sukuk.



Energy goes efficient

The Government has shifted its focus from increasing supply to meet demand to reducing consumption by introducing Energy Efficiency (EE) and Energy Conservation (EC) measures. The promotion of efficient energy use is meant to counterbalance the ever-increasing demand for energy considering the nation's upward growth trajectory. One of the ways to encourage efficient use of energy is by promoting the use of upgraded five-star rated appliances and electrical fittings.

In 2018, fifty Government buildings were ear-marked to be retrofitted with energy-efficient chillers and LED light fixtures under the Energy Performance Contract, whereby the energy service companies fund the works and the savings on electric bills would be shared between the companies and the Government. It is estimated that this project would save at least RM47 billion in energy bills over 15 years.

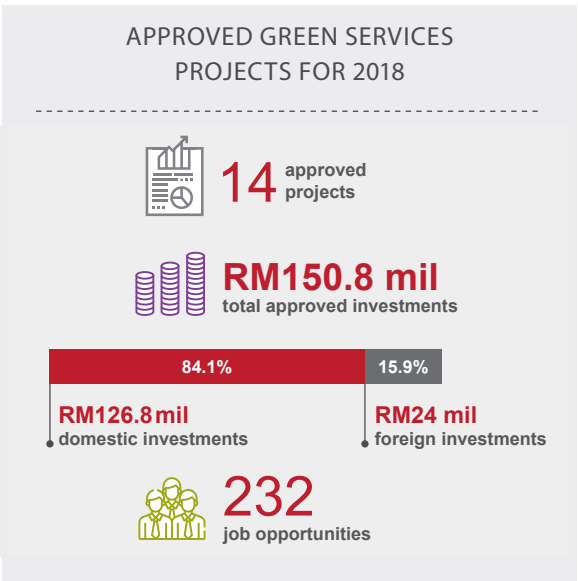
One of the major projects approved was investment made by a manufacturer of nitrile gloves in Sepang, Selangor. The Combined Heat and Power (CHP) generation project, also known as co-generation, with total investment of RM55 million will supply energy for their own consumption in the form of electricity, heat, and steam for its production. This investment will increase its thermal efficiency by eliminating waste of resources and reducing natural gas consumption, which will indirectly contribute to energy and operations cost savings.

In 2018, a total of 53 EE/EC projects were undertaken by the industrial and commercial sector, with a total of RM139.1 million investments approved. The bulk of investments were contributed by domestic sources, amounting to RM125.6 million of total investments approved, while RM13.5 million was contributed by foreign investors. In total, 111 employment opportunities were created.

Green Services

Green service providers assume an important role in facilitating the uptake of green technology. The Government has further incentivised this area with tax incentives in the form of the Green Investment Tax Allowance (ITA) for the purchase of green technology assets and Income Tax Exemption (ITE) on the use of green technology services. MIDA's MyHijau Directory

lists the green technology assets which qualify for this incentive, available till the end of 2020. Projects which qualify for this incentive are renewable energy, energy efficiency, integrated waste management, green building and green data centres. In addition, eligible service activities include system integration of renewable energy; energy services; services related to green building and green data centres; green certification of products, equipment and building; and green township.



For the year 2018, a total of 14 green services projects with total investments amounting RM150.8 million were approved, mainly dominated by local players with investments of RM126.8 million (84.1%). The other RM24 million (15.9%) investments were chipped in by foreigners. These green services projects would engage about 232 employees. Most of the green services activities approved are solar photovoltaic system integrators, services related to green building, and energy efficiency.

Well Oiled

The prospects are bright for the Malaysian oilfield services sector as it is poised to take advantage of the upswing in confidence in the global oil and gas industry. Investments in the upstream sphere are slowly coming back on track again in Southeast Asia and industry experts report an average capex of US\$17.8 billion per year will be spent on 336 oil and gas fields in Southeast Asia between 2018 and 2020.

Malaysia, strategically located in the heart of ASEAN, at the intersect of east-west shipping lanes, and with established economic relations with its ASEAN neighbours is well positioned to be a hub for the growth of oil and gas services for the region. The oil and gas services sector covers the upstream (oil and gas field services), midstream (transportation and storage), and maintenance of machinery and equipment.



The year 2018 saw a total of ten projects approved with investments of RM930.7 million for the oil and gas manufacturing and services sectors. Foreign investments totalling RM620.8 million contributed the bigger share than domestic investments, amounting to RM309.9 million. These projects generated a total of 231 employment opportunities. From the total, seven were oil and gas manufacturing projects worth RM244.4 million in the machinery and equipment,

petroleum products including petrochemicals, and fabricated metal products industries. Meanwhile, the other three were for the oil and gas services with investments of RM686.3 million. Out of the three, two were new projects dealing with terminal storage and pipe bending and heat treatment, while one was an expansion/diversification project to undertake support services for the upstream sector.

Digitalisation is transforming the oil and gas industry, as local companies have ventured into digitalisation space, for example, Sky Futures, a local oil and gas industry player that has been granted assistance through MIDA's Domestic Investment Strategic Fund (DISF) in 2018 to undertake provision of inspection services through unmanned aerial systems (UAS). This disruptive technology will profoundly improve the operations, safety and cost-effectiveness of businesses.

Another potential oil and gas service area for growth is turnaround services, wherein companies undertake activities such as inspection and testing, de-bottlenecking and revamping, and catalyst regeneration of chemical facilities to ensure a consistent means of production is safely delivered by reliable equipment.

In Malaysia, there are at least 54 petrochemical plants actively operating throughout Sabah, Sarawak and West Malaysia. All of these facilities require statutory inspections and maintenance works from time to time. Meanwhile, the RAPID project will begin its operations post-2020 with an additional 10 petrochemical plants, which will create more demand on this activity.

Digitalisation is transforming the oil and gas industry, as local companies have ventured into the digitalisation space.

MIDA encourages more joint ventures or collaborations between local and foreign players with expertise to enhance local capabilities via knowledge transfer. Therefore, local experts would be able to market their services globally in the long run.

In the past year, MIDA has heightened its efforts in wooing potential investors through various industry conferences, such as actively participating in the World Energy Cities Partnership (WECP), hosted

in Kuala Lumpur last year. Not only was Kuala Lumpur the host, it is the only ASEAN city represented in WECP. This highlights the importance of Kuala Lumpur specifically, and Malaysia at large, in the world's energy industry especially among the cities and countries in the WECP.

MIDA also works closely with the related ministries, GLCs and State Governments to provide the necessary infrastructure to support and facilitate investments in the industry. For example, MITI and MIDA together collaborated with PETRONAS to produce the Oil and Gas Services and Equipment (OGSE) Incentive Booklet. It outlines tax incentives designed to spur growth and activities in selected segments, such as general investments, high technology companies, integrated logistics services, selected industries, small scale companies, reinvestment allowance for manufacturing.

Hospitality (Tourism and Hotels) A much desired destination

Malaysia's popularity as a tourist destination results in the tourism industry being the third largest contributor to the nation's GNI, amounting to over RM80 billion including foreign exchange revenues, which is crucial in narrowing the deficit in the services trade current account.

Malaysia bagged four 2018 PATA Gold Awards in best branding and marketing efforts of positioning the country as a premier tourist destination.

In light of this, the Government, in its the Mid Term Review (MTR) of the 11MP has mapped out strategic action steps in order for this sub-sector to achieve the Malaysia Tourism Transformation Plan's (MTTP) target of 30 million tourist arrivals and RM100 billion in receipts by 2020.

For 2018, Malaysia targets 26.4 million foreign tourist arrivals with tourist receipts of RM84.9 billion over the previous year's 25.9 million tourist arrivals with spending of RM82.1 billion. Domestic tourist spending is slightly less than half (47.5 per cent in 2017) of the foreign visitor receipts.

Malaysia's attractions are multifaceted, with the nation receiving various accolades awarded by international bodies. Malaysia bagged four 2018 PATA Gold Awards in best branding and marketing efforts of positioning the country as a premier tourist destination.

Halal travel, a niche market Malaysia conquers, is reflected by its astounding eighth consecutive year ranking number one in the Mastercard-Crescent Rating Global Muslim Travel Index (GMTI) 2018, which covers 130 destinations.

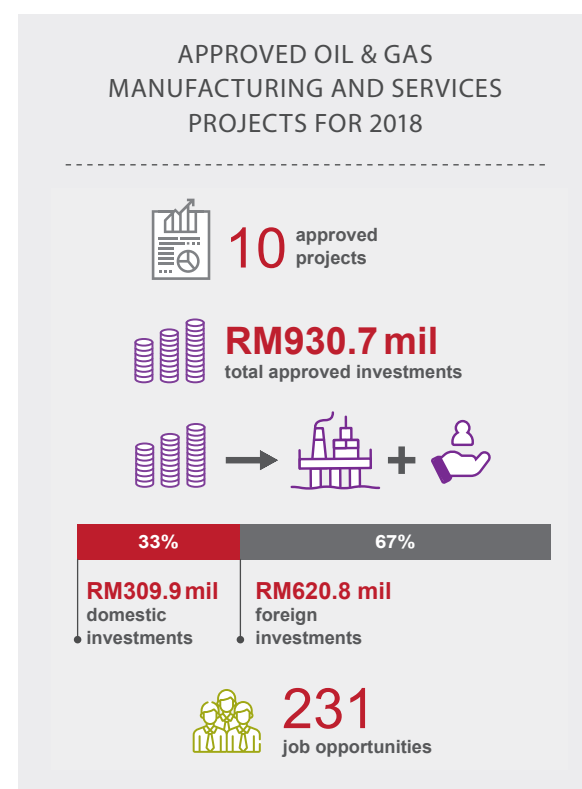
Medical tourism is also a top draw with Malaysia being the winner in several categories in The International Medical Travel Journal (IMTJ) Medical Travel Awards 2018; which recognised the Malaysia Healthcare Travel Council as the Health and Medical Tourism Cluster of the Year, and the International Hospital of the Year being won by Gleneagles Kuala Lumpur, Malaysia.



Eco tourism has been identified as a key segment to be developed, by taking advantage of the nation's natural landscape and virgin rainforests which covers 60 per cent of the country. To boost investor interest, the Government provides tax incentives for tourism projects, including hotels, theme parks, convention centres, recreational parks, and integrated tourism projects.

The National Tourism Policy 2020-2050 which is still in its draft form, mentions the inclusion of accessible tourism, which means becoming a disabled-friendly tourist destination. This move is in line with global trends of equal accessibility for the handicapped.

In 2018, a total of 63 hotel and tourism projects were approved with investments of RM4.6 billion, creating 4,135 employment opportunities. Out of the total hotel projects approved, 15 were from existing players which undertook expansion and refurbishment of their facilities.



Education

Empowering Education

The education services sector in Malaysia covers the gamut from early childcare education up to the level of professional skills training.

As education empowers the people and drives the nation's aspirations of becoming a high-income nation, it is also important that the Government ensures the nation's human resource potential is rightly skilled to face the new challenges of the Fourth Industrial Revolution, smart manufacturing and the pervasive digital economy.

The Eleventh Malaysia Plan aims for a workforce of 1.5 million by 2020, of which 60 per cent is expected to be Technical Vocational Education and Training (TVET) graduates. TVET has been identified as a critical enabler for the success of the Economic Transformation Programme (ETP), with nearly one million jobs requiring vocational certificates or diplomas by 2020.

Private investors and industry players are significant stakeholders in the development of TVET in providing opportunities for education and upskilling. These Industry Lead Bodies (ILB), among them the Malaysia Digital Economy Corporation, Malaysian Plastics Manufacturers Association and the Malaysian Association of Hotels, are determined to ensure Malaysia's TVET is on par with developed nations like Australia and Canada.



Some Malaysian TVET alumni have stepped up and made their mark by winning 11 medals at the World Skills Asia (WSA) Abu Dhabi 2018 (three-gold, three-

silver and five awarded the Medallion for Excellence); in area of welding, car painting, refrigeration and air-conditioning integration. This is testament to the efforts of the Government and the private sector in producing aptly skilled manpower.

One of the initiatives that MIDA has embarked on to address the skills development requirement is the Apprenticeship Programme, which is a collaboration with the Ministry of Education (MOE), Skills Development Department, Ministry of Human Resource (MOHR) and the Federation of Malaysian Manufacturers (FMM).

This industry-led apprenticeship programme ensures that supply matches industry demand, targeting high quality and technologically relevant intensive training. Industry-academia collaboration must be intensified to transform all economic sectors towards knowledge intensive activities in line with Malaysia's vision of becoming a developed nation.

The Eleventh Malaysia Plan aims for a workforce of 1.5 million by 2020, of which 60 per cent is expected to be Technical Vocational Education and Training (TVET) graduates.

Since the liberalisation of the education sector in 2012, Malaysia has provided attractive investment opportunities for private education and is positioning itself as an international education hub. Malaysia is becoming an increasingly popular study destination as shifts in geopolitical trends have led international students to seek alternatives, particularly for those from Muslim countries.

