



Strengthening
Economic Growth





Introduction

The performance of the Malaysian economy during the review period, 2016-2017, has been resilient, underpinned by strong domestic demand and increased investment. The economic expansion was supported by growth in the services and manufacturing sectors. Growth was further supported by the improved external sector with higher export of the manufactured goods. Other economic sectors recorded moderate expansion, except for agriculture, which registered a slower growth. Despite steady and broad-based growth, economic sectors continue to face structural challenges such as fragmentation in the services sector, low value-added activities among the small and medium enterprises (SMEs) and dependency on low skilled workers. In addition, low innovation and technology adoption, inadequate infrastructure as well as complex regulatory framework continue to impede economic performance.

In the remaining Plan period, 2018-2020, measures to support economic expansion will focus on strengthening sectoral growth and structural reforms, accelerating innovation and technology adoption as well as providing quality infrastructure. In this regard, efforts will be intensified to promote greater innovation and modernisation as well as develop knowledge-intensive and skilled workforce, particularly in the manufacturing and services sectors. Focus will also be given to develop a modern and productive agriculture sector. Meanwhile, the provision of quality infrastructure will be improved to support and facilitate economic activities. Moreover, efforts will be undertaken

to improve the business climate as well as address inadequate physical and digital infrastructure. Priority will be given to accelerate adoption of technology and innovation to increase productivity and competitiveness, particularly among the SMEs. As such, all economic sectors are expected to contribute to the expansion of the domestic economy through increase in quality investment and improvement in productivity.





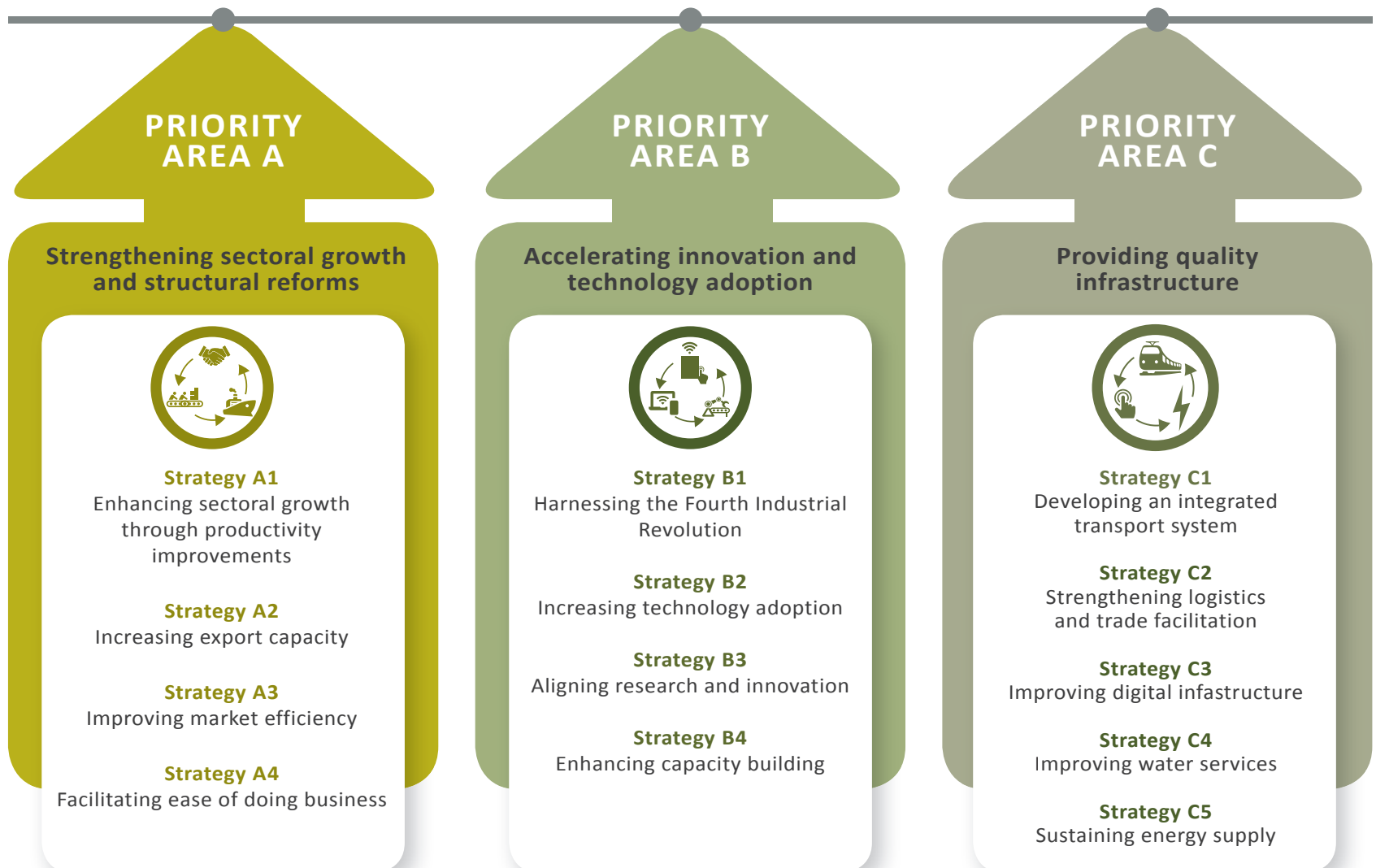
New Priorities and Emphases, 2018-2020

In the remaining Plan period, the momentum of economic growth will be accelerated by stimulating activities to move up the value chain and promote private investment. Focus will be given on strengthening the foundation of the economy to propel Malaysia

into a developed and inclusive nation premised on innovation, creativity and high value-added activities to drive productivity. The priority areas and strategies to strengthen growth are as shown in *Exhibit 15-1*.

