25th Productivity Report

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For further information, please contact:

Director General
Malaysia Productivity Corporation
P.O. Box 64, Jalan Sultan
46904 Petaling Jaya
Selangor Darul Ehsan
MALAYSIA

: +(603) 7955 7266
: +(603) 7957 8068
: marketing@mpc.gov.my
: www.facebook.com/MPCHQ
: www.twitter.com/@MPC_HQ

STATUTORY STATEMENT

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MESSAGE FROM THE MINISTER

This year marks the 25th edition since the Malaysia Productivity Corporation (MPC) released its inaugural annual Productivity Report. Much has changed in the intervening years, both in technological and socioeconomic terms, but MPC has maintained its focus on enhancing national productivity to achieve higher economic growth.

It is heartening to see that many industry players, associations, chambers of commerce, private sector organisations, academicians and the public sector agencies working together to realise the Vision 2020, which was announced by Tun Dr. Mahathir Mohamad during the Sixth Malaysia Plan. Our GDP has grown since then from RM116.1 billion in 1991 to RM1,174 billion in 2017, contributed by an average of 3% labour productivity growth.

It is promising to see that the labour productivity in 2017 in terms of added value per person employed was RM81,268, representing a growth of 3.8%, as compared to RM78,294 in 2016. This surpassed the annual productivity growth target of 3.7%. Currently our labour productivity is only 12% away from the 2020 target of RM92,300 as outlined in the 11th Malaysia Plan, contributing to the GDP growth that has increased to 5.9% from 4.2% in 2016.

In achieving the targeted productivity level, 43 sector-level initiatives are currently being implemented through the 9 Productivity Nexus. In particular, these initiatives include the cross-industry embrace of the Industry 4.0 and smart manufacturing, the streamlining of business regulations, the adoption of LEAN Management and other productivity-enhancing methodologies, and the upskilling of the local labour pool. The outcome of the outlined initiatives will certainly be a game changer for the nation's efforts in improving productivity.

With the rapid regional growth, Malaysia must continue to pursue further improvements in productivity across all economic sectors, in order to retain its competitiveness in the global arena. This requires a holistic transformation, requiring productivity improvements to be charted differently, not only in terms of technology, regulations, industry structure, talent and skills, and productivity drive, but also in terms of mindset at the national, sectoral and enterprise levels.

I am confident that in the years leading up to 2020, Malaysia will continue to see even deeper, more fundamental changes and transformation as we strive to become an inclusive nation, with an advanced and high-income economy.

DARELL LEIKING
Minister of International Trade and Industry
Malaysia

CHAIRMAN'S STATEMENT

Over the past 25 years, MPC has been involved in promoting various activities and initiatives to enhance productivity in the country. Starting from promotional activities such as talks and workshops at schools, MPC has also provided advisory and consultancy services on productivity improvement. Building on that foundation, MPC developed training programmes on enhancing productivity and quality, grant awards and recognitions to organisations that had excelled, and conducted research projects related to productivity.

Moving towards the early 2000s, MPC began to be involved in benchmarking and sharing of best practices. It then ventured into looking at competitiveness and innovation at the national level. MPC continues to provide an array of products and services to help organisations improve their productivity. Productivity-related information is disseminated to the public via our WayUp website.

In 2017, to further boost growth in productivity, the Malaysia Productivity Blueprint (MPB) was launched in May, that highlighted the need for productivity to be addressed holistically at all levels to ensure a systemic change across economy. Nine priority subsectors have been established; 5 on services, 3 on manufacturing and 1 on the agriculture sector. The introduction of Productivity Nexus for each subsector is intended for both the public and private-sector to collaborate closely towards enhancing productivity and competitiveness for the betterment of the rakyat. The Productivity Nexus is meant to catalyse productivity improvement while the Tourism Productivity Nexus is meant to reach out to small and medium-sized enterprises (SMEs) in order to help them achieve higher productivity.