Furthermore, English is widely spoken in Malaysia and fees and living expenses are relatively inexpensive. In 2015, the country targeted hosting 250,000 international students by 2025, and by the end of 2016, the nation saw a total of 172,886 international students enrolled in local institutions.

For 2018, a total of 704 projects, ranging from private schools, elementary education centres, colleges, universities, technical and educational institutions

were approved with total investments of RM1.1 billion. The bulk of approved investments were from domestic investors contributing 60 per cent (RM682.7 million) and the remaining 40 per cent was contributed by foreign investments amounting to RM447.3 million. These projects have created 6,837 high-value jobs for Malaysians.

Healthcare

All is well

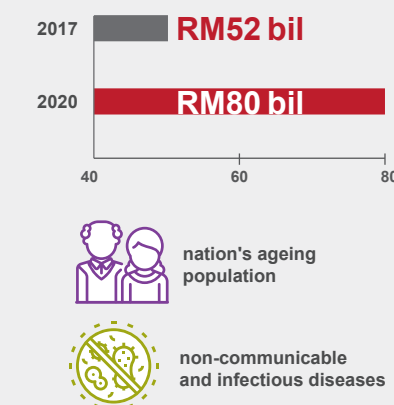
Malaysia has a well-established and progressive healthcare system, a subsidised tax-funded public sector that is available to all citizens, and a private sector wherein patients pay for healthcare. There is an increasing demand for private healthcare services driven by the current robust economic growth, which affects the upward affordability by mostly-urban Malaysians, and the influx of medical tourism patients. Total healthcare expenditure in Malaysia is expected to rise from RM52 billion in 2017 to RM80 billion by the year 2020 due to the nation's ageing population, non-communicable and infectious diseases.



Malaysian private healthcare players are committed to providing high quality healthcare services and continue to expand their services by establishing new hospitals and undertaking expansion, modernisation or refurbishment projects. KPJ Healthcare Bhd, the largest private healthcare services provider in Malaysia increased its capacity in 2018, in the face of expansion by its competitors.

In 2018, a total of eight new private healthcare centres and three expansion projects were approved by MIDA with a total investment of RM2.6 billion. In total it will create 4,374 job opportunities for Malaysians in the healthcare industry.

TOTAL HEALTHCARE EXPENDITURE EXPECTED TO RISE BY 2020



Aside from private domestic healthcare demand, Malaysia is also a popular medical tourism destination. According to the Malaysian Healthcare Travel Council (MHTC) the medical tourism industry is projected to expand on a year-on-year (YoY) growth rate of 30 per cent to reach RM2.8 billion in revenue by 2020. For 2018, this business sector is expected to report a revenue of RM1.4 billion and generate over 1.2 million health travellers to our shores.

The Government has provided many incentives for this sector to make it more regionally competitive, including the exemption of Sales and Services Tax on medical bills and easy e-visa applications. From the standpoint of attracting investors for medical tourism, numerous incentives and tax deductions are offered to support selected hospitals to step-up the internationalisation of services, featuring standards on patient safety, quality care and service.

Malaysia has won many international awards in the area of medical tourism, one of which is the 'Medical Travel Organisation of the Year Award', which the Malaysian Healthcare Travel Council (MHTC) bagged at the 2018 Asia Pacific Healthcare and Medical Tourism Awards for the second year in a row. This is a testimony to the standard of care our private hospitals are capable of providing. At the IMTJ Medical Travel Awards 2018, Malaysia was highly commended as a medical tourism destination, with the winner of this category being the Republic of Korea.

In February 2019, The International Living website ranked Malaysia the best healthcare in the world for the category of International Living Annual Global Retirement Index, supported by 13 hospitals accredited by Joint Commission International (JCI), with every doctor being fluent in English and mostly trained in United Kingdom, USA and Australia.

Digital disruptions are also impacting healthcare services as is evidenced by the signing of a MOU between CREST and the Ministry of Health (MoH) marking a milestone in digital healthcare in Malaysia. The MOU will see the two parties collaborate in research, development and commercialisation (R&D&C), focussing on digital innovation in healthcare delivery and solutions.



The collaboration also extends to joint cluster development activities, industry network engagement, manufacturing alliance, talent development, and the establishment of digital health innovation hubs. CREST was founded in 2012 by a number of industry leaders in the E&E sphere which actively commit their time and resources to R&D projects, funds, expertise and leadership. The future of medical health services lie in digitalisation, with a multitude of IoT and Artificial Intelligence solutions that will be developed for better diagnosis and savings in healthcare costs whilst complementing the National Healthcare Transformation to provide equitable, affordable and accessible high-quality health services to the nation.

A notable development in digital disruptions in the healthcare services is the launch of Stethee, the world's first Artificial Intelligence (AI)-enabled stethoscope system, a made-in-Malaysia medical device for the global market. Stethee is also the first device in the world that evolved from the traditional stethoscope, a device that has not been updated in the last 200 years. This is a result of collaboration by MIDA, MoH, CREST and M3DICINE which was facilitated by the Telemedicine Development Group (TDG).

In 2018, MIDA actively promoted various industry related expos and expert forums such as the Malaysia Medical Expo 2018 (MYMEDEX 2018) and the Healthcare Innovation 4.0 Summit Malaysia where industry players met to foster collaboration and to develop the digital health ecosystem.

MSC Status Companies

MSC status companies are part of the innovative ecosystem of IT and IT-enabled industries that operate in the sphere of creative content technologies, global business services, Institutes of Higher Learning (IHLs) and incubators. They facilitate the development of the national digital transformation. In 2018, a total of 107 companies were awarded MSC status with approved investments of RM1.1 billion, (compared with RM6.2 billion in 2017) where RM729.6 million (68%) were contributed by domestic investors and RM341.9 million (32%) by foreign investments. These companies created some 3,339 high-value jobs.

Real Estate

The real estate sub-sector covers the housing industry (excluding commercial buildings) in Malaysia and has always been the largest contributor to the services sector. In 2018, a total of 968 projects were approved, with investments amounting to RM47.9 billion; of this, the lion's share (94%) came from domestic investors. In comparison, investments approved in the real estate sub-sector in 2017 amounted to RM45.7 billion.

Transport

The transport sub-sector covers maritime transport, aviation, and highway construction and maintenance. In 2018, a total of 11 new projects were approved with investments of RM693.1 million, where RM514.8 million (74.3%) was contributed by domestic investors, and RM178.2 million (25.7%) from foreign investors. In comparison, investments approved in the transport sub-sector in 2017 amounted to RM4.5 billion. All the projects approved in 2018 were contributed by the aviation sector.

Utilities

The utilities sub-sector includes energy and water utilities services. Energy services encompass power generation, transmission, and distribution of electricity by Tenaga Nasional Berhad (TNB), Syarikat SESCO Bhd. (SESCO) and Sabah Electricity Sdn. Bhd. (SESB). Renewable energy sources have been given much attention as the nation moves along towards its sustainable development plans. Water utilities services include those provided by Suruhanjaya Perkhidmatan Air Negara (SPAN) and Pengurusan Aset Air Berhad (PAAB). In 2018 a total of RM9.8 billion investments were approved compared with RM8.5 billion recorded in 2017. The investments in 2018 were driven by domestic sources.

Telecommunications

The telecommunication sub-sector covers network facilities, network services, application services (including content application services), postal and broadcasting. To create and maintain these world-class communication services for Malaysians, a total of RM5.4 billion investments were approved in 2018, all of which came from domestic sources. In comparison, investments approved in the telecommunications sub-sector in 2017 totalled RM9.7 billion.

Financial Services

Banking, insurance and capital markets (fund management, investment advisory, financial planning,



venture capital and brokerage) are components within the financial services sub-sector. Malaysia continued to emerge as a regional and global hub for banking processes, as approved investments in 2018 amounted to RM9.7 billion. Domestic sources contributed RM9.0 billion (92%) while foreign investments totalled RM744.4 million (8%).

The banking segment continued to be the largest contributor to the sub-sector with investments amounting to RM7.4 billion, mainly attributed to conventional banking activities which raked in RM5.2 billion worth of investments. Investments in insurance and capital markets totalled RM2.3 billion and RM12.3 million respectively.

Distributive Trade

Distributive trade encompasses wholesale and retail trade; hypermarkets and supermarkets, department stores and direct selling, franchising, and projects approved under the Petroleum Development Act 1974.

In 2018, a total of 1,263 projects were approved with investments totalling RM7.3 billion. In comparison, investments approved in this sub-sector in 2017 totalled RM9.4 billion. A total of 43,676 employment opportunities will be created by this sub-sector, making it the largest employer within the services sector.

Majority of investments were contributed by foreign sources amounting to RM4.8 billion (66.8%), whereas domestic investments totalled RM2.4 billion (33.2%).

The Road to Renewable Energy

The focus of green growth strategies ensures that natural assets can deliver their full economic potential on a sustainable basis. An added environmental benefit of increasing the adoption of renewable energy resources is the reduction of the amount of carbon dioxide gas present in the atmosphere which fossil fuels emit. Green technology (GT) has been identified as a driver of the future economy for Malaysia to balance the need for economic growth and its accompanying environmental pressure.

The Sustainable Energy Development Authority (SEDA) plays a key role to administer and manage the implementation of the Feed-in Tariff (FiT) mechanism which is mandated under the Renewable Energy Act 2011 [Act 725]. The renewable resources included in the FiT policy is biogas, biomass, small hydropower, and to date, the solar PV installations contribute the majority of 63.5 per cent of the total Renewable Energy (RE) power producing capacity. Solar power is a promising renewable energy source due to the relative ease of installation of solar panels and the abundant sunshine in Malaysia.

To ensure the continuous growth of the RE sector, the Government has initiated the Renewable Energy Transition Roadmap 2050 in 2018. This will enhance the development of the RE sector in Malaysia through the Renewable Energy Outlook 2025 that outlines the strategic thrusts and initiatives to achieve the RE mix goals. The Government aims to increase the portion of renewable energy in the country's total energy mix (installed capacity) from the current two per cent to 20 per cent in 2020, and 30 per cent by 2030.

The existing Net Energy Metering (NEM) mechanism has been reviewed and improved upon to increase its take up rate. The new NEM mechanism will offset surplus energy on a one-to-one (1:1) basis where every 1kWh exported to the grid will be offset against 1kWh consumed from the grid, instead of the controversial displaced cost calculations. In this new scheme, the end user will enjoy more lucrative returns on exporting excess energy to the grid, while playing an active role in mitigating climate change.

The following table shows the total RE capacities (in MW) granted with Feed-in Approvals under the FiT mechanism and which achieved the FiT Commencement Date.

INSTALLED CAPACITY (MW) OF COMMISSIONED RE INSTALLATIONS

Year	Biogas	Biogas (Landfill / Agri Waste)	Biomass	Biomass (Solid waste)	Small Hydro	Solar PV	Geothermal	Total
2012	2.00	3.16	36.90	8.90	11.70	31.54	0.00	94.20
2013	3.38	3.20	0.00	0.00	0.00	106.88	0.00	113.46
2014	1.10	0.00	12.50	0.00	0.00	61.87	0.00	75.47
2015	0.00	5.40	12.00	7.00	6.60	60.34	0.00	91.34
2016	0.00	15.46	19.50	0.00	12.00	77.84	0.00	124.80
2017	0.00	22.54	0.00	0.00	0.00	38.13	0.00	60.67
2018	0.00	7.51	0.00	5.85	20.00	1.95	0.00	35.31
Cumulative	6.48	57.27	80.90	21.75	50.30	378.55	0.00	595.25

Source: www.seda.gov.my

Net Energy Metering (NEM)

NEM is a billing system that credits small customers at the full retail electric price for any excess electricity they generate and sell to their local electric company via the grid from on-site small sources such as residential rooftop solar arrays. This scheme is applicable to all domestic, commercial, industrial and agricultural sectors as long as they are the customers of Tenaga Nasional Berhad (TNB) or Sabah Electricity Sdn. Bhd. (SESB). The solar PV systems can be installed at available rooftops or car porches within their own premises. The NEM scheme is ideally suitable to complement the Large Scale Solar schemes in achieving the 20% national RE target in electricity power mix, reducing the dependency on imported fossil fuels.

Another new development in promoting the adoption of NEM is the concept of "Solar Leasing". This programme, designed to benefit all stakeholders, is called the Supply Agreement for Renewable Energy (SARE). The concept of SARE uses the Levelised Cost of Energy (LCOE) principle, which calculates the costs of producing energy over the lifetime of a power generating asset, in this case the solar PV installation, divided by the total energy output (kWh) of the asset over that lifetime. End users can enjoy zero upfront costs of installing the PV panels as well hedging future electricity bills making this proposition very attractive. Third party investors may also be interested to be a part of this supply chain, opening up more business opportunities for green tech service providers.