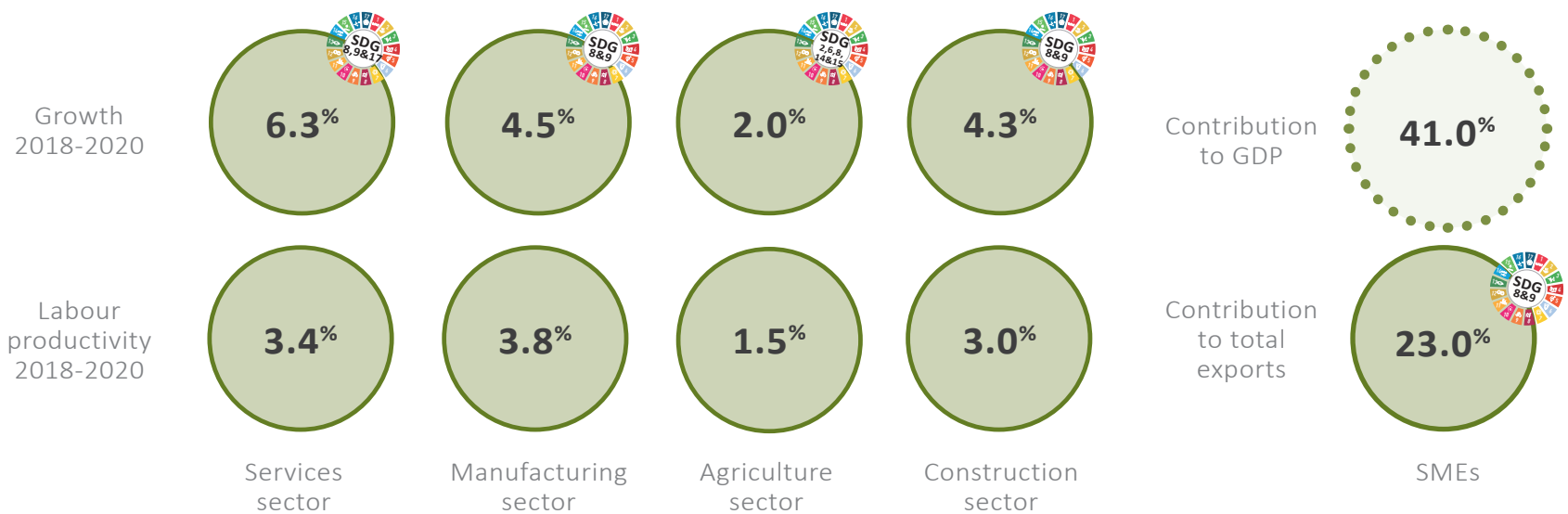
Exhibit 15-1

Strengthening Economic Growth



Selected Targets, 2020

Strengthening sectoral growth and structural reforms



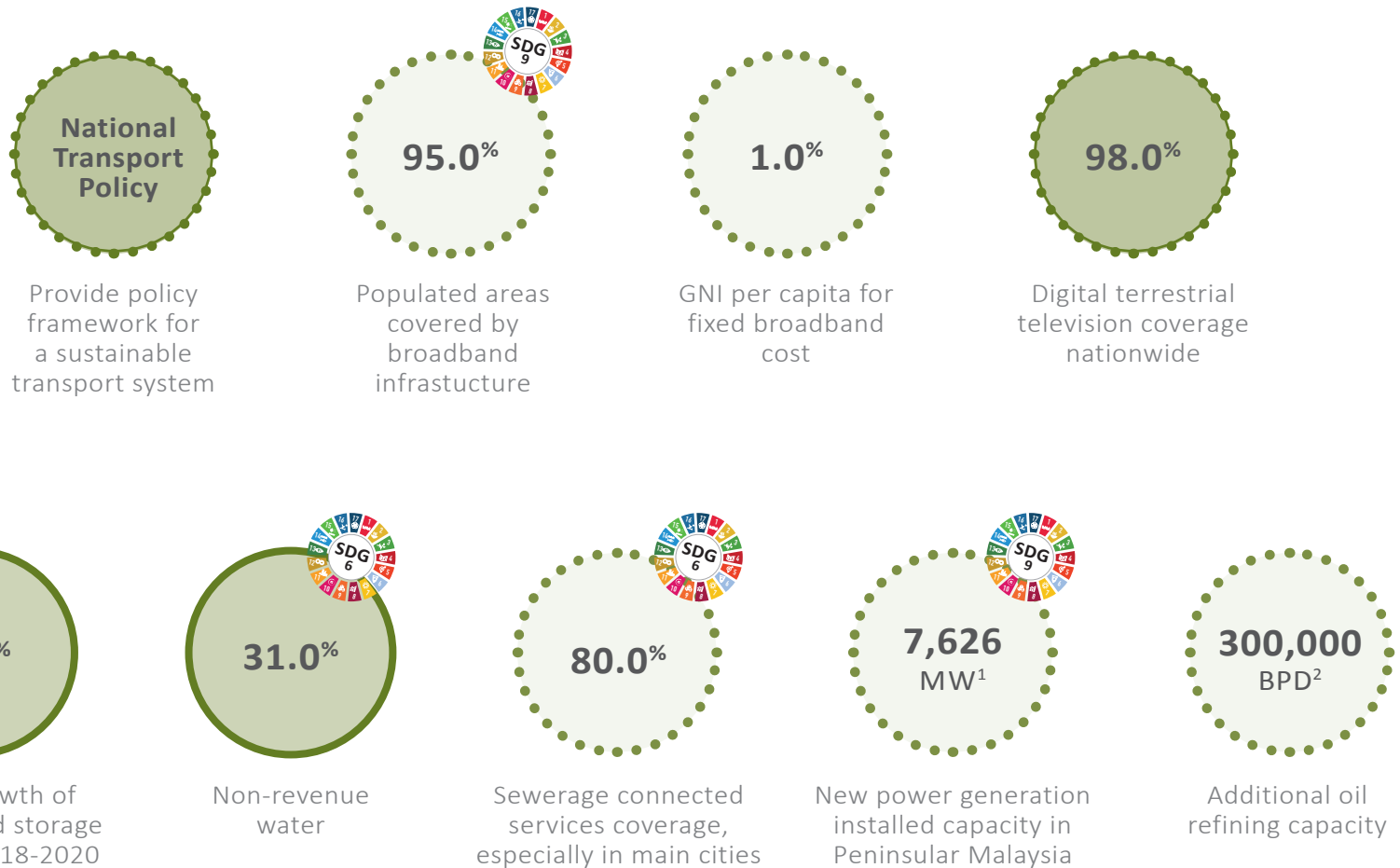
Accelerating innovation and technology adoption



 Original Target
  Revised Target
  New Target



Providing quality infrastructure



Notes: ¹ MW-megawatts
² BPD-barrels per day

Original Target
 Revised Target
 New Target

Priority Area A: Strengthening Sectoral Growth and Structural Reforms

Current industry activities, particularly among the local firms, are focused on low value-added products and services. In addition, the contribution of SMEs to gross domestic product (GDP) is relatively low, despite the high number of establishments. A large number of SMEs have limited capacity in achieving economies of scale and increasing capital deepening. Thus, focus will be given on strengthening sectoral growth and structural reforms, including SMEs, through the four key strategies as follows:



Strategy A1: Enhancing Sectoral Growth through Productivity Improvements

In the remaining Plan period, initiatives will be implemented to drive the sectoral growth. These initiatives comprise accelerating services sector transformation, re-energising manufacturing sector as well as developing modern and productive agriculture sector. Sectoral growth will be enhanced by improving productivity, increasing technology adoption and digitalisation as well as strengthening the business ecosystem.

Accelerating services sector transformation

The services sector will continue to be the primary driver of economic growth, guided by various services subsector blueprints, including the Services Sector Blueprint. In this regard, the initiatives will be directed towards enhancing the competitiveness and productive capacity of the services sector as well as creating high-paying jobs. Hence, efforts will continue to be intensified by focusing on knowledge-intensive services and improving productivity.

A critical factor that determines the performance of the services sector is the human resource capacity. Hence, efforts in promoting knowledge-intensive services will be strengthened by developing skilled human capital. Measures include improving industry readiness of new graduates and encouraging SMEs to provide training for employees, thus eliminating labour market mismatch. This will enable the sector to maximise contribution to productivity growth and create more high-paying jobs.



Focus will be given to transform the industry from supply- to demand-driven, user to producer as well as low to high knowledge-intensive and value-added activities. This will enable the services

sector to move up the value chain and provide strong linkages with other sectors. The initiatives according to subsectors are as follows:

Information and communications technology (ICT) services

- Adopt emerging technologies such as artificial intelligence (AI), big data analytics (BDA), financial technology (fintech) and internet of things (IoT)
- Strengthen self-reliance in cyber security and develop home-grown products and services as well as nurture start-ups companies to be competitive
- Improve ICT research, development, commercialisation and innovation (R&D&C&I) by strengthening partnership between public research institutes, institutions of higher education and industries to deliver commercial solutions

Creative industry

- Develop comprehensive plans to leverage culture, arts and craft to ensure sustainability
- Promote animation, electronic games and music industry as well as create innovative entrepreneurs
- Review existing incentive and funding mechanisms to enhance transparency and promote the industry

Financial services

- Promote greater use of digital technologies and provide regulatory support towards creating a cashless society, lowering cost of transaction and widening access to underserved customers
- Enhance development of Islamic finance through the adoption of a value-based intermediation¹
- Position Malaysia as a regional sustainable and responsible investment (SRI) centre and promote green financing as a new asset class
- Facilitate channeling of private investments into companies with growth potential through measures to spur venture capital and private equity industry as well as alternative investments

Notes: ¹ Value-based intermediation aims to deliver the intended outcomes of *syariah* through banking practices, conduct and offerings that generate positive and sustainable impacts to the economy, community and environment.

Private healthcare services

- Attract healthcare travellers by focusing on cardiology and fertility
- Encourage further investment in the private healthcare facilities to complement public healthcare services
- Improve traditional and complementary medicine services

Oil and gas services and equipment (OGSE) industry

- Develop capacity and expand business operations abroad including growing local OGSE companies by encouraging mergers and acquisitions
- Enhance technical expertise and intensify promotion for internationalisation

Tourism industry

- Rebrand Malaysia as a leading tourist destination and capitalise ecotourism products
- Leverage digital platform to further promote tourism products and services
- Increase accessibility to and within Malaysia and improve quality of services
- Improve infrastructure and facilities as well as instil maintenance culture

Retail trade

- Leverage technology and e-commerce to increase convenience, uplift productivity and reduce retail prices
- Promote modernisation, particularly among traditional retailers to increase competitiveness

Halal industry

- Develop a dynamic ecosystem by creating a bigger market space, establishing larger pool of halal experts and producing more home-grown halal champions
- Strengthen halal authentication and traceability through scientific methods
- Produce more premium halal products and services



In improving productivity, five productivity nexus for the services sector under the Malaysia Productivity Blueprint (MPB) have been established, namely ICT, private healthcare, professional services, retail and tourism. These nexus provide platforms for public and private sectors to plan, implement and monitor initiatives and programmes at sector and enterprise levels to improve productivity. Industry champions will lead these nexus by undertaking various initiatives and replicating industry best practices to expedite productivity improvement.

Re-energising the manufacturing sector

The manufacturing sector will continue to be transformed towards producing more high value-added, diverse and complex products. The catalytic subsectors, namely the electrical and electronics (E&E), machinery and equipment (M&E) as well as chemicals and chemical products will remain as priority subsectors. The high potential growth subsectors, namely aerospace and medical devices will continue to be prioritised. Enterprises will be encouraged to increase productivity by accelerating automation and innovation, undertaking research and development (R&D), implementing sustainable production practices and leveraging industry associations in sharing best practices.

The establishment of three productivity nexus for the manufacturing sector under the MPB, namely E&E, M&E as well as chemicals and chemical products aims to improve productivity significantly. These nexus provide platforms for the collaboration of public and private sectors to plan, implement and monitor initiatives and programmes at sector and enterprise levels in uplifting productivity. In this regard, 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 impactful and optimal allocation of resources.