As Delivery Management Office (DMO) for the Malaysia Productivity Blueprint (MPB), MPC is working closely with public-sector agencies, private-sector organisations and the academia to ensure that the MPB targets are achieved or exceeded in a sustainable manner. We are tasked with coordinating, monitoring and evaluating the implementation of the country's productivity strategies, to ensure that they lead to successful outcomes. MPC will work towards achieving synergies with both the Economic Planning Unit (EPU) and the sector Productivity Nexus to keep tabs on the roll-out of the productivity initiatives at the national, sectoral and enterprise levels.

Now, as we move through the midpoint of the 11MP, MPC continues to spearhead and monitor Malaysia's competitiveness globally, specifically to review and modernise business regulations. In strengthening the initiative on Good Regulatory Practice (GRP), MPC will further streamline existing regulations, accelerate efforts towards addressing regulatory constraints and ensure an innovative policy development engagement mechanism which will embrace the disruptive technologies. A total of 32 projects under Modernising Business Licensing, Reducing Unnecessary Regulatory Burden and Cutting Red Tape Programs were completed during 2017. It was estimated that this resulted in potential compliance cost savings of RM1.2 billion.

MPC also encourages the uptake of the Malaysia Business Excellence Framework amongst enterprises, as well as facilitating collaboration between industry players and institutes of higher learning (IHLs), to ensure that the workforce of the future is equipped with the necessary industry-relevant skills.

As Chairman of MPC, I believe that by raising the Nation's awareness on productivity, MPC will be able to make efficiency, effectiveness and productivity the catchwords amongst Malaysian workers. By recognising and showcasing productivity champions, MPC aims to help aspiring enterprises set realistic goals to reach, and provide them with case studies as examples on how to attain similar levels of productivity. Raising productivity increases our quality of life. Through achieving and improving skill sets and productivity, the real wages of workers can also be increased, benefitting their families. Let us come together and make it our mission to foster a mindset and work culture based on all round ever-improving productivity.

TAN SRI AZMAN HASHIM
Chairman
Malaysia Productivity Corporation

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AGRO-FOOD

Champion
YBrs. Dr. Nungsari Ahmad Radhi
Prokhas Sdn Bhd

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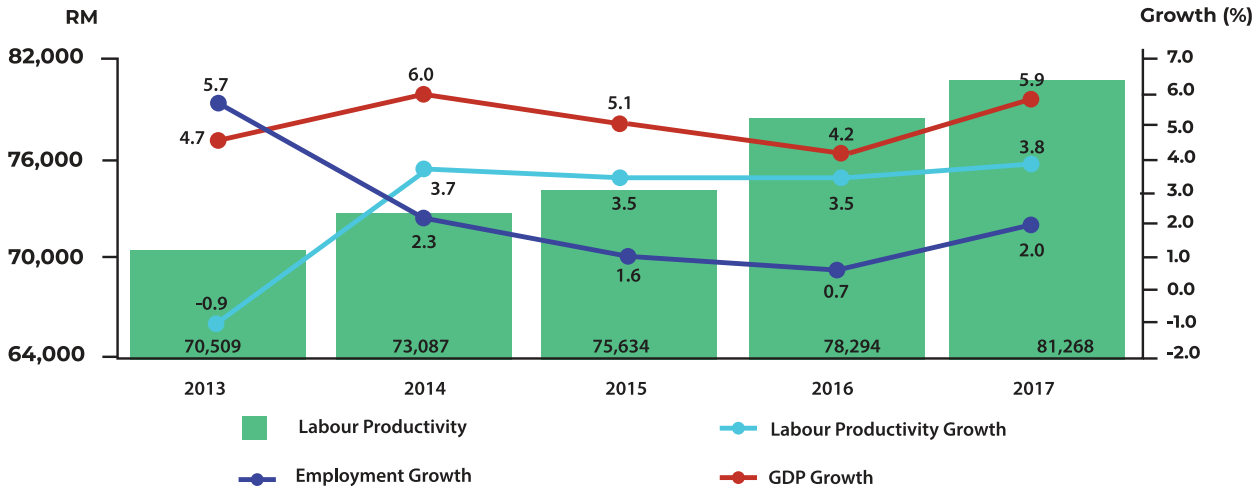
NATIONAL PRODUCTIVITY PERFORMANCE