To date, the Government has implemented two Large Scale Solar Photovoltaic (LSSPV) project cycles with an installed capacity of 958MW. The next biggest boost for the RE sector in Malaysia is the upcoming third cycle whereby the Government, under the purview of the Energy Commission will undertake an open tender in 2019 for an estimated RM2 billion worth of projects which will have a total electricity generation capacity of 500 megawatts (MW).

In pushing towards the target of 20 per cent of RE in the power mix by 2025, the Government has allocated RM2 billion in addition to the Green Technology Financing Scheme (GTFS) to selected commercial banks to subsidise interest costs by two per cent for the first five years for eligible investments in green technology. The Government will also expand the list of green assets which qualify for Green Technology Investment Tax Allowance (GITA) from the existing nine assets in MIDA's MyHijau directory.

MIDA continues to do its part to promote and facilitate further investments in Green Technology Services. In 2018 alone, MIDA has conducted more than 50 programmes locally and abroad. Renewable Energy and Energy Efficiency remain the major focal point of the country's sustainability goals and will in all likelihood, be here to stay.

2.5

PERFORMANCE OF THE PRIMARY SECTOR

A Brief Overview of the Primary Sector

A glance at how the three sub-sectors of agriculture, mining, and plantations and commodities fared in 2018



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Overview

The primary sector comprises three major sub-sectors namely agriculture; mining; and plantation and commodities. A total of 63 projects were approved in 2018 with investments standing at RM10.9 billion, as compared to RM12.4 billion in 2017. Of these, RM6.0 billion (55%) was derived from foreign investments, while domestic investments contributed RM4.9 billion (45%). These investments are expected to provide 1,648 jobs opportunities for the sector, 77 per cent more than in 2017 (930 jobs).

Performance of the Primary Sub-sectors

Agriculture

In 2018, a total of 14 projects were approved with total investments of RM68.8 million, all of which were domestic investments. These projects are expected to create 287 employment opportunities.

Mining

Investments in the mining sub-sector comprise oil and gas exploration and mining in other minerals. In 2018, a total of 26 projects were approved with investments of RM10.2 billion. This sub-sector contributed a whopping 93.6 per cent to the total investments in the primary sector. The split between foreign and domestic investments were as follows; foreign investments amounted to RM6.0 billion (58.8%), while domestic investments totalled RM4.2 billion (41.2%). This sub-sector is expected to create a total of 59 potential jobs for Malaysia.

Plantation and Commodities

In 2018, investments valued at RM601.8 million were approved in the plantation and commodities sub-sector and all of these approvals came from domestic investments. These projects are expected to generate 1,302 employment opportunities.

3 Collaboration

Towards attracting quality investments

To meet the national investments agenda, MIDA has been tasked with enhancing coordination and cohesion among various agencies in the country on matters related to investment promotion

– MIDA



3.1 OTHER INVESTMENT AGENCIES



Collaborative Research in Engineering, Science and Technology (CREST)

Research and Development

The CREST R&D grant programme continues to support industry-academia research collaboration, with an increased focus on key clusters and technology domain areas as identified by the industries. In 2018, a total of 12 new projects were approved, bringing the total to 134 R&D projects under the CREST R&D grant portfolio. The portfolio value currently stands at RM151 million, with industry and academia continuing to contribute more than 60 per cent of total project costs. These R&D projects involve 82 companies and 25 universities in close collaboration. Such collaboration continues to spark fresh ideas and innovations leading to new product creation, while at the same time nurturing and growing a pool of sustainable industry-relevant talents, expertise, and workforce in the E&E sector. A total of 94 postgraduates (at both the masters and doctorate levels) have completed their research projects, with many having landed jobs at companies of their choice. Others have continued with their academic careers to further leverage their industry-relevant training from these projects.

Throughout 2018, CREST assisted 14 projects to completion, totalling 55 projects in all to date. Several of the recently-completed projects are also actively being commercialised by companies. One such project is an assessment and rehabilitation device that assists stroke patients recover their motor skills. This device has been used by the National Stroke Association of Malaysia to minimise the time spent by physiotherapists. The device has also been sold to rehabilitation centres and hospitals in China and India.

The 'Reveal and Discover' session series continues to encourage spreading research knowledge between industry and academia, in an effort to promote further collaboration and expand the benefit to a larger group. CREST has sponsored selected researchers to share and showcase their

findings in various international events such as the 2nd International events on Imaging, Signal Processing and Communication, ESTCON: ICIAS 2018 International Conference on Intelligent and Advanced System, and the 38th International Electronics Manufacturing Technology Conference.

The number of targeted R&D projects has increased substantially. These projects aim to develop novel solutions and create intellectual property that can be leveraged by the ecosystem. The first batch of projects, especially those focussed on healthcare and the life sciences, is targeted to finish in 2019. This is set to contribute to digital healthcare implementation and lower overall healthcare costs. Other targeted R&D projects that are expected to bear fruit in the near future include LED applications in agriculture, packaging, drone services, and big data analytics.

One such project is an assessment and rehabilitation device that assists stroke patients in recovering their motor skills. This device has been used by the National Stroke Association of Malaysia to minimise the time spent by physiotherapists. The device has also been sold to rehabilitation centres and hospitals in China and India.

Talent Development 2018

CREST's Talent Development department continues to excel in its goals to nurture the local youths of today. In 2018, its series of bootcamps and other programmes have benefitted more than 800 students from both postgraduate and undergraduate level from over 34 universities. These students participated in the Industry-Relevant Graduate programme, comprising the Johor Impact Challenge, The Great Lab Summer Workshop, the Semiconductor and Optoelectronic Cluster Bootcamp, and the Medical Devices Cluster Bootcamp. Organisers of 'hackathons' such as i-UM Disrupt and IIUM Varsity Industrial Engineering Challenge have also partnered with CREST.

CREST's 2018 Youth Industry Bootcamps empower students to become confident creators who can design, collaborate on projects and have fun in the process. Spread across three regions, a total of 420 students from 57 high schools all over West Malaysia were provided industry exposure over the four-day bootcamps and trained to develop the ability to think logically, be inventive and technology-savvy, and solve problems creatively and innovatively.

CREST is in its sixth-year collaboration with UiTM Shah Alam, delivering blended learning and industry lecture modules for 149 final-year electrical engineering students in 2018. Local universities such as UniMAP and UiTM Shah Alam have also collaborated with CREST throughout 2018 to host and co-organise Mini TGL Workshops involving 184 students presenting their designs and final-year projects. Additionally, around 60 students were involved in the Semiconductor and Optoelectronics lab visit and training with research university partners such as University of Malaya (UM) and Universiti Sains Malaysia (USM).

spread of knowledge vis-à-vis frontend LED processes – in particular, epitaxial growth in Malaysia. Through the GaN-on-GaN research programme, CREST has been bringing together Malaysian academic institutions such as UM, USM, UniMAP, and Monash University Malaysia to conduct research in collaboration with the University of California Santa Barbara (UCSB). Since 2015, numerous scientific exchanges and extended visits between both Malaysian and UCSB campuses have taken place. Over the past three years, the programme has completed the setup of two world-class epitaxial growth labs in UM and USM, and produced 70 researchers and engineers to work on GaN and advanced LED fabrication techniques.

GaN materials are being applied to several other large emerging business areas. Beyond SSL, the next big growth engine is the usage of GaN materials to power electronics, wireless communications, micro-LED displays, UV LEDs, and laser lighting.



2018 The Great Lab (TGL) Summer Workshop

Photo source: <http://www.crest.my/thegreatlab/>

Seeing out 2018 was The Great Lab Carnival, as the track winners from all of CREST's 2018 bootcamps – from both secondary schools and universities – competed for the ultimate grand prize in The Great Lab Grand Design Challenge.

Industry Development

Optoelectronics/Light Emitted Diode (LED)/Solid-State Lighting (SSL) Cluster

The Gallium Nitride on Gallium Nitride (GaN-on-GaN) programme funded through CREST has entered its fourth year. The programme focusses on accelerating the

The power electronics market is predicted to be the next largest market after SSL and is valued at RM240 billion annually. Products in this market use GaN materials to produce inverters and AC/DC converters for electric vehicles and power supplies.

Additionally, micro-LED displays are likely candidates for next-generation displays, surpassing current LCD and OLED technologies in nearly every performance category. They offer increased lifetimes, reduced power consumption, increased

brightness, wider color gamut and higher pixel densities, among others. Some German car makers are already using GaN-based blue-laser diodes in their latest laser-based automotive headlights. GaN semiconductors have seen remarkable progress and commercialisation over the last 15 years, with GaN epitaxy proven to be the key material to manufacture these advanced solid-state devices.

CREST's programme has played a leading role in bringing this technology to the attention of Malaysia's academia and industry players. With new application areas emerging, Malaysian industry players now have the opportunity to introduce their own GaN technologies into the marketplace.

Industry 4.0

CREST and Akademi Sains Malaysia (ASM) have collaborated to define a national framework for AI/ML. This is a mutually-beneficial arrangement, given CREST's proven model for collaboration between industry and academia, as well as ASM's deep expertise on AI/ML. The partnership enables a fruitful and strategic collaboration, especially in the areas of digital healthcare, digital manufacturing, precision agriculture, and sustainable living.

Following this, a technical workshop to understand, enable, and strategise AI/ML in the Malaysian context was held in May 2018 at SAINS@USM.

In June 2018, CREST organised a meet up session between Minister of International Trade and Industry, YB Datuk Darell Leiking, and industry leaders at UM's Center of Innovation and Commercialisation. Local industry captains exchanged their opinions regarding Malaysia's path towards industry 4.0 with the Minister. They also shared their experiences in managing these transformations and provided advice on the way forward to keep Malaysia competitive.

CREST has also participated in the development and structuring of plans and programmes for Industry4WRD, Malaysia's national Industry 4.0 policy.

To this end, CREST has been appointed as one of the four bodies to perform assessments on Malaysian manufacturing and manufacturing-related companies' Industry 4.0 readiness moving forward, especially for 2019.

Internet of Things (IoT) Clusters

Through industry engagement initiatives in 2014, five key market verticals have been identified in IoT. This includes digital healthcare, precision farming, future transportation, digital manufacturing, and smart sustainable living.

Digital Healthcare

Currently, cluster development programmes for digital healthcare and smart sustainable living have more than 50 companies and universities actively participating and moving towards creating solutions and products.



CREST has nurtured 12 R&D projects in healthcare involving 10 companies, 12 universities, and several public and private hospitals to date. Among the 12 projects are wearable ECG patches, a DNA Multi Biosensor test kit to detect Salmonella and E-Coli, and a portable reconfigurable robot with rehabilitation capabilities.

CREST has signed a MOU with the MOH on 12th October 2018 to revolutionise digital healthcare in Malaysia. Under the MoU, both parties have committed to collaborate in the areas of digital innovation in healthcare delivery and solutions, joint cluster development, industry network engagement, manufacturing alliances, talent development, and digital health innovation hub creation.

2018 is also the year where CREST actively collaborated with various stakeholders to explore new R&D&C opportunities and drive big data projects to enhance clinical care and patient experiences. One such opportunity is to create,

access and aggregate nationwide healthcare data and algorithms, so that end-users can predict the evolution of diseases based on previous medical and hospitalisation records.

Smart City Cluster

The smart city or smart sustainable living (SSL) framework aims to develop an engaging and sustainable living environment through the use of IoT. CREST had initiated conversations to propose itself as a strategic partner to Penang's state Local Government Division and Smart Delivery Unit. Its key role would be to facilitate industry partners and academic researchers in prototyping, testing, and demonstrating smart city solutions. Engagements with the relevant stakeholders will be a continual practice to create an engaging and sustainable IoT ecosystem of the various smart city applications.

CREST co-hosted the Industry-University Challenge 2018 together with INTEL themed 'Smart city in addressing the challenges faced by the people through innovation utilising Internet of Things'. The challenge focussed on three tracks, covering the transportation network, public safety and security and environment monitoring.

Winners were offered the CREST's Undergraduate Research Project to further nurture their final year projects as well as make them industry ready. In addition, they were given opportunities to create solutions that can be feasibly and practically prototyped.

CREST Place – Entrepreneur Development Centre

2018 marks the incubator's fourth year of operations. This fully-subscribed 10,000-square-foot facility has now hosted over 25 companies. A few of these companies are now pursuing various opportunities beyond their core customers.

In summary, 2018 has been a good year for CREST, as it was able to showcase that Malaysia is more than a manufacturing hub; it is also a place where R&D collaborations between industry and academia take place to produce great results.



Halal Industry
Development Corporation

Halal Industry Development Corporation

Malaysia has put a comprehensive halal ecosystem in place to support the growth of an integrated halal supply chain. These include the halal parks throughout the country that provide dedicated areas for halal manufacturing activities and related services.

These dedicated parks uphold halal integrity, where halal principles are strictly observed and enforced by all parties. Investors seeking for an ideal investment location for halal-related activities may avail themselves to any of their preferred sites within these parks.