The adoption of eco-industrial parks (EIP) concept, which supports sustainable consumption and production (SCP), will be promoted in ensuring existing and new industrial parks are more sustainable and competitive. EIP will be encouraged to promote cooperation among businesses and industries in a more collective way through

the exchange of materials, energy, water or by-products. The EIP will also enable new value creation, thus benefitting all parties collectively. Hence, EIP aims to significantly reduce industrial waste and promote optimisation of resources while maximising economic returns.

Developing modern and productive agriculture sector

Modernisation efforts will be continued in the agriculture sector by reforming the agro-food subsector and enlarging the share of the subsector to total agriculture value added. With these efforts, the share of agro-food is targeted to reach 42.8% in 2020 as compared to 37.4% in 2015. At the same time, industrial commodity subsector will focus on expanding downstream activities along the value chain to tap a growing market for higher value-added products. Studies will be undertaken to reform ministries and agencies related to agriculture in order to enhance service delivery towards modernising the sector. These will include rationalising roles and functions of agro-food agencies to increase efficiency and optimise resources.

Several initiatives will be implemented for the agro-food subsector, among others, managing demand and supply of food as well as developing alternative inputs and new sources of wealth to reduce reliance on food imports. Efforts will be intensified to achieve higher productivity and better income for farmers, fishermen and livestock rearers as well as improve food trade balance. In this regard, large scale production of premium grade fruits including durian, pineapple and jackfruit; high yielding coconut varieties; and grain corn for animal feed will be promoted as new sources of wealth. Towards this end, programmes will be tailored to increase agricultural productivity and sustainability by providing necessary incentives and support, including infrastructure, farming technology, market information and access to financing for farmers and smallholders.

Strategic initiatives will be undertaken to address national food security while ensuring higher productivity and income to farmers. These include revising the self-sufficiency level targets of agro-food products, strengthening distribution and marketing channels

to improve accessibility and affordability of agriculture produce as well as introducing high value-added agricultural activities, including in agro-based industry. Meanwhile, the shift in demand pattern for food towards a healthier lifestyle raises a greater expectation over food safety and quality. In this regard, efforts will be undertaken to strengthen biosecurity measures and intensify quality assurance programmes for agriculture produce. Certification programmes such as the Malaysian Good Agriculture Practices (myGAP), Malaysian Organic (myOrganic), Good Manufacturing Practice (GMP), Hazard Analysis and Critical Control Point (HACCP) and halal certification will be further promoted.

Greater collaboration among all relevant agencies will be encouraged to optimise existing logistics assets and facilities, particularly collection and distribution centres, cold chain facilities as well as machineries and transport equipment. These efforts will provide greater market access and wider distribution as well as reduce dependency on middlemen and post-harvest loss. The optimisation of assets and facilities will improve efficiency and ultimately contribute to growth of the sector.

The establishment of the agro-food productivity nexus under the MPB is expected to accelerate high value-added activities along the value chain. The nexus provides a platform for the government agencies, farmer associations and cooperatives to plan, implement and monitor initiatives and programmes in uplifting productivity. The capacity and capability of area farmers' organisation and cooperatives will be enhanced in management, finance, investment and marketing. Meanwhile, youth participation in modern agriculture activities will be encouraged, particularly through cooperatives to enable better pooling of resources as well as bargaining power and achieving economies of scale. In addition,

a study will be undertaken to formulate a new policy to drive the modernisation of the agro-food subsector. Among others, this study will identify strategies to accelerate the modernisation process, realign investment for infrastructure, human capital and R&D&C&I, as well as strengthen institutional structure of agricultural agencies.

Strategic initiatives will be introduced to strengthen the industrial commodity subsector. These initiatives will focus on programmes for industrial crops that have potential to boost Malaysia as a global player by expanding higher value-added downstream activities. Several industrial commodity subsectors will be further strengthened to cover a wider range of high value-added activities in both upstream and downstream segments. This effort is to ensure a more sustainable income for smallholders while enhancing competitiveness of the commodities. In addition, potential new sources of wealth will be promoted to diversify the usage of industrial crops. These include the use of oil palm trunks as an alternative to timber, kenaf fibre as seat cushion material in the automotive industry as well as premium cocoa beans as a high-end product for niche markets. A study will be undertaken to identify a suitable financial mechanism to support upstream activities, particularly in replanting and new planting of industrial crops. This is to ensure sustainability of upstream activities as well as to reduce dependency on government financial assistance.

Creating more dynamic SMEs

The development of SMEs is important to achieve inclusive and balanced growth. In the remaining Plan period, efforts to create resilient and sustainable SMEs will be continued to boost the growth of SMEs across all sectors. Various programmes and initiatives to support SMEs development are as detailed in *Box 15-1*.



Box 15-1

SMEs Development Programmes

Small and medium enterprises (SMEs) are an integral part of the economy in terms of production, employment generation and facilitating equitable distribution of income. In Malaysia, SMEs constitute 907,065 or 98.5% of the total establishments¹ with the majority of the businesses in the services sector, which accounted for 89.2% of total SME establishments, followed by manufacturing at 5.3%, construction at 4.3%, agriculture at 1.1% as well as mining and quarrying at 0.1%. In terms of size, the majority of SMEs were microenterprises, constituting 76.5% of total SME establishments, followed by small-sized SMEs at 21.3% and the medium-sized SMEs at 2.3%. These establishments were a major source of employment, which accounted for 66% of total employment in 2017.

The Government will continue to focus on the development of SMEs with the goal of increasing contribution to GDP from 37.1% in 2017 to 41% in 2020 and expanding export share from 17.3% in 2017 to 23% in 2020. In this regard, 32 initiatives, which include six High Impact Programmes (HIPs) under the SME Masterplan, 2012-2020 will be intensified to develop resilient and sustainable SMEs. Efforts will be reinforced to increase productivity, empower human capital, increase the adoption of technology and innovation, enhance ease of doing business as well as improve access to financing.

Other programmes such as the Business Accelerator Programme will continuously assist SMEs to build capacity and capability through better capital investment and technology adoption. Meanwhile, the *Tunas Usahawan Belia Bumiputera* (TUBE) Programme and Bumiputera Enterprise Enhancement Programme (BEEP) will further strengthen entrepreneurship skills among the Bumiputera community. In addition, *Program Pembangunan Usahawan Mikro* will promote the growth and productivity of microenterprises by providing necessary support in establishing businesses. Furthermore, SMEs will be encouraged to leverage new technologies and innovation particularly through e-commerce to grow at a faster rate and expand market outreach. As such, the National eCommerce Strategic Roadmap will assist all e-commerce traders to increase their contribution to the overall GDP to reach RM211 billion by 2020.

Government financing mechanisms are available in the form of grants and soft loans to support all categories of SMEs. Various ministries and agencies are involved in SMEs development ecosystem to form a partnership and support the aspiration of creating successful entrepreneurs. In this regard, programmes under TEKUN Nasional and Amanah Ikhtiar Malaysia will continue to provide financial assistance for microenterprises, mainly to assist targeted groups such as women as well as poor and low-income households.

Financing facilities are also available for small and medium-sized SMEs, such as Soft Loan Scheme for Automation and Modernisation, Financing Programme for SME and Vendor Financing Scheme. In addition, Bank Negara Malaysia continues to provide fund for SMEs through the financial system to cater for microenterprises, start-ups and firms venturing into new growth areas. Moving forward, the access to financing for SMEs will be re-shaped by shifting towards the development of more non-traditional financing avenues and platforms. These include crowdfunding, peer-to-peer financing, Leading Entrepreneur Accelerator Platform (LEAP) Market², Investment Account Platform (IAP), venture capital and angel investors.

A new long-term plan will be formulated during the remaining Plan period, to chart SME development beyond 2020, building on the achievements of the existing SME Masterplan. The proposed new masterplan will chart policy directions, strategies, action plans and programmes to uplift SMEs to be at par with SMEs in developed countries. The masterplan will identify new opportunities and challenges to be addressed by taking into account the changing demographics, economic and business landscape. In addition, it aims to equip SMEs with the necessary technology and knowledge in line with megatrends, particularly in the advent of the Fourth Industrial Revolution. It will also explore new business models arising from emerging financial technology, inclusive business, sharing economy and circular economy.

The successful implementation of these initiatives and the proposed new masterplan will accelerate the growth of SMEs. These efforts are in line with the objective of creating more dynamic SMEs and the aspiration to become a developed and inclusive nation.

Notes: ¹ Based on the Economic Census 2016 by Department of Statistics Malaysia.

² The LEAP Market is a new listed market in Bursa Malaysia positioned to provide SMEs greater access to the capital market and broaden the funding options available to SMEs that are unable to meet listing requirements on the Main Market or Access, Certainty, Efficiency (ACE) Market.

Strategy A2: Increasing Export Capacity

Efforts will focus on increasing the number of exporters and exploring new markets to strengthen the capacity of industries. In this regard, measures aimed at increasing the internationalisation of Malaysian firms, particularly SMEs, will be implemented through various initiatives. In the remaining Plan period, programmes will be undertaken to enhance export readiness of SMEs and improve international market compliance.

Enhancing export readiness of SMEs

Emphasis will be given to enhance export capabilities of local SMEs, explore new regional markets and embark on new export promotion strategies. In this regard, SMEs will be encouraged to leverage free trade agreements and mutual recognition arrangements as well as various initiatives under regional cooperation. SMEs will be incentivised to obtain appropriate certification and accreditation to enable locally produced goods penetrate international markets. Meanwhile, the scope of the Services Export Fund will be expanded to include halal industry as well as provide more incentives to exporters through the Services Sector Guarantee Scheme. In addition, the Go Export Programme, which has been expanded to include market immersion activities, will further assist SMEs in penetrating new export markets.

The formation of consortia in providing multi-disciplinary services will be further encouraged through collaboration among associations to bid for projects abroad. In addition, to facilitate international market penetration, market intelligence would be made available to service providers for better understanding of domestic regulations of the targeted export market.

Furthermore, digital platforms and Digital Free Trade Zone (DFTZ) will provide greater access to local players in penetrating the global market through e-commerce activities. Export programmes under various ministries and agencies will also be coordinated and monitored to ensure the effectiveness of these programmes.

Improving international market compliance

Malaysia will continue to develop comprehensive halal standards based on *syariah* principles and industry requirements such as hygiene, sanitation and safety along the supply chain. In this regard, the National Standards Compliance Programme will facilitate halal industry players to comply with GMP and HACCP as well as other international standards through the provision of technical expertise and capacity building. This will further strengthen Malaysian halal certification towards global recognition as well as provide better market access for halal products and services.

The changing global demand and market requirements for green and sustainable agriculture produce compel Malaysia to undertake concerted efforts to meet the increasing demand. Efforts will be enhanced towards reducing the greenhouse gas (GHG) emissions by promoting sustainable farm and forest management, including aquaculture, fishing practices and industrial commodities. Meanwhile, the adoption of the Malaysian Sustainable Palm Oil (MSPO) certification will be made mandatory among industry players to mitigate adverse campaigns on local palm oil. In addition, the capacity and capability of relevant authorities responsible for food safety and biosecurity will be strengthened to support businesses in complying with export market requirements of agriculture produce.



Strategy A3: Improving Market Efficiency

Market inefficiency and unhealthy competition are threats to economic growth and sustainable development. In this regard, market distortion and unfair practices will be addressed to promote market efficiency and healthy competition in the economy. In the remaining Plan period, focus will be given in reviewing and streamlining the role of state-owned enterprises (SOEs) and monopoly entities to meet the objectives of enhancing market efficiency and fair competition.

Streamlining the role of state-owned enterprises and monopoly entities

The SOEs were established to play specific strategic roles in the national development agenda and address socioeconomic issues. In this regard, there is a crucial need to address the role of SOEs due to overlapping functions, change in the development agenda and current best practices at the international level on the governance of SOEs. Measures will be undertaken to streamline the role of SOEs and other monopoly entities to promote market efficiency and protect consumer interest. A special ministerial committee will review policies and concessions with regard to monopolistic arrangements of these entities to ensure greater market efficiency. Meanwhile, a national policy and governance framework will be formulated to align SOEs and other monopoly entities with the broader national development agenda. These entities will be encouraged to promote innovation and technology adoption in line with the 4IR to boost productivity as well as create greater market opportunities for domestic industries through export-driven and global growth strategies.

Strategy A4: Facilitating Ease of Doing Business

A more comprehensive, coordinated and strategic approach to governance reforms will further reduce regulatory costs and enhance business competitiveness. Meanwhile, the implementation of suitable regulatory and trade practices will facilitate ease of doing business and reduce cost of businesses that will ultimately benefit the *rakyat*. In this regard, Good Regulatory Practices (GRP) will be intensified to improve processes and procedures in increasing productivity and competitiveness. In addition, trade practices including non-tariff measures (NTMs) will be streamlined to facilitate trade.

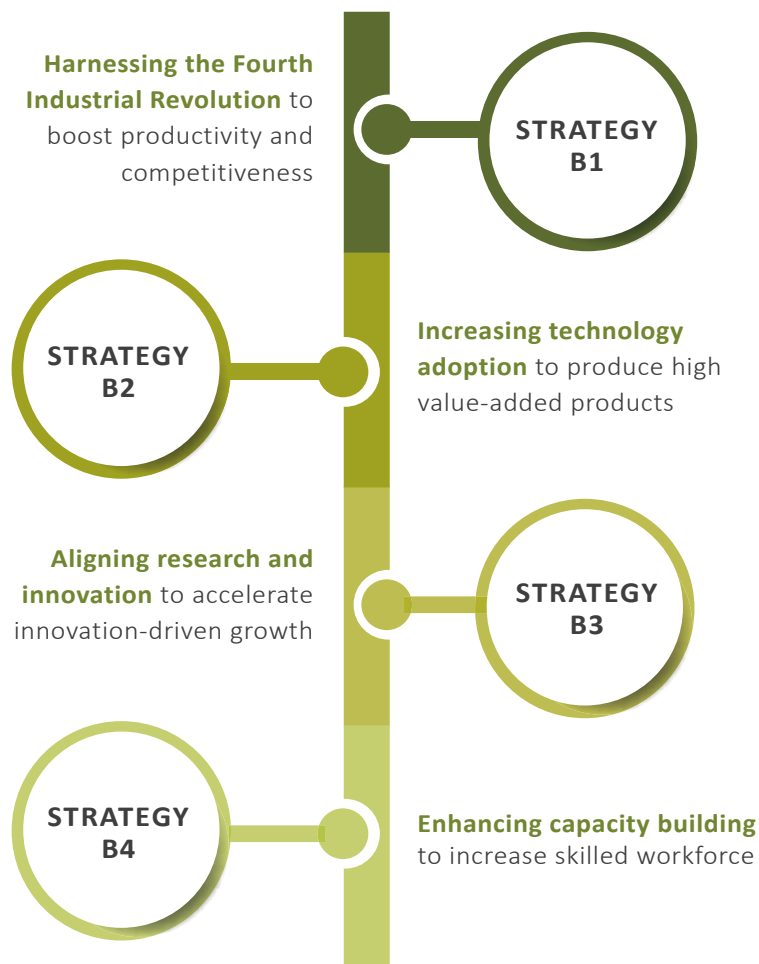
Improving regulatory and trade practices

Efforts to implement GRP will be intensified to address the complex regulatory framework, modernise business regulations and create a more favourable business climate. These effort will also review the content, quality, administration and enforcement of regulations to minimise regulatory burden and facilitate ease of doing business. The GRP requires ministries and agencies to conduct regulatory impact analysis and consultations with stakeholders to acquire feedback on new and impending changes to the regulations. This will enhance the transparency and credibility as well as ensure sustainability of regulatory changes. In addition, the application of the National Policy on the Development and Implementation of Regulations, which serves as a guideline on parameters and principles of GRP, will be extended to state government and local authorities.

Existing efforts such as modernising business licensing, eliminating unnecessary regulatory burdens on business and reducing bureaucratic processes will be continued to lower compliance costs. Moving forward, a unified public consultation portal will be launched as a platform for public to provide feedback on proposed regulatory changes. In addition, NTMs at customs entry points will be streamlined to eliminate unnecessary trade practices and improve flow of imports and exports as well as reduce cost of doing business for importers, exporters and logistics players.

Priority Area B: Accelerating Innovation and Technology Adoption

Local firms, especially SMEs, continued to face issues, among others, related to innovation and technology adoption, coordination among agencies as well as investment in high-end R&D and talent in frontier technology. Initiatives will be undertaken to encourage local firms, especially SMEs, to move up the value chain and become globally competitive, particularly in the advent of the 4IR. These initiatives aim to boost innovation and promote adoption of latest technology to accelerate economic growth. In this regard, four key strategies will be implemented as follows:



Strategy B1: Harnessing the Fourth Industrial Revolution

The advent of the 4IR through emerging technologies such as advanced robotics, AI and blockchain, is driving unprecedented change across the world at a rapid pace. New opportunities and wealth will be created with the changing landscape, while competition between different global centres for production and services will be heightened. Efforts will be undertaken to encourage local firms in embracing the 4IR as well as intensify the adoption of Industry 4.0 in the manufacturing sector.

Embracing the Fourth Industrial Revolution

Malaysia needs to proliferate the culture of innovation by expanding the current capacity and capability to benefit from the 4IR. A national policy framework on the 4IR will be formulated to promote innovation, creativity and competitiveness in embracing the intensification of the digital revolution. Existing policies and programmes will be reviewed to identify gaps and design appropriate intervention. A brief description of the 4IR is as shown in *Box 15-2*.