The availability of these halal industrial parks augurs well for investors as an alternative to existing industrial parks. These dedicated parks uphold halal integrity, where halal principles are strictly observed and enforced by all parties. Investors seeking for an ideal investment location for halal-related activities may avail themselves to any of their preferred sites within these parks.

There are currently 22 Halal Parks, of which 14 have been awarded HALMAS status. The HALMAS status is awarded to halal park operators who are compliant with requirements as specified in the HDC Designated Halal Park Development Guidelines. Only halal park operators, halal logistic operators and industry players with operations located within HALMAS parks are eligible to apply for tax incentives for the halal industry.

As at 30 June 2018, HALMAS designated halal parks have attracted investments worth RM13.3 billion, an increment of 2.9 per cent from the previous year (June 2017: RM12.9 billion). This investment has created 12,766 job opportunities in Malaysia. These included investments in halal food and other industries, such as pharmaceutical, cosmetic products, and logistics services.

Various efforts and initiatives will be undertaken in 2019 to make Malaysia the preferred investment location for halal products and related services. Initiatives to attract FDI and DDI will include organising the World Halal Conference, a global halal intellectual discourse and thought leadership conference, as well as HALFEST, a mega expo platform to promote halal products and services; participating in investment and trade missions organised by MIDA and MATRADE; and partaking in halal-related exhibitions such as MIHAS and other international exhibitions.

The halal industry welcomes investments in projects that use state-of-the-art machinery or technology, and the production of high-value-added halal products. These can effectively and profitably be combined with the availability of halal-sourced raw materials and halal-dedicated infrastructure already existing in Malaysia, so that investors can gainfully prosper and secure a foothold in the lucrative global halal market.



InvestKL Corporation

A Government agency under MITI, InvestKL is tasked to attract large global MNCs to establish their regional headquarters or hubs in Greater Kuala Lumpur.

The agency continues to be able to attract high-value and high-skilled investments, due to Greater KL's strategic location in the heart of ASEAN, the Government's pro-business policies, excellent infrastructure and connectivity, competitive costs, a robust legal and financial framework, plus highly-skilled talent.

In 2018, InvestKL brought in 12 MNCs, with committed and approved investments of RM2.3 billion and offering job opportunities for 1,339 people.

The realised amount spent in Malaysia by all MNCs in 2018 totalled RM6.4 billion, with 7,659 new jobs. In terms of regional breakdown, 51 per cent of the investments came from Europe, 26 per cent from the Americas, 22 per cent from Asia, and one per cent from Africa.

The MNCs brought in this year are leaders in their respective industries and include big-brand names such as Orange from France (Center of Excellence For Digital Transformation), EY from the UK (APAC Tax and Technology Transformation), PersolKelly from Japan (Asia Pacific Headquarter & Centre of Competence), Bertling from Germany (Asia Pacific Centre of Chemical Logistics) and Pickles from Australia (Regional Centre of Excellence and for Data & Information and Software Development), among others.

MNCs in Greater KL set up their regional businesses to move up the global value chain, and have a positive effect on the local ecosystem through the creation of high-value jobs, development of local workforce skillsets, and increased economic activity.

As the MNCs interact with the local value and supply chains, skills and knowledge transfer will help strengthen the competitiveness of the local business ecosystems. Local businesses such as service providers, real estate agents, hotels, international schools, retail services, and other businesses including SMEs will see better trade volume.

Industry4WRD, Malaysia's national Industry 4.0 policy, will enhance Greater KL and Malaysia's reputation as a prime destination for high-technology industries and total solution providers for tech-related services in this region. By targeting MNCs in these high-value sectors, InvestKL will play a pivotal role in supporting the country's desire to build an innovation-led economy based on Industry 4.0 initiatives.

InvestKL will continue to forge ahead with confidence in developing a more targeted approach and strategy. With Malaysia's participation in regional economic groupings like the ASEAN Economic Community (AEC) and the Regional Comprehensive Economic Partnership (RCEP) as well as China's focus in ASEAN, InvestKL will continue to capitalise on this interest in Malaysia as an investment location by targeting MNCs from the USA, Europe, and China, and convincing them to set up their bases for regional activities in Greater KL.



TalentCorp

TalentCorp is the national agency that drives Malaysia towards becoming a dynamic talent hub. It engages with both the public and private sectors through market-driven initiatives and policy interventions focussed on building Malaysia's talent pipeline, mobilising and connecting talent to opportunities, and diversifying Malaysia's talent pool. Over the years, it has engaged close to 17,000 companies across 18 sectors and seven regions in industry partnerships.

In 2018, TalentCorp came under the Ministry of Human Resources (MOHR). It continued to drive the 'future of work' agenda by collaborating with employers and empowering talent to create a locally-relevant, globally-competitive, and future-ready Malaysian workforce.

In 2018, occupations highlighted in the Critical Occupations List (COL) include the positions of data scientist, automation engineer, robotic engineer, data visualisation developer, mathematician, statistician, and computer network and systems technician.

Empowering Malaysian Professionals

TalentCorp co-developed the Critical Occupations List (COL) together with the Institute of Labour Market Information and Analysis (ILMIA), which also come under MOHR. COL 2017/2018 under the World Bank's guidance features 58 critical jobs from 18 key sectors. Since its inception in 2015, the COL has consistently highlighted Science, Technology, Engineering and Mathematics (STEM) related jobs as critical in readying the nation for the 'future of work'.

In 2018, occupations highlighted in the COL include the positions of data scientist, automation engineer, robotic engineer, data visualisation developer, mathematician, statistician, and computer network and systems technician.

TalentCorp also worked with InvestKL and the Ministry of Higher Education (MOHE) to launch the Malaysia Global Talent (MGT) programme, which aims to nurture 5,500 global Malaysian leaders by 2022. It signed 12 MOUs and worked with 15 institutions and 46 MNCs to select, mentor and nurture Malaysia's most promising talents. This year, MGT placed 936 people through apprenticeships. The programme also mentored 108 young executives and 142 senior executives.

TalentCorp continues to encourage Malaysians abroad to bring their expertise home through the Returning Expert Programme (REP). In 2018, it held engagement sessions with professionals and students in the PRC, India, and the UK. During these

sessions, it introduced the KNOWMADS network of global Malaysians abroad, gained insights from the Malaysian diaspora, and shared post-GE14 national developments.

As of November 2018, a total of 4,978 experienced Malaysian professionals who were working abroad in key sectors including Oil, Gas and Energy, Financial Services, Business Services, Communications Content and Infrastructure, and E&E were approved under the REP. There was a 20 per cent increase in interest in REP applications, reflecting renewed interest in Malaysia as a dynamic talent hub in the Malaysia Baru era.

To help facilitate the return of women to the workforce, TalentCorp connects women talent to employers via the Career Comeback Programme (CCP). Since 2015, the CCP has helped over 700 women find career opportunities in a range of sectors and with over 100 employers.

In 2018, close to 100 women participated in CCP workshops. Over 50 women attended the Mini Career Comeback Fair Recruiters' Edition on 1 August 2018.

Future-proofing Malaysia's Workforce

TalentCorp's Nurturing Expert Talent (NEXT), the national talent analytics platform, continues to acquire and analyse data on the quality and ability of the Malaysian workforce to meet the demands of the ever-changing marketplace. NEXT forms vital links between education, employers, and employability, and offers insights to help workers identify their strengths, passion, and career choices most suited to their skill sets and prepare them for the Future of Work.

Through NEXT, TalentCorp worked with MOHR and the Labour Department to develop Technical and Vocational Education and Training (TVET) talent and improve graduate employability.

In order to create the right ecosystem of talent supply and skill levels for Industry 4.0, the Structured Internship Programme (SIP)'s scope was widened to include diploma and Malaysian Skills Certificate Level 3 qualifications. The Ministry of Finance (MOF) also agreed to provide double tax deduction for SIP in the fields of engineering and technology. With MIDA's help, MOHR and TalentCorp prepared guidelines on how to apply for the tax incentives for submission to MOF.

Through the LIFE AT WORK 2018 Awards, TalentCorp continues to celebrate employers who champion workplace diversity and inclusiveness by implementing advanced workplace strategies. In 2018, there were 86 company submissions. The top winner was the Employees Provident Fund, which won three categories: Best Public Sector Organisation, CEO Champion: Public Sector and Outstanding Practice: Workplace.

Talent Mobility

To prepare Malaysia's talent pipeline for the current and future demands of a competitive workforce, TalentCorp collaborates with MITI to offer ASEAN students regional internships with top employers in various ASEAN countries via MyASEAN Internship. As of 20 December 2018, a total of 14 students were placed with leading Malaysian companies and MNCs such as Axiata, Top Glove, and BDO. TalentCorp and MITI also collaborated on MyAPEC YouthConnect, providing youth with 4-12 months work placements at leading companies with a presence in Asia Pacific. As of 20 December, over 45 placements have been made with nine employers, including Deloitte, EY, Dongwha, Air Asia and Intel.

Tapping into Global Expertise

Foreign talent with the right professional skills contribute to help Malaysian industries move up the value chain, particularly in more knowledge-intensive areas. In 2018, a total of 995 expatriates were approved under the Residence-Pass Talent (RP-T), a 10-year renewable pass for highly-qualified expatriates to continue to reside and work in Malaysia. As of 30 November, the Malaysia Expatriate Talent Service Centre (MYXpats Centre) processed and approved more than 97 per cent of Employment Pass (EP) applications within the five-day client charter. This is more than the target KPI of 90 per cent.

To help facilitate the return of women to the workforce, TalentCorp connects women talent to employers via the Career Comeback Programme (CCP). Since 2015, the CCP has helped over 700 women find career opportunities in a range of sectors and with over 100 employers.



Malaysia Digital Economy Corporation (MDEC)

As an agency under the Ministry of Communications and Multimedia, MDEC has been mandated to champion the nation's digital economy, establishing Malaysia as the gateway to ASEAN for investments and high-growth start-ups.

MSC Malaysia continues to establish a strong ICT base to spur the nations' economy, with investments totalling RM26.7 billion as of Q3 2018 from 3,018 active MSC companies. Domestic investments accounted for 43 per cent of total investments, or RM11.6 billion, while foreign investments made up the remaining RM15.1 billion (57%). As at Q3 2018, these investments resulted in a total of 178,341 jobs.

The national e-commerce sector's gross value-add grew by 14.3 per cent to RM85.8 billion in 2017, with e-commerce in non-ICT industries being the main contributor at RM68.9 billion.

This growth was the result of MDEC's and MITI's joint efforts to strengthen the e-commerce industry, including the launch of the National eCommerce Strategic Roadmap and the Digital Free Trade Zone (DFTZ), which went live in November 2017. The DFTZ enabled local SMEs to more easily export their goods and services via e-commerce. All these interventions aim to have Malaysia double e-commerce growth by 2020, with a 20.8 per cent CAGR. To date, more than 5,000 Malaysian SMEs from across the country and various sectors of the economy have participated in the DFTZ.

Digital inclusivity continues to gain momentum. Where 2016 saw both eRezeki and eUsahawan accelerating their digital efforts; this year has seen even greater momentum for these two inter-related initiatives. Some participants have moved into becoming full-time freelancers, while there are now more part-timers handling more jobs than in previous years.

After MDEC launched the two programmes in 2015, it has continued with its digital campaign to reach youth, SMEs, digital entrepreneurs, and the Bottom 40. MDEC has enabled the training of 450,000 participants under these programmes.

In September 2018, the United Nations Capital Development Fund (UNCDF), Bank Negara Malaysia (BNM), and MDEC launched the Digital Finance Innovation Hub to drive the financial inclusion of middle and low-income people in Malaysia and Southeast Asia. This new digital inclusivity move builds on Malaysia's track record of achieving one of the highest levels of financial inclusion in the world, ranking third in ASEAN.

MDEC has been promoting the Malaysia Digital Hubs initiative to build a platform for digital entrepreneurs and start-ups. Since its introduction, the number of certified Digital Hubs has increased to seven; namely, The CO., APW, Common Ground, WORQ, Sunway iLabs, SDCC and DOJO KL. All offer high-impact development support and deep ecosystem growth for start-ups, scale-ups, and entrepreneurs of various sizes.



MDEC launched a FinTech space called Orbit in June 2018. Its aim is to help create, structure, and bridge FinTech ecosystems regionally. Powered by MDEC with the support of BNM and the Securities Commission, it will provide companies with FinTech-relevant experience, by exposing the community to some of the leading start-ups and strategies disrupting the financial services, while driving industry development, Islamic finance, and financial inclusion.

To further drive Malaysia's capacity development of SMEs, brands, and micro entrepreneurs, Commerce. Asia signed a partnership agreement with Silicon Valley-based growth accelerator GrowthX to launch a market acceleration and 'Growth Academy' training programme to prepare Malaysian local entrepreneurs and companies for expansion into the global market. This includes taking advantage of the DFTZ, strengthening Malaysia's position as a growing Southeast Asia e-commerce hub.