Box 15-2

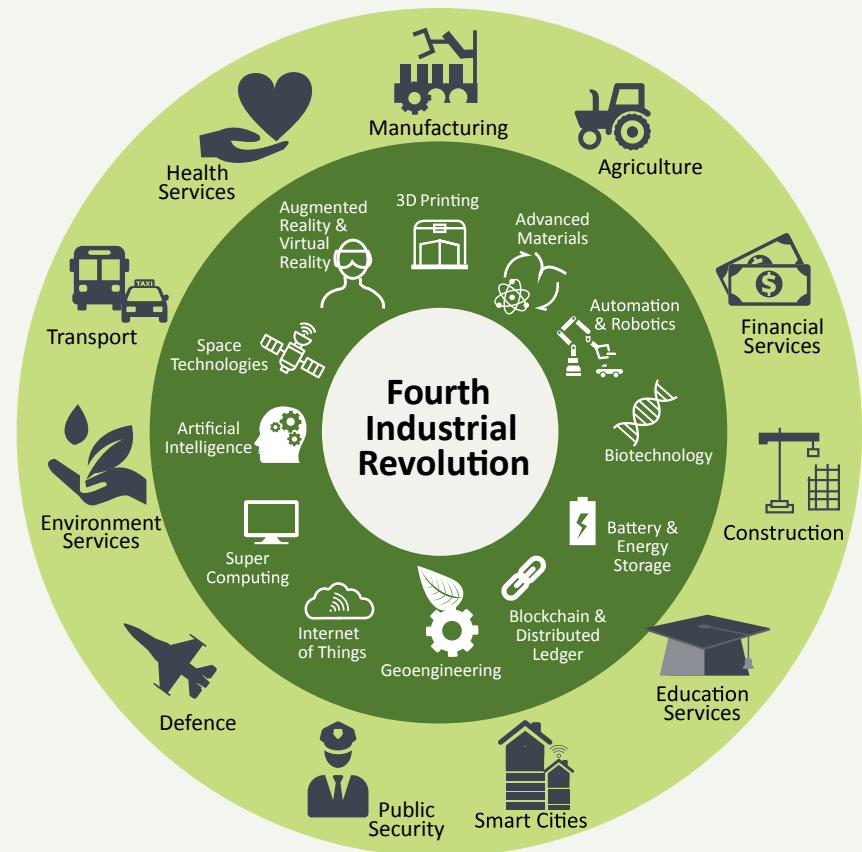
Fourth Industrial Revolution

The Fourth Industrial Revolution (4IR) refers to the intensification of digital revolution permeating across cyber, physical and biological spheres covering a wide spectrum of the economic sectors and all aspects of society¹. Among the technological megatrends underpinning 4IR include the miniaturisation of super computers as well as the rise of advanced robotics, artificial intelligence, internet of things (IoT), blockchain and 3D printing. The concept of 4IR originated from *Industrie 4.0* in Germany. *Industrie 4.0* refers to the smart production systems within the manufacturing sector. In the Malaysian context, the term Industry 4.0 also refers to the smart production systems within the manufacturing sector and forms part of the larger framework of 4IR. Numerous possible applications of 4IR technologies can be applied in various sectors and subsectors, as shown in the diagram.

The rapid advancement in digital economy and the convergence of technologies including disruptive technologies have impacted governments, businesses and individuals in areas ranging from economic competitiveness to daily lifestyle. The creative use of 4IR technology, real-time connectivity and better utilisation of assets in the context of sharing economy altered business model and the way services and products are being offered and traded. The emergence of disruptive technology such as e-hailing services of Uber and Grab transformed human mobility in an unprecedented manner, blurring the distinction between public and private transport and present a challenge to the regulatory framework.

Given the speed of technological change and the need for legal framework to facilitate innovation, the Government has introduced the national regulatory sandbox initiative, which allows innovators to test their ideas in a real environment.

- Technology
- Sector and Subsector



Source: Adapted from World Economic Forum

Areas identified under the sandbox initiative, among others, include agriculture, biotechnology, education, energy, finance, healthcare, telecommunication, transportation, tourism, smart cities, green technology and waste management.

The impact of 4IR need to be comprehensively evaluated taking into consideration the speed, depth and extensive impact of 4IR on the society. Among the gains and challenges of the 4IR are as follows:

Notes: ¹ Fourth Industrial Revolution as defined by the World Economic Forum.

Gains

- Heightens connectivity with the interconnectedness of devices and IoT
- Improves productivity and reduces cost through real-time global value chain
- Accelerates innovation and mass customisation through smart manufacturing
- Creates new types of services utilising big data analytics

Challenges

- Shifts foreign direct investment towards high-technology countries
- Rise in cyber security threats and erosion of personal data privacy

- Shifts in the labour market as new jobs are created, others become obsolete
- Dehumanises communication as a result of over reliance on devices

The rapid technological development necessitates Malaysia to have a paradigm shift from being a mere user to become a co-creator of technology. In order to drive this shift, talent requirements will need to be addressed comprehensively. This includes reskilling and upskilling of the current workforce as well as developing the required talent for the future. Towards this end, greater collaboration among academia and research institutes as well as technical training institutions and the industry will need to be intensified.

Catalysing Industry 4.0

The emergence of new technologies, such as IoT, big data analytics and advanced robotics, may disrupt business models and production processes. Therefore, firms, particularly the SMEs, will have to increase adoption of technologies to boost productivity and be globally competitive. In this regard, the adoption of Industry 4.0 related technologies will be intensified with the launch of the National Industry 4.0 Policy, 2018-2025. The policy provides

the action plan in catalysing the adoption of Industry 4.0 related technologies to increase productivity and competitiveness of the manufacturing sector. In this respect, a conformity assessment on the readiness of selected firms will be carried out to determine the types of intervention and level of technical assistance required. The National Industry 4.0 Policy Framework is as shown in *Box 15-3*.

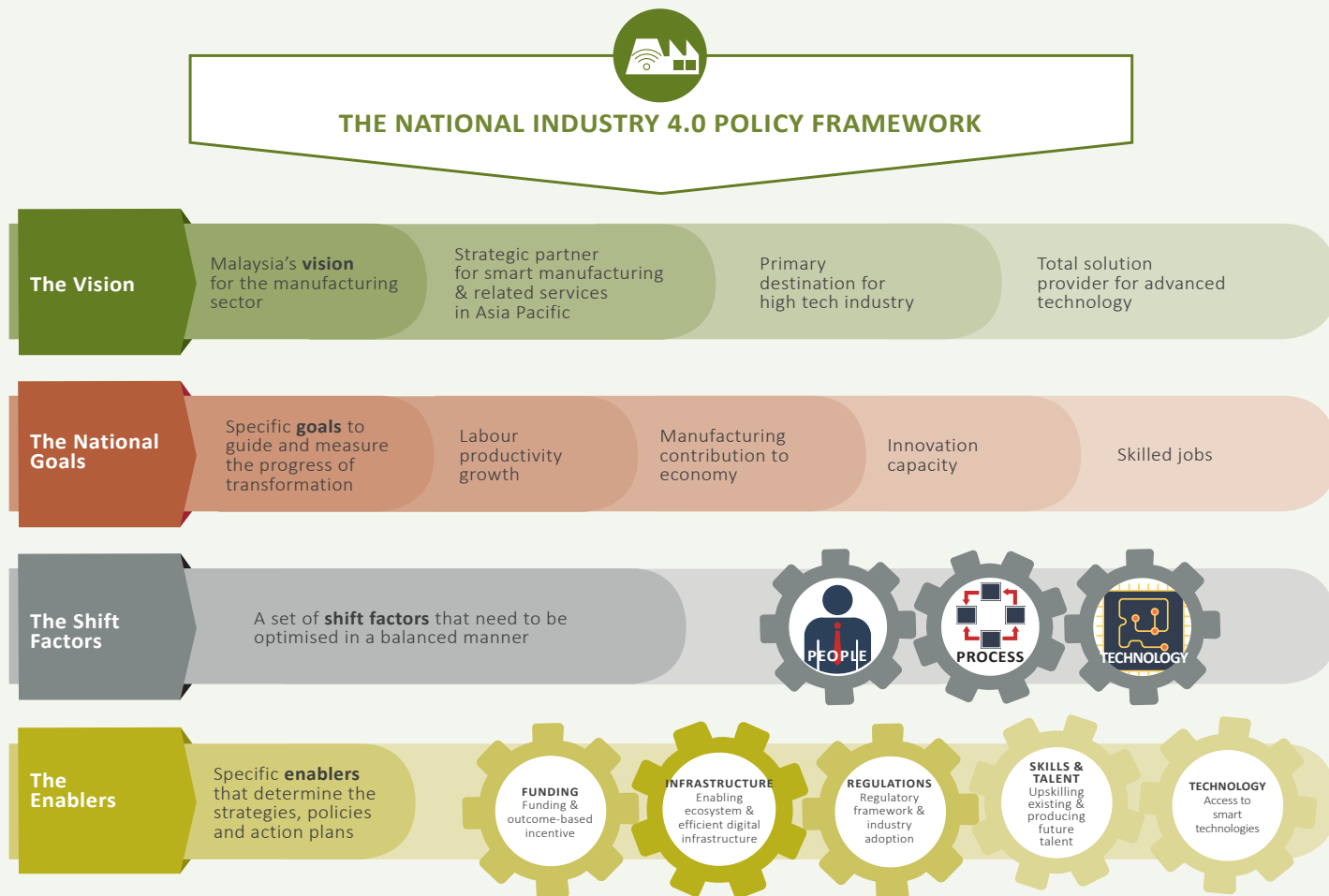


Box 15-3

The National Industry 4.0 Policy Framework, 2018-2025

The National Industry 4.0 Policy Framework serves as a strategic guide to enable the transformation of manufacturing sector and

accelerate the adoption of the Industry 4.0 related technologies in response to the Fourth Industrial Revolution.