To help SMEs overcome their challenges in regional and global expansion, MDEC introduced the Global Acceleration and Innovation Network (GAIN) programme in 2015. Its objective was to catalyse the expansion of local technology SMEs and help them realise their potential to become global players. Since its establishment, GAIN has assisted 150 companies in their quest to grow their reach and expand their capabilities. By participating, the companies have successfully increased their overall revenue as well as export revenue. In the 2015-2017 period, the average total revenue earned by local MSC companies increased 16 per cent, while the total revenue of companies in the GAIN programme grew 170 per cent. In terms of export revenue in the same period, the average local tech companies grew 27 per cent, whereas the GAIN companies grew 47 per cent. This percentage is set to increase significantly in 2019, as MDEC is focussing on increasing market access into more countries.

To address digital adoption concerns in broader sectors such as manufacturing, the Digital Transformation Acceleration Programme (DTAP) was launched in 2018. This is a strategic partnership initiative between MIDA and MDEC in spearheading the nation's digital agenda. DTAP will provide Malaysian companies global experts via its Digital Transformation Lab Partners, and a structured approach to embark on digital transformation. Upon successful completion of the pilot phase between six months to one year, businesses can opt for full-scale implementation.

The Lab Partners include Deloitte; Digital/McKinsey; Rainmaking; Roland Berger; and Bosch. Since the launch, MDEC and its Lab Partners have also worked together to create awareness and reach out to traditional companies. More than 200 companies from various sectors such as manufacturing, logistics, property, and construction have benefitted from the experiential learning and masterclasses in digital transformation and Industry 4.0.

As an additional measure to attract world-class 'hot' start-ups and ecosystem players, Malaysia also introduced a new pass called the Malaysia Tech Entrepreneur Programme (MTEP) to accelerate entry of global entrepreneurs into Malaysia. This adds to the thriving digital ecosystem, replete with cultural diversity, talent, and innovation hubs.

Another area of talent development, which has seen continued momentum in 2018, is the industry-academia collaboration initiated by MDEC with the Ministry of Education to establish cybersecurity upskilling and training centres. This is driven by various public-private partnerships, such as an integrated cybersecurity talent zone at Asia Pacific University of Technology and Innovation (APU), and Tecforte (MSC) in October 2018 with the Security Operations Centre (SOC). This was preceded by similar moves earlier in the year, which included the establishment of a cybersecurity capacity building programme called the Asia Cybersecurity Exchange (Asia CyberX), organised by LGMS and the ACE Group, and supported by MDEC.

MDEC continues to champion the digital content and creative tech industry focussed on animation, visual effects, and games development. As an industry, total revenues have reached RM7.9 billion, while exports are valued at RM1.4 Billion and have grown by 35 per cent (2013-2017), making it among the fastest export growth industries in the digital economy.

Local IPs are driving this charge with exciting titles such as Re:Legend, Batik Girl, No Straight Roads, and dozens more going to broadcast, signing publishers, or getting acknowledged at international awards and festivals. This is aided by MDEC industry platforms such as Level Up KL and Kre8tif, which support the games and animation industry respectively. Both these platforms saw key figures such as total delegates, number of business meetings, and number of exhibitors rise between 35 per cent to over 100 per cent, signalling Malaysia's increasing role in the regional digital content and creative tech industry.

Key strategic partnerships were made in 2018, including between established local animation companies Monsta and Animasia with Takara Tomy and theme-park operations in Johor respectively. The creative tech ecosystem was further enriched with the arrival of strong international and award-winning industry players such as OLM and BaseFX to Malaysia.

The Malaysian games development industry in particular showed massive inroads in 2018. With strong performances from the Malaysian game development industry, Malaysia is ranked 21st in global game revenue estimates for 2018 at US\$654 million. Malaysian-based game studios provide services ranging from game development, art, engineering, testing, original IP development, and more. A key part of the games industry is e-sports.

According to market research firms such as Newzoo and Niko Partners, e-sports is an important driver in the growth of the global games market. Malaysia is no exception, with over 1.3 million e-sports enthusiasts. Southeast Asia, the fastest-growing e-sports market in the world, has more than 11.2 million e-sports enthusiasts, driving PC and mobile game revenue in the region from US\$4.4 billion in 2018 to US\$7.5 billion in 2022. MDEC looks forward to continue growing the games industry through e-sports ecosystem development through 2019 and beyond.

In 2017, the digital economy contributed RM247.1 billion to the economy, equivalent to 18.3 per cent

of GDP, as reported by The Department of Statistics Malaysia. The 10.3 per cent year-on-year growth of the digital economy's GDP has outpaced the overall national GDP growth. This is on track to achieve the digital economy's target of contributing 20 per cent to GDP by 2020, and is one of the country's fastest-growing economic sectors. The digital transformation impact on the economy is expected to significantly increase by RM400 billion by the year 2025.

To empower the digital economy and the socio-economy as well as various other initiatives, MDEC uses four specific, critical focus pillars – driving investments, building local tech champions, catalysing the digital innovation ecosystems, and propagating digital inclusivity.

The top challenges in digital readiness of Malaysian key industries requires a structured approach, with appropriately prioritised budget, growing the digitally-skilled workforce, and guiding business leaders through digital transformation essentials.

Moving ahead, MDEC strives to seize those opportunities that will accelerate the growth of Malaysia as a regional digital innovation powerhouse. With continued strong support from the Government, it aims to achieve its goals of future-proofing the economy by building a strong digital innovation ecosystem as technology changes the rules of business as well as strengthening Malaysia's proposition as a 'Break Out Nation' in ASEAN and beyond.



4 Going Forward

We encourage companies to invest in talent and technology to improve productivity and their capabilities to become future-proof. We also place great importance in engaging investors, particularly large multinational companies, as they come with technology and processes required for our industries to grow and diversify

- Dato' Azman Mahmud, CEO of MIDA
(NST, 30 January 2019)



Staying optimistic

Following the trend set by recent years, projected global economic expansion and growth is expected to slow, with economists signalling possible recession as growth projections ease down from 3.7 per cent in 2018 to 3.5 per cent in 2019 and 2020 (based on a prediction published by the Organisation for Economic Cooperation and Development OECD's Economic Outlook 2018 calculated based on the PPP – purchasing power parity of nations). This is largely representative of a global trend towards protectionist policies, tightening monetary policies in developed economies, and geopolitical uncertainties; many major export countries and blocs – such as the USA, the EU, Japan, and China – have had their real GDP growth revised downward for the next two years to account for this.

Growth in the USA is expected to record a marginal slowdown (down to 2.7% in 2019 from the originally anticipated 2.9% projected in 2018) due to the restrictive trade policies it has implemented over the past years. Meanwhile, growth in the eurozone is forecasted to slow due to lower domestic demand and exports. Japan's growth is also slowing due to weak private consumption and stagnation in terms of investment. China's growth remains strong, although it has not managed to avoid the worldwide economic downturn either, its GDP growth is expected to ease gradually from 6.6 per cent to 6.3 per cent and 6.0 per cent in 2019 and 2020 respectively. This is due to a tightening of regulations in the financial sector, along with weakening exports as a result of US-China trade tensions.

REAL GDP GROWTH REVISED DOWN

	2018	2019	2020*		2018	2019	2020*
World	3.7	3.5 ↓	3.5				
G-20	3.8 ↓	3.7 ↓	3.7				
Australia	3.1 ↑	2.9 ↓	2.6	Argentina	-2.8 ↓	-1.9 ↓	2.3
Canada	2.1	2.2 ↑	1.9	Brazil	1.2	2.1 ↓	2.4
Euro area	1.9 ↓	1.8 ↓	1.6	China	6.6 ↓	6.3 ↓	6.0
Germany	1.6 ↓	1.6 ↓	1.4	India	7.5 ↓	7.3 ↓	7.4
France	1.6	1.6 ↓	1.5	Indonesia	5.2	5.2 ↓	5.1
Italy	1.0 ↓	0.9 ↓	0.9	Mexico	2.2	2.5	2.8
Japan	0.9 ↓	1.0 ↓	0.7	Russia	1.6 ↓	1.5	1.8
Korea	2.7	2.8	2.9	Saudi Arabia	1.7	2.6	2.5
United Kingdom	1.3	1.4 ↑	1.1	South Africa	0.7 ↓	1.7 ↓	1.8
United States	2.9	2.7	2.1	Turkey	3.3 ↑	-0.4 ↓	2.7

Year-on-year, %. Arrows for 2018 and 2019 indicate the direction of revisions since September 2018
Source: OECD's Economic Outlook, November 2018

According to UNCTAD's World Investment Report January 2019, FDI inflows to developing Asia increased modestly by five per cent to US\$502 billion in 2018. Prospects for global FDI in 2019 will likely be driven by a rebound from its abnormally low levels in 2018 which was mainly driven by a dip in the developed regions. The slower growth recorded by countries worldwide is expected to have a significant impact on an already fragile FDI. If trade tensions continue to escalate in coming years, it can be expected that global value chains and FDI will be adversely affected.

The Malaysian economy is likely to remain on a steady path in 2019 as supply disruptions recede in commodity-related sectors and new production facilities commence. The country's macroeconomic fundamentals remain strong, despite domestic and external challenges and this optimism is shared by Bloomberg.

Despite fears, recession seems unlikely for Malaysia as the overall business performance for the first quarter of 2019 is expected to enjoy a steady pick-up – especially in the mining and quarrying, manufacturing, and services sectors – based on research by MIDF. On the external front, the effects of the trade war will gradually be contained by most economies, including Malaysia. Going forward, private sector demand is expected to remain the main driver of growth while the external sector is likely to soften with moderating global demand.

The Malaysian economy is likely to remain on a steady path in 2019 as supply disruptions recede in commodity-related sectors and new production facilities commence. The country's macroeconomic fundamentals remain strong, despite domestic and external challenges and this optimism is shared by Bloomberg. In its recent analysis of emerging markets, Bloomberg analysts ranked Malaysia as first, due to the country's growth prospects, state of the current account, sovereign credit ratings and stock and bond valuation. This is a commendable achievement, considering the competition Malaysia has always faced from other Asian peers such as China (ranked 3rd),

Thailand (ranked 6th), and South Korea (ranked 10th). This positive projection was echoed by CEOWORLD, a US-based magazine; in a feature article, the publication ranked Malaysia as the best country in the world to do business in or invest, in 2018 (out of 50 competing nations). What these figures show is that Malaysia continues to spark confidence in investors and business owners, outperforming developed economies such as Australia, Singapore, the USA, and Japan.

Fortified for Endurance

Against an unquestionably shaky global economic outlook, the Government unveiled the National Budget 2019 in order to plot a path forward for Malaysia. Through a mixture of stimuli, incentives, and safeguards, the Budget seeks to help the nation manoeuvre tricky global tides in the hopes of keeping the country buoyant throughout the turbulent times ahead. Many of these measures aim to facilitate business and enhance the nation's ongoing competitiveness through the powerful mediums of strong fiscal and monetary policies, and a greater income distribution catering to specific target groups. By doing so, the Government hopes to stimulate the domestic economy and entice foreign investors onto our shores.



While addressing member countries, Mr. Angel Gurría – Secretary-General of the Organisation for Economic Co-operation and Development (OECD) – highlighted the need for stronger, more effective, and more inclusive international cooperation in order to facilitate healthy trade. As a trading nation, Malaysia is always actively seeking opportunities to expand its potential trade partners through various trade agreements, and indeed has done so since the early days. Being a member of the World Trade Organisation (WTO)

since 1995, Malaysia has consistently striven to uphold the group's core values of free and fair business as well as trade towards attaining a common good.

To that end, Malaysia is actively seeking opportunities to expand its potential trade partners through the introduction of various new trade agreements. While the much-lauded Trans Pacific Partnership (TPP) was lost to the changing political climate in the USA, the Government is keeping its door open to other international trade agreements. For example, Malaysia has made significant progress in the Regional Comprehensive Economic Partnership (RCEP) and it is hoped that a conclusion will be made soon. The RCEP is an ASEAN-driven initiative that involves the 10 ASEAN members as well as the six Asia Pacific countries – China, Japan, South Korea, Australia, New Zealand, and India. The RCEP will increase the region's attractiveness as an investment destination and strengthen Malaysia's foothold as a trading nation.

Malaysia has also implemented seven independent bilateral free trade agreements (FTAs) with Japan, New Zealand, India, Chile, Australia, Turkey, and Pakistan, along with six regional FTAs (under the ambit of ASEAN) with countries such as China, Korea, Japan, and Australia. More FTAs are also on the horizon, as Malaysia diligently pursues economic integration to increase the trade of goods and services with other countries in the hopes of achieving a shared global prosperity.