Source: Ministry of International Trade and Industry

The framework outlines broad strategies and action plan covering financing, infrastructure, regulations, skills and technology to be implemented by ministries and agencies in collaboration with industry. The strategies and action plan will contribute towards higher adoption of the Industry 4.0 related technologies,

particularly among SMEs. The policy framework also embraces the broader ecosystem approach that leverages technology clusters and partners in the private sector. The ecosystem will support local companies to evolve into technology and solutions providers and improve competitiveness of manufacturers in the global market.

Strategy B2: Increasing Technology Adoption

SMEs contribution to the GDP remained low at 37.1% in 2017 despite being the largest source of employment. The majority of SMEs are still relying on low technology and engaging in low value-added activities. In this regard, initiatives will continue to be undertaken to create dynamic SMEs, which are globally competitive and able to produce high value-added goods and services. In the remaining Plan period, the initiatives include upgrading capacity and capability of SMEs, encouraging digitalisation among SMEs as well as accelerating the application of technology in the construction and agriculture sectors.

Upgrading capacity and capability of SMEs

Industry players are encouraged to produce high value-added products and services to move up to the global value chain. In this regard, SMEs will be supported in strategic areas through provision of funds and collaborative initiatives to embrace technology, particularly elements of Industry 4.0. Funding measures include the Inclusive Innovation Programme to assist SMEs in inculcating innovation culture. The Technology Commercialisation Platform will provide funds to enable SMEs commercialise innovative products. At the same time, the sectoral development initiatives under the Catalyst Programme will continue to build the capacity of SMEs to participate in the global supply chain. In addition, the Soft Loan Scheme for Automation and Modernisation will provide financing to automate the production line. Meanwhile, the process of approval for funds and grants for SMEs will be reviewed to enhance transparency, improve targeting and link with productivity-based outcomes as outlined in the MPB.

The criteria of the High Impact Fund will be reviewed to encourage multinational companies collaborate with SMEs in producing high-value products and services. The review will enable SMEs achieve productivity gains and remain globally competitive. Professional service providers will be encouraged to build capability and scale in niche areas through partnership with larger corporations or form multi-disciplinary consortia when bidding for projects domestically or internationally. In this regard, the Government will review its procurement policy to facilitate capacity building by giving preference to consortia. This will enable professional service providers to leverage the trust, network, synergy, and shared technical know-how that are established when venturing abroad.

Encouraging digitalisation among SMEs

Digitalisation has great potential to elevate SMEs outreach to the global market, reduce cost of doing business and create more skilled jobs. In this regard, efforts will be intensified in promoting greater application of digital technology including IoT, AI, virtual reality and robotics. Training programmes will also be enhanced to utilise ICT, particularly in the area of logistics, finance and insurance. In addition, digital marketing platforms will be leveraged to capitalise ecotourism products, unique culture and historical sites for tourism. Attention will also be given to online advisory and reviews as part of efforts to improve service quality to increase tourist arrivals.

Accelerating technology adoption in the construction sector

Efforts will be intensified to accelerate technology adoption in the construction sector to increase productivity and enhance the contribution of the sector to growth. In this regard, the implementation of the Construction Industry Transformation Programme (CITP) will be expanded to enhance the competitiveness of the industry. The CITP aims to improve quality, safety and professionalism; ensure environmental sustainability; increase productivity; and improve internationalisation. Meanwhile, greater focus will be given to encourage the adoption of Industrialised Building System (IBS) and Building Information Modelling (BIM) technology in improving the design, construction and maintenance of buildings. These will further improve the efficiency, productivity and quality of construction processes. In addition, the newly established MyBIM Library will serve as a central repository for BIM objects and IBS components to facilitate the development of BIM models at nominal cost to users.

Enhancing technology adoption in agriculture sector

The implementation of initiatives in encouraging technology adoption will be intensified in modernising the agriculture sector. Among the initiatives include adoption of precision-farming technology, utilisation of mobile applications in production processes and expansion of mechanisation and automation. Enabling factors including financing, training, support and extension services as well as incentives such as matching grants will be provided. A wider adoption of modern technology is expected to attract more youth participation in the sector.



Strategy B3: Aligning Research and Innovation

Efforts are needed to address the lack of coordination in R&D&C&I activities and low commercialisation of R&D output. In this regard, several initiatives will be undertaken in improving the alignment of R&D&C&I to priority sectors for effective and efficient implementation, thus optimising resource utilisation and maximising return on investment. In the remaining Plan period, efforts will focus on prioritising areas of science, technology and innovation (STI), strengthening the management of research by public research institutions and enhancing collaboration through intermediaries. In addition, demand-driven research will be increased and transfer of R&D output from lab to market will be improved.

Prioritising science, technology and innovation

The National Policy on Science, Technology and Innovation (NPSTI), 2013-2020, will be reviewed to provide new strategic direction for the development of STI in line with the advancement of the 4IR. In this regard, an action plan will be developed to guide the implementation of the strategies formulated in the revised NPSTI. Focus will be given to priority areas, such as biotechnology, nanotechnology, digital technology, green technology and neuro technology, which will be leveraged to boost STI advancement.

Strengthening management of research by public research institutions

The Government will periodically review and strengthen the prioritisation of R&D&C&I areas across and within sectors, taking into consideration national resources, competitive advantage and expertise. This review will create greater synergistic interlinkages across and within sectors, thus promoting demand-driven research. In addition, there is an urgent need to restructure public research institutions to ensure efficiency and effectiveness. In this regard, the governance of R&D&C&I activities will be improved with the establishment of a centralised research management agency (RMA). The RMA will act as a national management house to centrally coordinate public R&D&C&I implementation as well as resource sharing and utilisation. In addition, inter-ministry collective decision making committee will be institutionalised to

promote shared responsibility and accountability. Subject matter experts from academia, industry and civil society will also be leveraged to facilitate market alignment and scientific rigorous assessment.

Enhancing collaboration through intermediary

Initiatives will be implemented to accelerate innovative activities, thus providing impetus for innovation-driven growth through R&D&C&I. In this regard, intermediaries such as the Public-Private Research Network, Steinbeis Malaysia Foundation and SIRIM-Fraunhofer programme will continue to encourage companies to innovate as well as improve competitiveness and productivity. The quadruple helix model of Collaborative Research in Engineering, Science and Technology (CREST), involves government-industry-academia-civil society, focuses on E&E subsector has shown success and thus, can be emulated by other sectors to ensure better targeting of R&D.

Increasing demand-driven research

Research, development and commercialisation (R&D&C) activities will be directed towards supporting the growth of local SMEs. In this regard, a fund for small business innovation research will be explored to promote research among SMEs. The proposed fund will be offered to SMEs through a competitive process to finance R&D&C activities carried out primarily in Malaysia. The proposed fund will be made available for SMEs to engage Malaysian researchers or foreign talent involved in collaborative research with locals, to ensure the R&D&C activities benefit the country. Meanwhile, collaboration between ministries, research institutions and institutions of higher education will be intensified to streamline research activities based on industry needs and priorities.

Improving the transfer of research and development output from lab to market

Efforts to improve the transfer of R&D output from lab to market will be intensified through collaboration, partnership and technology transfer among industries and researchers. In addition, the Malaysia Commercialisation Year programme will be continued to leverage the collaboration and sharing of resources by various ministries and agencies that conduct R&D activities and further increase the commercialisation of local R&D

outputs. The programme aims to build a resilient and effective commercialisation ecosystem in order to raise the contribution of R&D to the economic development of the nation. Furthermore, the provision of incentives in the form of grants and soft loans such as Facilitation Fund, Commercialisation of R&D Fund and Biotechnology Commercialisation Fund will continue to facilitate the commercialisation of R&D output from lab to market.

Strategy B4: Enhancing Capacity Building

Insufficient skilled and quality human capital in specific skills hampered the shift towards advanced and high knowledge-intensive economic activities. In addressing this issue, capacity building efforts will have to be intensified to create more efficient and skilled workforce in meeting industry demand. In the remaining Plan period, initiatives to enhance capacity building include strengthening skills training programmes as well as enhancing collaboration between training institutions and industry.

Strengthening skills training programme

Efforts will be focused on enhancing capacity building to increase the quality as well as the number of skilled workforce to support innovation, modernisation and adoption of new technology associated with 4IR. Greater collaboration among stakeholders through various initiatives such as internship programmes and skills training for workers will be continued to meet the industry specific talent requirements. The industries will be encouraged to invest in human capital development through reskilling and upskilling programmes in the areas of ICT services, software outsourcing, logistics, finance and insurance as well as tourism to embrace and adopt the technological advancement. Initiatives will be continued to attract foreign direct investment in knowledge-intensive industries and adopt best practices, aligned with the development of the 4IR.