Additionally, as an Associate Member of OECD's Base Erosion and Profit Shifting (BEPS), Malaysia is committed to streamlining its tax incentives to adhere to the OECD's FHTP (Forum on Harmful Tax Practices) guidelines. The year 2018 saw various initiatives being undertaken to further enhance the overall transparency and fairness of the nation's incentives framework. Malaysia will continue to monitor and review its processes in order to reduce tax leakages, avoid profit shifting among countries, and provide a more competitive tax environment for investors in Malaysia.

Leveraging on Technology Megatrends

Industry 4.0 has been gaining momentum as the definitive 'next act' for companies looking to stay afloat in an evolving technological landscape. Companies are more aware of the need to adopt new

manufacturing ideals or risk becoming obsolete. At its heart, Industry 4.0 focusses on optimising operations through connective technology and automation, offering its subscribers greater efficiency, speed, and flexibility in order to sustain competitiveness.

Perhaps the most innovative – and challenging – thing about the Industry 4.0 revolution is the way it seeks to connect embedded system production technologies and smart processes in order to radically transform production value chains and business models. This merger of the physical and virtual world unlocks all-new possibilities for investors, offering new avenues for innovation and growth.

Malaysia is eager to be an early mover within the Industry 4.0 movement. In line with this, MIDA has actively encouraged companies to jumpstart their own digital transformations. Measures have also been taken to support the development of an agile and skilled workforce capable of supporting businesses in this rapidly evolving environment. This is especially important due to the high rate of changes, innovation, and uncertainty that exists with any emerging technologies and industry models.

To help businesses and stakeholders prepare for and uptake Industry 4.0, MIDA has organised various awareness programmes such as seminars, pocket talks and B2B meetings over the years. Through these, MIDA aims to enlighten companies, academia and the general public on the opportunities and challenges presented by Industry 4.0, as well as the available facilities that can be utilised by companies looking to adopt Industry 4.0 technologies.

To help businesses and stakeholders prepare for and uptake Industry 4.0, MIDA has organised various awareness programmes such as seminars, pocket talks, and B2B meetings over the years.

The year 2018 marked a significant stage in the country's automation journey, as it heralded the launch of Malaysia's Industry4WRD: its National Policy on Industry 4.0. Released on the 31st of October 2018, the framework outlines broad strategies and action plans covering financing, infrastructure, regulations, skills, and technology to be implemented by ministries



and agencies, in collaboration with industry, towards realising the nation's modernisation agenda. Going forward, Malaysia will intensify efforts to implement these strategies in order to ramp up Industry 4.0 uptake among companies – in particular, SMEs. By doing so, the Government hopes that industries will undergo a natural progressive transformation, boosting Malaysia as a key player on the world stage.

Sustainable Development

The importance of achieving Sustainable Development has been addressed at length by international organisations such as the UN, UNCTAD, OECD and other agencies seeking to preserve a better living for future generations.

Consumers are becoming more aware of the potential downsides of big industry and unchecked consumption. As such, green technology and clean energy and manufacturing have become a key concern for businesses looking to stay relevant in today's modern, mindful world. Companies are finding considerable competitive advantages in being 'green' and are increasingly aware of their environmental image and the impact their actions are having on the world around them.

Sustainable Development is, in a nutshell, about meeting the needs of the present without compromising the

needs of the future. In 2015, the United Nations General Assembly expanded upon the previous achievements of the Millennium Development Goals (MDGs) to craft the 2030 Agenda for Sustainable Development – a similar agenda with a wider scope and greater ambition. ASEAN countries have also been stringent about adapting to these goals; Sustainable Development features heavily in the ASEAN Vision 2025, which maps out ASEAN's 10-year strategic plan in the three key pillars of political security, the economy, and socio-culturalism, with the aim of deepening regional integration and establishing stability and improved standards of living within the region.

To ensure the long-term success of sustainable development ideals, private investors must commit. The OECD has developed a policy framework for investment that offers a comprehensive and systematic approach to improving investment conditions to the betterment of all. As Malaysia looks to implement the mid-term initiatives of the Eleventh Malaysia Plan (11MP), measures to advance sustainable growth in the region will be supported by improved governance and laws concerning the conservation of natural resources and biodiversity, and enhancing resilience against climate change. In all this and more, MIDA remains steadfastly committed to ensuring that the country's investment policies support the sustainable development agenda of the nation.

MIDA's Take on Budget 2019

Budget 2019 was unveiled on 2 November 2018 with a focus on institutional reforms, the people's wellbeing and promoting an entrepreneurial culture. Themed 'A Resurgent Malaysia, A Dynamic Economy, A Prosperous Society', Budget 2019 aims to re-establish Malaysia's economic status as an 'Asian Tiger'.

The budget is expected to enhance investor confidence in Malaysia's economic development by promoting domestic investment, while also cementing Malaysia's key position as a hub for foreign investment.

Manufacturing highlights

One of the goals of Budget 2019 is to make Malaysia a premier location for high-technology industries to spur the economy through a higher degree of innovation and the appropriate use of technology, particularly disruptive ones.

To this end, MIDA has been provided an allocation of RM430.7 million in 2019 for its development budget by the Government. Of this sum, RM400.7 million has been placed into the High Impact Fund (HIF) and the Domestic Investment Strategic Fund (DISF). These investments are meant to be used for technology transfer facilitation and to create high-skilled jobs.

In addition, the Government has allocated RM210 million for 2019 to 2021 for MITI to implement various Industry 4.0 measures and programmes in line with its Industry4WRD policy. Among the new measures are the expansion of scope of MIDA's HIF and DISF for activities related to Industry 4.0, the Double Deduction Incentive for Industry4WRD Vendor Development Programme, and an allocation of RM19 million in 2019 for the High-Speed Broadband (HSBB) programme in high-impact areas, such as identified industrial parks.

The Government's effort to review tax policies by setting up a Tax Reform Committee is both welcomed and timely. The Committee's purpose is to review existing investment incentives schemes and to identify the necessary measures required for a more progressive and effective taxation system. Further, the Government's effort to review over 130 types of existing investment incentives under the purview of various investment promotion agencies is a plan fully supported by MIDA. Investment incentives should be targeted, time-based, and take into cognisance the evolution of technology and innovation.

The 9th Strategy of Budget 2019, concerns the prospects of alternative financing sources, including streamlining the many venture capital funds managed by Government agencies. It also discusses the allocation of RM50 million to set up a Co-Investment Fund alongside private investors via equity crowdfunding and peer-to-peer financing. This is an example of a public-private partnership that can help the expansion plans of Malaysian companies with high growth potential in new technology areas.

The boost for services

The services sector, which led the way with 51.3 per cent of total investments in 2018 continues to support the Malaysian economy. With the implementation of the Service Tax on 1st September 2018, local service providers are subjected to a service tax of six per cent, while imported services are exempted. This has resulted in an uneven playing field; hence, the imposition of a service tax on imported services starting from 1 January 2019 will boost the competitiveness of local service providers. The announcement is also in line with MIDA's initiative to promote the use of local services and encourage service providers to set up their businesses on Malaysian shores.

A review of the Principal Hub (PH) scheme was announced under the budget, with a concessionary tax rate of 10 per cent on the total statutory income related to PH activities for a period of five years for existing companies participating in the PH scheme. A boon for investors, the incentive review is expected to positively impact the sector's investment performance, making the PH scheme one of the largest FDI contributor to the services sector.

Producers and users of green technology products and systems stand to benefit from the recently-announced RM2 billion allocation under the Green Technology Financing Scheme (GTFS). The current scope of eligible assets for the Green Technology Investment Tax Allowance (GITA) has also been expanded from nine to 40 types of assets (listed in the MyHijau Directory).

The allocation of an RM100 million matching grant for private companies to promote and market tourism internationally will help accelerate the industry's growth. In addition, the Malaysian Healthcare Tourism Council, an agency under the Ministry of Health, will receive RM20 million to work with reputable private hospitals in raising Malaysia's profile as a world-class medical tourism destination. These promotion initiatives are expected to attract 30 million foreign tourists, with a contribution of RM100 billion to the nation's revenue by 2020.

As for the creation of a future-equipped workforce, an allocation of RM30 million has been made available under the Dana Wibawa Pendidikan Teknikal dan Latihan Vokasional (TVET) to encourage training institutions to run competitive training programmes in line with the industry needs. Another RM20 million has been provided to the TVET Bootcamp Programme to enhance youth competency.

In a bid to further encourage R&D activities, an RM400 million research fund has been set aside to institutions of higher learning (IHLs). This includes an allocation of RM30 million in the form of matching grants through the Malaysia Partnerships and Alliances in Research (MyPAIR) programme.

As the principal government agency in charge of promoting investments, MIDA certainly lauds these announcements that are set to further invigorate the vibrant services sector in Malaysia. MIDA is committed to work hand-in-hand with various stakeholders such as policy-makers, investors, as well as academia, to accelerate the transformation of Malaysia as an advanced nation with inclusive growth and sustainable development.

Chasing a Relevant Talent Pool

Technological advancement calls for a matching talent pool that is both present-proof yet future-ready and this challenge is a reality globally. Organisations everywhere race to find innovative ways to retain and engage skilled talent in order to stay competitive and relevant in an ever-changing, fast paced world. Given the fact that the quality of a country's talent pool is also one of the key attractions for investors, it comes as no surprise that Malaysia too has set her sights on becoming one of Asia's key players in the talent pool arena. While changes in technology spell new opportunities, Malaysia must strive to reduce the talent gap, thereby compelling both industry and academia to refresh their systems, policies, processes, and strategic initiatives.

As a testament to being on the right path, Malaysia made it to the Top 30 of the Global Talent Competitiveness Index (GTCI) 2017. At 28th position, it edged out many high income countries such as South Korea, Portugal, Spain and Italy. Subsequently, moving up a spot from last year, Malaysia remains the leader in the group of upper-middle-income countries by performing particularly well in the 'Enable and the Vocational and Technical Skills' pillars.

Yet, there is more to the challenge than mere rankings. Industry feedback uncovers a disconnect between the knowledge, skills, and attitude of these new graduates, against the changing industry landscape.

In fact, out of the 1.5 million jobs projected to be created under the 11th Malaysia Plan (11MP), 60 per cent will require Technical and Vocational Education (TVET)-related skills. This makes TVET the most important avenue for increasing Malaysia's skilled human capital base as the country aspires to attain the status of an inclusive, sustainable and advanced nation by 2020.

Acknowledging that the best talent policies respond to changing industrial conditions on the ground and technological differences across the globe, MIDA has played a vital role in bringing the National TVET agenda forward.

As part of its talent pipeline initiative, MIDA launched an Apprenticeship Programme, which is a trilateral partnership between MIDA, Federation of Malaysian Manufacturers (FMM) and Ministry of Education (MOE). This programme is aimed at addressing the shortage of technical skills highlighted by FMM members and is a two-year initiative where 16 year old students are placed at a Vocational College for six months to undergo academic and vocational courses and another six months of practical training in participating companies for two consecutive years. For its pilot project, MIDA engaged a total of five member companies that assisted in placing 34 students at respective Vocational Colleges for the four main courses offered, namely industrial machining, electrical, welding and electronics.

To further compliment such talent pipeline initiatives, universities and companies can do more by collaborating to develop industry-ready graduates. Based on the Environmental Scan Study on Human Capital Issues for Selected Industries 2018 conducted by MIDA, 25 per cent of the surgical/medical gloves manufacturers, 46 per cent of other medical consumables companies and 43 per cent of the non-consumables companies are yet to have any form of collaboration. It was also revealed that 41 per cent of companies under the pharmaceutical industry have not closed the gap and 31 per cent of companies in the E&E industry are yet to breach the fence.

A drying talent pipeline in the E&E industry would result in Malaysia losing out in talent competitiveness, especially since the industry is a key driver of the country's economic growth. Keeping this in mind, MIDA has proactively sealed collaborations between academia and industry. The Place and Train Programme between Universiti Malaysia Perlis (UNIMAP) and HP Malaysia Manufacturing Sdn Bhd for microelectronic engineering students is an example of a revered union; another is a programme between UNIMAP and First Solar Malaysia Sdn Bhd.

Biocon signed papers with SEGi University on job placements for the university's graduates in 2018, following an MOU seeded in 2017 as a participant in their internship programme.

Osram Opto Semiconductors (M) Sdn. Bhd. gave RM2.4 million worth of semiconductor and photonic equipment from its Penang factories a new lease of life by offering it to Universiti Sains Malaysia (USM), Universiti Malaysia Perlis (UniMAP), Universiti Malaya (UM) and National University of Malaysia (UKM). The equipment provides hands-on educational experience for students heading for high-tech industries.

The shift in this technological paradigm has pushed Malaysia to prepare and implement TVET transformation to embrace the challenges of Industry 4WRD and the emergence of the Digital Economy in the remaining two years to the close of the 11MP.

Heading this agenda, MIDA played advocate on 31 October 2018 to the National Policy on Industry 4.0 (Industry 4WRD), in addressing the need for digital transformation of the manufacturing sector and its related services.