Enhancing collaboration between training institutions and industry

Collaboration between training institutions and industries will be intensified in the remaining Plan period to produce skilled workforce in meeting industry demand. The Industry Skills Committee, a joint public-private platform, will develop new syllabi

specific to emerging industry requirements through identification of areas and profiling of human capital. In order to address skills mismatch, the Critical Occupations List (COL) initiative will be used to identify and forecast jobs in the long term. As for the E&E subsector, programmes will be implemented through joint partnership with the private sector to retrain more engineers in the areas of integrated circuit design and embedded system towards high value-added activities.

In the agriculture sector, initiatives will be undertaken to strengthen the collaborative efforts in the designing and customisation of training programmes to increase employability of graduates in agro-food subsector. The training programmes will be customised and widened to include agronomy, soil science, diseases and entomology, bioengineering, food technology and nutraceuticals. School leavers will be encouraged to enrol in agricultural-based Technical and Vocational Education and Training (TVET) programmes to increase the supply of skilled workforce in the agriculture sector. The availability of skilled workers will enable adoption of modern agriculture practices and increase productivity of the sector.

Priority Area C: Providing Quality Infrastructure

The provision of quality infrastructure remains an issue in terms of integration, coverage and connectivity as well as affordability and sustainability. In this regard, greater emphasis will be given to transport integration in enabling seamless movement of people and goods. Logistics and trade facilitation initiatives will focus on improving efficiency and effectiveness of services along the value chain to enhance competitiveness. Meanwhile, digital infrastructure will be improved to increase broadband coverage and capacity to cater for the demand of the digital economy. In addition, efforts to enhance the efficiency and reliability of water services and energy supply will be undertaken. In the remaining Plan period, five key strategies in providing quality infrastructure for economic expansion are as follows:



Strategy C1: Developing an Integrated Transport System

An integrated transport system that facilitates business and enables seamless travel is vital for economic growth. In this regard, existing initiatives to improve public transport services, address road congestion and expand road networks especially in underserved areas will be intensified. Measures will also be undertaken to increase the efficiency of port operations and upgrade facilities at selected airports. Quality investment will be prioritised in the development of transport related projects, taking into account actual demand and feasibility, to ensure the infrastructure are optimised. In the remaining Plan period, efforts will focus on streamlining initiatives through national transport policy, enhancing connectivity across regions, integrating different modes of transport, upgrading airport infrastructure, improving ports accessibility and capacity as well as optimising transport infrastructure.

Streamlining initiatives through national transport policy

A policy on national transport that sets the principles of sustainable transport and provides framework for ministries and agencies will be launched. This policy aims to create a conducive ecosystem for the transport industry to enhance productivity and competitiveness at national, regional and global levels. In addition, it intends to facilitate seamless movement of goods to boost trading activities. It will also provide mobility that meets the needs of *rakyat* and promotes inclusivity as well as delivers an intelligent, safe and secure transport system. Strategies and action items have been outlined to guide relevant ministries and agencies including local authorities to develop and streamline transport initiatives towards a common goal. This will result in effective and efficient use of resources and minimise environmental pollution as well as enhances the wellbeing of the *rakyat* in line with an advanced nation status.

Enhancing connectivity across regions

The connectivity across regions particularly in the underserved areas will be given priority. The completion of various phases of the Central Spine Road will strengthen connectivity between states in the east coast of Peninsular Malaysia whereas the Pan Borneo

Highway will improve accessibility within Sabah and Sarawak. These highways are expected to open up new areas and boost economic activities. In addition, to achieve greater balanced regional development, construction of highways outside the Klang Valley will continue to be given priority. In terms of improving railway services, the completion of the double tracking project from Gemas to Johor Bahru in 2021 is envisaged to reduce travel time between northern and southern regions as well as enhance quality and comfort. Meanwhile, rural air services that benefit the local community in the remote areas of Sabah and Sarawak, will be rationalised to ensure sustainable operations.

Integrating different modes of transport

Efforts will be undertaken to facilitate modal shift for transportation of cargo, especially hazardous and dangerous goods, from road to rail. In this regard, tighter regulations will be imposed while greater connectivity between these two modes will be improved. These measures aim to mitigate the high usage of roads at 98.4%, to transport goods, which has led to traffic congestion and high number of accidents. At the same time, an upgrading of double tracking in Klang Valley will facilitate faster movement of intercity passenger train, Komuter train and cargo train. In addition, integration between different modes of transport, particularly at entry points such as ports and airports, will be strengthened to facilitate seamless movement of goods.

Upgrading airport system and infrastructure

Expansion of terminals, extension of runways and enhancement of airport facilities will be undertaken in selected airports such as the Sultan Ismail Petra Airport, Kota Bharu and Penang International Airport to increase capacity and efficiency. The completion of upgrading works at the Langkawi International Airport by end of 2018 will reduce congestion and improve comfort for air travellers. Meanwhile, aviation safety will be further strengthened through the upgrading of air traffic management system which consists of communication, navigation and surveillance systems to improve efficiency of air navigation services. In this regard, the Kuala Lumpur Air Traffic Control Centre once completed by 2020 will increase aircraft movements from 68 movements per hour to 108 movements to strengthen Kuala Lumpur International Airport as the main gateway.

Improving ports accessibility and capacity

Increasing capacity and efficiency of port operations is vital in supporting trade. In this regard, port operators are encouraged to improve the services in enhancing competitiveness. Among others, initiatives will be undertaken to improve the ranking of the main hubs, namely Port Klang and Pelabuhan Tanjung Pelepas (PTP) in the world's top 20 container ports. The role of other existing ports will be streamlined to complement and support the main hubs in line with the National Port Strategy study in 2016. Given the underutilised capacity of existing ports, proposals for the construction of new ports will not be considered. In addition, strategies will also be undertaken to improve land connectivity through road and rail networks and enhance capacity of ports through the construction of additional berths and wharves. Meanwhile, port operators will be encouraged to digitalise and automate port operations extensively.

Optimising transport infrastructure

Efforts will be intensified to address road accidents and service interruptions for Komuter train and cargo services by improving the use of existing assets and infrastructure. In this regard, preventive maintenance of existing transport infrastructure will be undertaken to ensure all assets and facilities operate at optimal levels. Meanwhile, prior to the implementation of new infrastructure projects, a comprehensive analysis and feasibility study will be carried out to establish the need and viability of these projects. The analysis aims to ensure that only projects with strong economic and social benefits are executed.

Strategy C2: Strengthening Logistics and Trade Facilitation

The logistics industry in Malaysia remains fragmented and less competitive due to factors such as inadequate connectivity, low adoption of technology and innovation as well as burdensome regulations that impede trade. Initiatives on strengthening logistics and trade facilitation will be continued to increase the efficiency of the industry and promote trade activities. In the remaining Plan period, initiatives to further unleash the growth of logistics and enhance trade facilitation, will focus on improving efficiency along the value chain and digitalising logistics services.



Improving efficiency in the logistics services

Efforts will be focused on improving efficiency and effectiveness of logistics services along the value chain to enhance competitiveness and create economy-wide development impact. The National Logistics Task Force (NLTF) led by the Ministry of Transport (MOT) will continue to spearhead and coordinate the implementation of policies and strategies as well as drive change in the logistics industry. The NLTF will actively engage industry players and relevant stakeholders to further align strategies and initiatives to increase competitiveness of the industry.

The provision of efficient and quality warehouse services is pertinent in ensuring seamless movement of goods in the logistics supply chain. This will require developing standards and specifications, identifying suitable locations, improving processes for approval, establishing a comprehensive national warehouse database as well as implementing effective monitoring mechanisms. These measures will provide opportunities for Malaysia to be a distribution centre for the ASEAN region, particularly for goods purchased online and courier services. In this regard, MOT will collaborate with the Ministry of Housing and Local Government to ensure the successful implementation of these initiatives.

Collaboration between permit issuing agencies and the Royal Malaysian Customs Department is vital to expedite cargo clearance processing time and reduce cost of doing business. In this regard, a centralised examination area for goods in major entry points as implemented in Port Klang will be replicated to enhance collaboration. Furthermore, the uCustoms initiative, a single window gateway that provides end-to-end solutions for cargo clearance, will be fully implemented in early 2019. The implementation of the uCustoms will increase efficiency and productivity and boost the competitiveness of the Malaysian logistics industry players.

The economic growth through trade and exports will necessitate greater capacity and efficiency of port infrastructure. Ports that are reaching capacity limits will be encouraged to seek alternative funding to invest in upgrading port infrastructure to handle larger vessels and provide efficient cargo handling facilities through greater adoption of technology. In addition, greater collaboration among relevant ministries is required to develop a plan in upgrading connectivity to gateways, dispersing economic growth across different regions.