MIDA continues to foster partnerships between the local academia, technical and vocational institutions as well as industry captains on a regional basis. This is to ensure availability of knowledge-equipped skilled-talent in the right industries to meet the needs of the emerging Industry 4.0 landscape.

Appendix 1: Approved Manufacturing Projects, 2018 and 2017

	2018			2017		
	NEW	EXPANSION/ DIVERSIFICATION	TOTAL	NEW	EXPANSION/ DIVERSIFICATION	TOTAL
Number	386	335	721	326	361	687
Employment	36,455	22,839	59,294	29,675	26,756	56,431
Total Capital Investment (RM million)	61,791.4	25,584.3	87,375.6	39,473.4	24,207.6	63,681.1
- Domestic (RM million)	21,458.6	7,894.9	29,353.5	31,782.9	10,353.5	42,136.4
- Foreign (RM million)	40,332.8	17,689.3	58,022.1	76,90.5	13,854.2	21,544.7

Appendix 2: New Manufacturing Projects Approved by Size of Capital Investment, 2018 and 2017

SIZE OF CAPITAL INVESTMENT	2018					2017				
	NO.	EMPLOYMENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOYMENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)
Less than RM 2.5 million	21	433	26.6	0.5	27.1	12	235	17.2	-	17.2
RM 2.5 million - < RM 5.0 million	33	1,253	108.5	10.6	119.2	35	1,219	103.0	27.0	130.0
RM 5.0 million - < RM 10.0 million	69	2,718	401.7	121.5	523.2	84	3,523	543.7	64.0	607.7
RM10.0 million - < RM 50.0 million	184	13,335	2,753.8	1,445.3	4,199.1	133	10,137	2,180.4	771.7	2,952.1
RM50.0 million - < RM100.0 million	33	4,606	999.2	1,274.8	2,274.0	30	3,982	1,347.6	527.9	1,875.5
RM100.0 million - < RM500.0 million	32	5,199	2,694.3	3,689.2	6,383.6	23	5,433	1,566.6	2,705.3	4,271.9
RM500.0 million - < RM 1.0 billion	2	555	761.6	449.5	1,211.1	5	3,083	1,213.4	2,142.4	3,355.8
RM 1.0 billion and above	12	8,356	13,712.8	33,341.3	47,054.1	4	2,063	24,811.0	1,452.3	26,263.4
TOTAL	386	36,455	21,458.6	40,332.8	61,791.4	326	29,675	31,782.9	7,690.5	39,473.4

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 3: Approved Manufacturing Projects by Industry, 2018 and 2017

INDUSTRY	2018					2017				
	NO.	EMPLOYMENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOYMENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)
Petroleum Products (inc. Petrochemicals)	23	1,487	13,810.2	19,084.5	32,894.7	9	1,782	16,310.8	340.2	16,651.1
Basic Metal Products	25	4,998	4,658.2	8,476.3	13,134.5	15	1,362	171.4	11.8	183.2
Electronics & Electrical Products	56	11,180	467.1	10,712.6	11,179.6	109	10,625	1,510.5	8,156.8	9,667.3
Paper,Printing & Publishing	30	2,923	449.1	4,987.2	5,436.4	10	494	243.0	104.9	347.9
Chemical & Chemical Products *	68	2,390	564.0	4,436.1	5,000.1	65	2,767	1,728.1	2,420.4	4,148.5
Rubber Products **	21	6,351	1,547.2	3,053.4	4,600.6	19	1,997	850.2	380.8	1,231.0
Non-Metallic Mineral Products	39	2,665	718.1	1,725.2	2,443.3	45	4,836	3,526.2	4,123.9	7,650.1
Machinery & Equipment	88	3,689	1,508.8	904.5	2,413.3	77	6,078	1,431.3	755.0	2,186.3
Transport Equipment ***	61	3,787	1,217.9	691.8	1,909.6	79	9,112	3,346.2	1,502.3	4,848.5
Plastic Products	61	2,841	682.2	1,182.0	1,864.2	33	1,949	306.5	407.7	714.2
Food Manufacturing ****	63	4,888	1,293.6	514.8	1,808.4	56	4,149	1,280.8	824.1	2,104.9
Fabricated Metal Products	86	4,978	1,160.6	641.9	1,802.5	72	3,798	803.5	322.4	1,125.9
Textiles & Textile Products	18	1,170	566.3	284.7	851.0	12	1,850	106.5	322.3	428.7
Scientific & Measuring Equipment	22	1,560	83.7	488.2	571.9	23	2,475	471.2	1,556.0	2,027.1
Furniture & Fixtures	20	1,886	112.6	442.9	555.5	13	789	90.2	80.8	171.0
Wood & Wood Products *****	31	1,805	332.1	211.4	543.4	26	1,335	413.5	63.7	477.3
Beverages & Tobacco	5	111	121.2	40.4	161.6	12	569	170.3	47.1	217.4
Natural Gas	-	-	-	-	-	1	167	9,305.3	-	9,305.3
Miscellaneous	4	585	60.6	144.2	204.9	11	297	71.0	124.5	195.5
TOTAL	721	59,294	29,353.5	58,022.1	87,375.6	687	56,431	42,136.4	21,544.7	63,681.1

Note : Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided
* : includes oleochemicals, pharmaceutical, cosmetics and biotechnology
** : includes medical gloves and contraceptives
*** : includes shipbuilding and ship repair
**** : includes oil palm products
***** : includes palm biomass

Appendix 4: Approved Manufacturing Projects with Investments of RM100 million and above, 2018

INDUSTRY	NEW					EXP./DIV.					TOTAL				
	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)
Petroleum Products (inc. petrochemicals)	11	1,221	11,402.1	17,479.9	28,882.0	5	158	2,381.7	1,601.2	3,982.8	16	1,379	13,783.7	19,081.1	32,864.8
Basic Metal Products	4	3,778	3,977.9	7,482.5	11,460.4	4	203	310.9	878.1	1,189.0	8	3,981	4,288.7	8,360.6	12,649.4
Electronics & Electrical Products	3	615	-	618.2	618.2	8	4,464	-	9,544.3	9,544.3	11	5,079	-	10,162.5	10,162.5
Paper,Printing & Publishing	2	1,774	-	4,072.8	4,072.8	2	54	22.2	840.3	862.5	4	1,828	22.2	4,913.1	4,935.3
Rubber Products *	1	1,308	-	2,159.3	2,159.3	4	3,547	1,279.5	753.1	2,032.6	5	4,855	1,279.5	2,912.4	4,191.9
Chemical & Chemical Products **	3	327	-	2,685.5	2,685.5	2	91	-	1,207.0	1,207.0	5	418	-	3,892.5	3,892.5
Non-Metallic Mineral Products	2	966	77.8	1,040.6	1,118.5	1	11	-	272.7	272.7	3	977	77.8	1,313.3	1,391.2
Transport Equipment ***	7	1,471	657.8	544.6	1,202.4	-	-	-	-	-	7	1,471	657.8	544.6	1,202.4
Machinery & Equipment	2	167	417.2	-	417.2	5	442	222.9	435.3	658.2	7	609	640.0	435.3	1,075.4
Plastic Products	2	152	-	398.7	398.7	2	373	161.0	208.0	369.0	4	525	161.0	606.6	767.7
Fabricated Metal Products	2	862	276.0	306.0	582.0	-	-	-	-	-	2	862	276.0	306.0	582.0
Food Manufacturing ****	3	487	240.4	191.9	432.3	1	15	-	115.7	115.7	4	502	240.4	307.6	548.0
Textiles & Textile Products	2	223	119.6	100.0	219.6	1	0	116.0	29.0	144.9	3	223	235.6	129.0	364.6
Furniture & Fixtures	1	417	-	240.0	240.0	-	-	-	-	-	1	417	-	240.0	240.0
Scientific & Measuring Equipment	1	342	-	160.0	160.0	-	-	-	-	-	1	342	-	160.0	160.0
TOTAL	46	14,110	17,168.7	37,480.1	54,648.8	35	9,358	4,494.1	15,884.7	20,378.8	81	23,468	21,662.9	53,364.8	75,027.6

Note : Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided
* : includes medical gloves and contraceptives
** : includes oleochemical, pharmaceutical, cosmetics, biotechnology
*** : includes ship building and ship repairing
**** : includes oil palm products

Appendix 5: Approved New and Expansion/Diversification Manufacturing Projects by Industry, 2018 and 2017

INDUSTRY	2018				2017			
	NEW		EXP./DIV.		TOTAL		EXP./DIV.	
	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)
Petroleum Products (inc. Petrochemicals)	14	28,896.7	9	3,998.0	23	32,894.7	4	14,425.8
Basic Metal Products	16	11,815.5	9	1,319.0	25	13,134.5	5	49.8
Electronics & Electrical Products	17	918.2	39	10,261.4	56	11,179.6	20	1,403.1
Paper,Printing & Publishing	13	4,316.7	17	1,119.6	30	5,436.4	5	203.1
Chemical & Chemical Products *	38	3,350.2	30	1,649.8	68	5,000.1	37	2,959.7
Rubber Products **	9	2,360.0	12	2,240.6	21	4,600.6	12	452.9
Non-Metallic Mineral Products	29	1,979.4	10	463.9	39	2,443.3	25	2,154.0
Machinery & Equipment	41	1,137.9	47	1,275.4	88	2,413.3	39	1,346.3
Transport Equipment ***	26	1,558.9	35	350.7	61	1,909.6	33	3,750.9
Plastic Products	32	981.4	29	882.8	61	1,864.2	15	386.4
Food Manufacturing ****	39	1,195.8	24	612.6	63	1,808.4	37	1,399.6
Fabricated Metal Products	45	1,274.4	41	528.1	86	1,802.5	44	838.0
Textiles & Textile Products	12	458.9	6	392.1	18	851.0	7	107.0
Scientific & Measuring Equipment	7	405.2	15	166.7	22	571.9	6	63.9
Furniture & Fixtures	15	469.0	5	86.6	20	555.5	8	53.1
Wood & Wood Products *****	28	458.7	3	84.7	31	543.4	15	367.5
Beverages & Tobacco	1	9.4	4	152.2	5	161.6	8	142.8
Natural Gas	-	-	-	-	-	-	1	9,305.3
Miscellaneous	4	204.9	-	-	4	204.9	5	64.4
TOTAL	386	61,791.4	335	25,584.3	721	87,375.6	326	39,473.4

Note : Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided
* : includes oleochemicals, pharmaceutical, cosmetics and biotechnology
** : includes medical gloves and contraceptives
*** : includes shipbuilding and ship repair
**** : includes oil palm products
***** : includes palm biomass

Appendix 6: Approved Manufacturing Projects with Malaysian Majority* Ownership by Industry, 2018 and 2017

INDUSTRY	2018					2017						
	NEW		EXP./DIV.		TOTAL	NEW		EXP./DIV.		TOTAL		
	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)		
Petroleum Products (inc. Petrochemicals)	10	8,708.7	3	2,097.6	13	10,806.3	4	14,425.8	1	1,920.7	5	16,346.5
Basic Metal Products	12	6,535.2	4	215.0	16	6,750.2	5	49.8	8	124.3	13	174.1
Electronics & Electrical Products	6	151.0	8	1,447.0	14	1,598.0	8	217.8	3	642.0	11	859.8
Paper,Printing & Publishing	33	889.3	29	653.6	62	1,542.9	31	1,065.5	22	454.6	53	1,520.0
Chemical & Chemical Products **	34	910.9	17	430.5	51	1,341.4	27	749.1	14	644.0	41	1,393.1
Rubber Products ***	21	980.4	28	265.4	49	1,245.8	28	2,768.6	38	886.8	66	3,655.4
Non-Metallic Mineral Products	34	745.6	32	404.7	66	1,150.3	35	569.0	16	219.0	51	788.0
Machinery & Equipment	21	685.7	4	108.0	25	793.7	20	558.8	12	2,231.3	32	2,790.1
Transport Equipment ****	14	143.0	21	548.7	35	691.7	9	150.5	10	167.9	19	318.4
Plastic Products	8	276.0	5	347.9	13	623.9	7	107.0	-	-	7	107.0
Food Manufacturing *****	23	330.1	18	190.7	41	520.8	26	1,370.7	14	364.6	40	1,735.3
Fabricated Metal Products	8	131.0	14	335.3	22	466.4	9	160.4	29	1,210.1	38	1,370.6
Textiles & Textile Products	9	230.5	12	194.8	21	425.3	5	203.1	2	71.1	7	274.2
Scientific & Measuring Equipment	24	298.2	2	7.4	26	305.6	12	326.0	10	103.2	22	429.2
Furniture & Fixtures	-	-	3	138.7	3	138.7	8	142.8	-	-	8	142.8
Wood & Wood Products *****	9	66.1	4	46.6	13	112.6	8	53.1	3	37.2	11	90.2
Beverages & Tobacco	2	20.0	6	57.1	8	77.1	6	63.9	8	445.9	14	509.7
Natural Gas	-	-	-	-	-	-	1	9,305.3	-	-	1	9,305.3
Miscellaneous	2	60.6	-	-	2	60.6	4	60.4	3	16.5	7	76.9
TOTAL	270	21,162.2	210	7,489.1	480	28,651.2	253	32,347.5	193	9,539.1	446	41,886.6