Digitalising logistics services

ICT will be leveraged to provide seamless movement of goods and services as well as encourage e-commerce activities. The private sector will take the lead to establish and promote virtual selling platforms as well as develop fulfilment centres and urban logistics. These activities will transform the traditional supply chain towards a smart supply chain ecosystem. In this regard, the Government will provide a favourable environment through simplified rules and regulations to accelerate the adoption of ICT in the logistics industry. Meanwhile, efforts will be intensified to encourage greater collaboration between the various stakeholders in leveraging the DFTZ initiative and creating a conducive ecosystem to further expand the e-commerce activities.

Strategy C3: Improving Digital Infrastructure

The deployment of digital infrastructure is constrained by high cost and low return on investment particularly in rural areas, resulting in inadequate broadband coverage. Several other issues including the issuance of the right of way and permits for communication infrastructure continue to hinder the deployment of digital infrastructure. In this regard, the capacity and coverage of the digital infrastructure will be further improved to support the development of digital economy as well as increase efficiency and productivity. In the remaining Plan period, measures to improve broadband will be undertaken to increase connectivity, affordability and quality. In addition, efforts will be undertaken to complete the migration to digital terrestrial television (DTT).

Improving broadband connectivity

Efforts will be intensified to improve broadband coverage and capacity through the National Fiberisation and Connectivity Plan to keep pace with the development of digital economy. This will involve the expansion of fibre networks, together with commercial deployment of communications infrastructure towards achieving the target of 95% broadband coverage in populated areas. In addition, enforcement of the amended Uniform Building By-Laws will be strengthened to ensure installation of communications infrastructure in all new commercial and residential development. Meanwhile, relevant laws will be streamlined to ensure communications infrastructure is provided as one of the public

utilities. Persistent issues such as the right of way and complicated procedures related to deployment of digital infrastructure will be resolved, through more integrated and coherent collaboration amongst Federal and state governments as well as local authorities.

Improving broadband affordability and quality

The implementation of Mandatory Standard of Access Pricing and Quality of Services will be continuously monitored to provide better consumer protection and assure affordability of the fixed broadband cost. Efforts will be intensified to reduce the price and double the speed of fixed broadband. In addition, active engagement with the relevant stakeholders will be further intensified to improve the General Consumer Code, which provides model procedures for service providers to endeavour in meeting consumer requirements. This will ensure industry is more customer-centric and consumer rights are protected. In addition, the competition provisions in the Communication and Multimedia Act 1998 will also be reviewed to ensure the market is more competitive, hence offering better pricing for consumers and businesses.

Migrating to digital terrestrial television

In the aspect of migrating to the DTT, the service is targeted to achieve 98% coverage upon completion of the analogue switch off by first quarter of 2019. Ultimately, the DTT will offer new value-added and interactive services to enhance user experience through television. The new value-added services include e-Learning applications, e-Shopping, interactive and online games as well as web TV.

Strategy C4: Improving Water Services

Efficient and quality water services are fundamental for economic growth and uplifting wellbeing of the *rakyat*. In this regard, the coverage of water services will be expanded to meet the growing demand. In the remaining Plan period, initiatives will focus on increasing efficiency and productivity of water supply and sewerage services, expanding network and treatment plant capacity as well as optimising usage of water.

Increasing efficiency and productivity of water supply and sewerage services

Efforts will continue to focus on improving coverage, quality and efficiency of water services to domestic and non-domestic users. Initiatives that will be undertaken for water supply services include the implementation of Tariff Setting Mechanism and restructuring of water services industry. In addition, the initiative for sewerage services includes the rationalisation of small and inefficient sewerage treatment plants (STPs), shifting to regional or centralised STPs. These initiatives will contribute to increasing revenue while reducing operating costs of service operators, thus ultimately improving efficiency and productivity of water supply and sewerage services.

The implementation of holistic Non-Revenue Water (NRW) Reduction Programme to reduce treated water loss will be intensified. The Government will continue to focus on developing a comprehensive district metering zone to monitor leakages, installing new and replacing old water meters, pipes and tanks as well as implementing measures to improve water pressure control. Furthermore, the Government will incentivise water services operators that achieve the NRW reduction targets through partial reimbursement of the capital investment.

Expanding network and increasing treatment plant capacity

The capacity of treatment plants will also be increased by upgrading existing or constructing new water treatment plants and STPs, particularly to cater for increasing demand in high density areas. In this regard, priority will be given to upgrade and construct water treatment plants in states such as Kedah and Selangor, which have recorded low reserve margins, while regional and centralised STPs will be constructed in main cities such as Alor Setar, Kuantan and Taiping. Meanwhile, the issue of sustainable supply of freshwater for plant operations will be addressed by using cost-effective alternatives such as off-river storage to tap and retain surplus run-off water from rivers.

Optimising usage of water

In the remaining Plan period, optimal usage of water resources across sectors will be given greater emphasis. In this regard, a comprehensive water demand management master plan will be formulated to facilitate a structured shift from supply-driven to



demand-driven management to promote efficient and prudent use of water. In addition, a national sewerage master plan will be developed to provide an integrated and holistic long-term policy direction to strengthen the sewerage services industry as well as minimise environmental impacts.

Efficient management of water and related infrastructure for agriculture sector is also important as this sector is the biggest user of water resources in the country. This is crucial in ensuring sustainability in the agriculture sector. Programmes to instil responsible water usage among farmers will be expanded while irrigation and drainage infrastructure will be upgraded and maintained. In addition, the application of Good Agriculture Practice such as myGAP, myOrganic and MSPO as well as precision farming practices will further promote efficient water usage in the sector.

Strategy C5: Sustaining Energy Supply

The provision of reliable and sustainable energy supply is fundamental to strengthen energy security and enhance efficiency. In this regard, the provision and efficiency of energy supply will be improved to meet growing demand. In the remaining Plan period, initiatives will focus on strengthening oil and gas security of supply, ensuring energy security through better management of resources and enhancing efficiency in energy sector.

Strengthening oil and gas security of supply

Concerted efforts to increase security and reliability of oil and gas supply will be continued through the construction of new additional pipelines and other infrastructure. This construction includes PETRONAS floating liquefied natural gas 2, with a capacity of 1.5 million tonne per annum offshore Sabah, expected to be commissioned in July 2020 and the gas pipeline networks from Ayer Tawar to Lembah Kinta, Perak. Meanwhile, the commencement of the Refinery and Petrochemical Integrated Development (RAPID) operations will increase the combined domestic oil refining capacity beyond 900,000 barrels per day by 2019. In addition, storage capacity of crude oil and petroleum products in Pengerang Integrated Petroleum Complex will be expanded from 1.3 million cubic meters to 3.2 million by 2020. These efforts will enable

Malaysia to increase production of higher value-added petroleum products to leverage domestic and export markets. Furthermore, the application of enhanced oil recovery technology in mature oil fields to obtain stranded oil will further increase crude oil production from these fields.

Ensuring energy security through better management of resources

Electricity generation that is heavily reliant on imported coal and gas exposes a nation to significant security of supply and price fluctuation risks. In this regard, Malaysia recorded a value of 0.44 in 2016 in the Herfindahl-Hirschman Index (HHI)¹, which indicates a fairly diverse level of fuel mix. The Government aspires to continuously maintain a balanced fuel mix by intensifying the utilisation of renewable energy. Therefore, the HHI will be maintained below 0.5 to ensure diversification of fuel mix.

Efforts to increase the share of electricity generated from renewable energy as well as explore the use of new sources will be intensified. These efforts aim to further reduce the dependency on fossil fuels for electricity generation, particularly the use of coal that has impact on the environment. Meanwhile, the utilisation of renewable sources such as solar, micro hydro and biogas will be intensified to ensure a wider coverage in remote areas and achieve 99% coverage of electricity supply nationwide.

Enhancing efficiency in energy sector

Efforts to improve efficiency and reliability of electricity supply in Peninsular Malaysia are currently being undertaken through the implementation of the second phase of the Incentive Based Regulation (IBR), from 2018 to 2020. The IBR mechanism is used to determine electricity tariff, taking into account costs related to fuel, generation, transmission and distribution, to enhance transparency in driving efficiency and improving service levels. The implementation of IBR will be extended to Sabah during the remaining Plan period. Meanwhile, efforts to ensure security of electricity supply will be continued with the construction of new power plants through competitive bidding for greater transparency and healthy competition among industry players. In addition, extension of existing power plants period will be reviewed. These measures will result in more competitive tariffs and benefit consumers.

¹ HHI measures the dependency on the type of fuel used in the generation mix. The HHI value reflects the diversity level of a grid system, where the value exceeding 0.5 indicates over-dependency on the particular type of fuel.

Conclusion

During the remaining Plan period, strengthened sectoral growth and structural reforms as well as accelerated innovation and technology adoption, particularly among SMEs, are anticipated to bolster economic growth. In addition, a more knowledge-intensive and skilled workforce will be integral to support the economic sectors in moving up the value chain. Leveraging 4IR will also be vital to ensure Malaysia benefits from the rapid technological advancement to increase competitiveness and market efficiency. Meanwhile, the provision of quality infrastructure in terms of improving connectivity, efficiency and reliability will further support economic activities. These concerted efforts will enhance productivity and ensure Malaysia remains on track to become a developed and inclusive nation.