Note : Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided
* : Projects with Malaysian equity ownership of more than 50 percent.
** : includes oleochemicals, pharmaceutical, cosmetics and biotechnology
*** : includes medical gloves and contraceptives
**** : includes shipbuilding and ship repair
***** : includes oil palm products
***** : includes palm biomass

Appendix 7: Approved Projects in the Engineering Supporting Industry by Sub-Sectors, 2018

SUB-SECTOR	NEW			EXP/DIV				TOTAL							
	NO.	EMPLOY- MENT	DOMESTIC INVEST- MENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOY- MENT	DOMESTIC INVEST- MENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)					
Machining	10	267	81.8	62.9	144.7	8	845	95.2	75.2	170.5	18	1,112	177.1	138.1	315.2
Moulds, Tools & Dies	3	22	4.0	6.3	10.3	4	307	39.0	10.0	49.1	7	329	43.0	16.3	59.3
Surface Engineering	1	38	-	22.0	22.0	2	113	11.7	8.3	20.0	3	151	11.7	30.3	42.0
Casting	3	128	59.3	4.5	63.8	2	81	30.7	-	30.7	5	209	90.0	4.5	94.5
Stamping	1	-	-	-	-	3	251	44.7	22.2	66.9	4	251	44.7	22.2	66.9
TOTAL	18	455	145.1	95.7	240.7	19	1,597	221.4	115.8	337.2	37	2,052	366.5	211.4	577.9

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 8: Approved Projects in the Machinery & Engineering Supporting Industry by Sub-Sectors, 2018

SUB-SECTOR	NEW			EXP/DIV			TOTAL								
	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)					
Machinery Specialised for Specific Industries	5	319	336.4	-	336.4	22	817	443.4	131.3	574.8	27	1,136	779.9	131.3	911.2
General Industrial Machinery, Equipment & Parts	18	1,042	162.4	183.9	346.3	15	520	149.8	162.6	312.4	33	1,562	312.2	346.5	658.7
Power Generating Machinery & Equipment	5	165	125.2	31.2	156.4	1	15	35.8	-	35.8	6	180	161.0	31.2	192.2
Machinery/Equipment Modules or Industrial Parts/Components	9	456	216.0	3.1	219.1	5	213	16.8	183.5	200.2	14	669	232.8	186.6	419.3
Maintenance, Upgrading or Reconditioning of M & E	1	31	-	6.0	6.0	2	-	0.5	-	0.5	3	31	0.5	6.0	6.5
TOTAL	38	2,013	840.1	224.2	1,064.3	45	1,565	646.2	477.5	1,123.7	83	3,578	1,486.3	701.6	2,188.0

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 9: Approved Projects in Electrical & Electronics Industry by Sub-Sectors, 2018

SUB-SECTOR	NEW			EXP/DIV			TOTAL								
	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	EMPLOY- MENT	DOMESTIC INVESTMENT (RM MILLION)	FOREIGN INVESTMENT (RM MILLION)	TOTAL CAPITAL INVESTMENT (RM MILLION)					
Electronic Components	7	706	12.5	535.7	548.3	11	2,193	68.8	8,818.4	8,887.2	18	2,899	81.3	9,354.1	9,435.5
Industrial Electronics	3	521	26.9	138.9	165.9	8	163	57.2	61.5	118.8	11	684	84.1	200.5	284.6
Industrial Electrical	2	65	10.7	2.3	13.0	5	27	7.7	23.3	31.0	7	92	18.4	25.5	43.9
Electrical Components	5	698	85.8	105.4	191.1	6	2,900	19.5	840.8	860.3	11	3,598	105.3	946.2	1,051.5
Consumer Electronics	-	-	-	-	-	4	171	77.7	2.0	79.7	4	171	77.7	2.0	79.7
Electrical Appliances	-	-	-	-	-	5	3,736	100.2	184.2	284.5	5	3,736	100.2	184.2	284.5
TOTAL	17	1,990	135.9	782.3	918.2	39	9,190	331.1	9,930.3	10,261.4	56	11,180	467.1	10,712.6	11,179.6

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 10: Manufacturing Projects Approved with Foreign Participation by Source, 2018 and 2017

COUNTRY	2018		2017	
	NO.	FOREIGN INVESTMENT (RM MILLION)	NO.	FOREIGN INVESTMENT (RM MILLION)
China	40	19,673.3	20	3,851.7
Indonesia	8	9,035.6	1	0.5
Netherlands	10	8,336.9	13	2,033.9
Japan	63	4,133.3	41	1,310.7
USA	18	3,155.0	18	1,107.2
British Virgin Islands	5	2,768.5	2	41.6
Korea, Rep.	10	2,495.4	7	636.7
Singapore	82	1,834.0	101	2,309.8
Hong Kong	10	1,250.6	10	1,494.5
Panama	4	892.0	-	-
Taiwan	18	678.7	20	755.4
France	4	591.1	4	414.1
United Kingdom	10	434.7	13	500.3
Germany	6	401.6	18	1,516.9
India	6	377.8	1	38.0
Switzerland	7	261.6	7	2,445.7
Thailand	6	169.6	4	62.3
Australia	7	157.8	9	1,270.2
Yemen	2	156.6	2	2.5
Others	70	1,218.2	69	1,752.8
TOTAL	***	58,022.1	***	21,544.7

Note *** : Number is not totaled to avoid double counting
Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 11: Approved Manufacturing Projects by State, 2018 and 2017

STATE	2018				2017			
	NEW		EXP./DIV.		NEW		EXP./DIV.	
	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)	NO.	TOTAL CAPITAL INVESTMENT (RM MILLION)
Johor	76	21,153.5	68	9,361.1	144	30,514.7	74	18,824.3
Selangor	138	13,522.6	103	5,424.8	241	18,947.4	104	2,565.7
Sarawak	6	8,625.8	5	34.0	11	8,659.7	7	9,430.3
Pahang	9	7,663.9	6	364.5	15	8,028.4	10	2,662.7
Pulau Pinang	45	2,364.6	63	3,416.3	108	5,781.0	45	1,639.8
Terengganu	6	3,625.9	5	1,277.5	11	4,903.4	3	71.0
Melaka	17	252.5	25	2,999.8	42	3,252.4	10	294.0
Negeri Sembilan	26	1,640.6	14	790.2	40	2,430.8	13	840.7
Kedah	22	1,976.9	19	409.4	41	2,386.3	16	1,718.4
Perak	17	522.1	20	1,364.8	37	1,886.9	29	1,137.5
Sabah	10	149.4	3	77.9	13	227.3	10	221.3
W.P. Kuala Lumpur	8	119.1	2	48.0	10	167.1	4	42.7
Kelantan	5	93.5	1	7.8	6	101.2	-	-
W.P. Labuan	1	81.0	-	-	1	81.0	-	-
Perlis	-	-	1	8.0	1	8.0	1	25.0
TOTAL	386	61,791.4	335	25,584.3	721	87,375.6	326	39,473.4
							361	24,207.6
								687
								63,681.1

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

Appendix 12: Approved Investments in Various Services Sectors, 2018 and 2017

SERVICES SECTOR	NUMBER		POTENTIAL EMPLOYMENT		TOTAL INVESTMENT (RM MILLION)	
	2018	2017	2018	2017	2018	2017
Real Estate	968	973	NA	NA	47,890.0	45,667.5
Utilities	NA	NA	10	27	9,836.1	8,456.6
Financial Services	47	44	105	104	9,695.3	11,788.0
Global Establishments	204	224	2,010	1,975	7,458.4	13,692.4
Distributive Trade	1,263	1,752	43,676	47,634	7,257.0	9,417.1
Support Services	347	194	4,324	5,040	5,647.1	4,781.3
Telecommunications*	377	562	NA	NA	5,439.4	9,705.2
Hotel &Tourism	63	70	4,135	5,107	4,642.1	9,288.7
Health Services	11	3	4,374	392	2,633.4	445.2
Education Services	704	711	6,837	4,866	1,130.0	493.1
MSC Status	107	315	3,339	16,278	1,071.5	6,152.4
Transport	11	16	0	434	693.1	4,515.0
Other Services	1	9	28	293	10.7	136.5
TOTAL	4,103	4,873	68,838	82,150	103,404.0	124,538.8

Note: NA - Data is not available
*: Data for telecommunications is only up to September 2018
: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

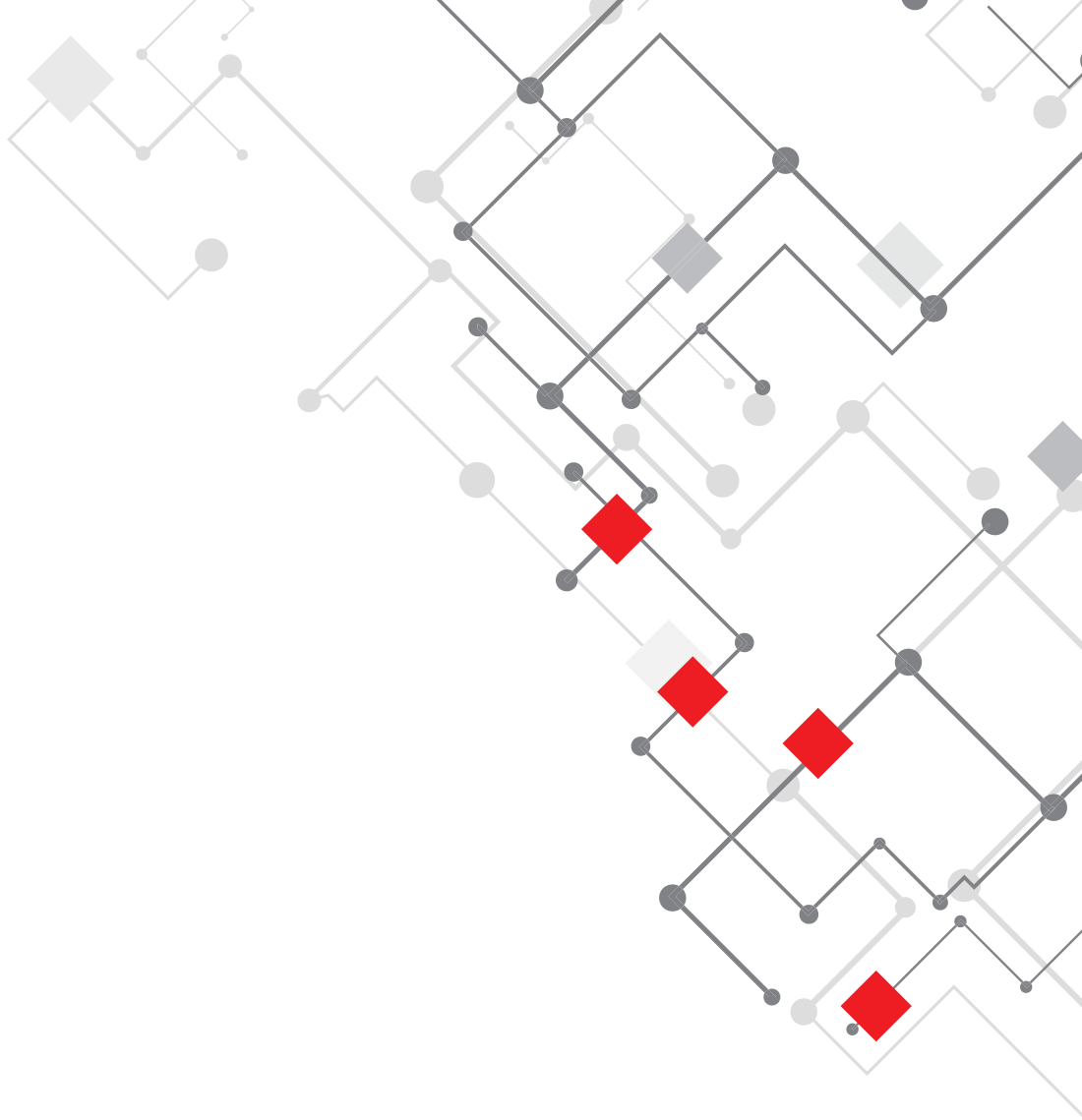
Appendix 13: Approved Investments in the Primary Sector, 2018 and 2017

PRIMARY SECTOR	NUMBER		POTENTIAL EMPLOYMENT		TOTAL INVESTMENT (RM MILLION)	
	2018	2017	2018	2017	2018	2017
Mining	26	32	59	243	10,238.1	11,700.9
Plantation & Commodities	23	4	1,302	382	601.8	672.0
Agriculture	14	12	287	305	68.8	44.9
TOTAL	63	48	1,648	930	10,908.7	12,417.8

Note: Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided

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