This part reviews Malaysia's labour productivity performance; and its comparison with selected countries. Labour productivity performance by the main economic sectors and the respective policies and efforts undertaken to holistically boost productivity at the national, sectoral and enterprise levels are also outlined. Productivity, which has been identified as a game-changer in the 11MP is set to boost economic growth. As chartered out in the Malaysian Blueprint (MBP), efforts to boost it will be supported by the Productivity Nexus at the sectoral and enterprise levels. A brief overview of what's in store for 2018 rounds off the section.

National Productivity

At a Glance

Gross Domestic Product (GDP), Employment and Labour Productivity, 2013-2017



2017			11MP Target
GDP (million)	Employment (million)	Labour Productivity	Labour Productivity
RM 1,174,329	14.450	RM 81,268	RM 92,300
5.9% Growth	2.0% Growth	3.8% Growth	3.7% Growth

Sources of Labour Productivity

MFP Growth	Capital Intensity Growth	MFP Growth
2.2%	1.6%	2.3%

Source: Department of Statistics, Malaysia

2017 marks the second year of the 11th Malaysia Plan (11MP). Amongst other things, the 11MP aspires to improve productivity, seeing it as a game-changer for economic growth. As such, continuing efforts have been undertaken to boost productivity. The launch of the Malaysia Productivity Blueprint (MPB) on 8 May 2017 indicates the Government's seriousness to raise productivity, thus driving Malaysia towards becoming a high-income nation by 2020.

Through public-private partnership programmes, government agencies and ministries have come together with private organisations to help devise initiatives and ensure implementation efforts run smoothly. Overarching these efforts is the need for a shift in the rakyat's mindset to accept productivity as a part of culture. This new mindset will help drive the Malaysian economy forward, enable it to grow faster and become more competitive in the global arena.

MALAYSIA'S LABOUR PRODUCTIVITY PERFORMANCE

In 2017, Malaysia's labour productivity - as measured by real added value per person employed - improved by 3.8% to RM81,268, as compared to RM78,294 in 2016. The growth in productivity contributed to a higher growth in the country's Gross Domestic Product (GDP) of 5.9%, while employment grew at 2.0% (Table 1.1).

Productivity growth performance exceeded the national target of 3.7%. In terms of value level, it attained 88.0% of the targeted RM92,300.

Table 1.1 Growth and Contribution of Labour Productivity and Employment to GDP, 2016 & 2017

	Growth (%)		Contribution (%)	
	2016	**2017**	**2016**	**2017**
Labour Productivity	3.5	3.8	83.3	65.5
Employment	0.7	2.0	16.7	34.5
GDP	4.2	5.9	100	100

Source : Department of Statistics, Malaysia

Source: Department of Statistics, Malaysia

Notes:
Skill level is classified according to the **Malaysia Standard Classification of Occupation (MASCO) 2013**
*__High-skilled:__ 1. Managers; 2. Professionals; 3. Technicians and associate professionals;
**__Medium-skilled:__ 4. Clerical support workers; 5. Service and sales workers; 6. Skilled agricultural, forestry, livestock and fishery workers; 7. Craft related trade workers; 8. Plant and machine operators and assemblers;
***__Low-skilled:__ 9. Elementary occupations

LABOUR PRODUCTIVITY OF SELECTED COUNTRIES

The world's top performers in productivity (USD, PPP) are from developed countries namely Luxembourg, Ireland, Norway, the United States, Sweden, and Switzerland. In 2017, Luxembourg achieved the highest productivity level at USD145,513, thus becoming the frontier of labour productivity. In order to attain that level, Malaysia (USD64,259) has to be 2.3 times more productive.

Malaysia's productivity level, both in output per person employed and output per hour worked, was the highest among selected Asian countries. However, productivity grew slower compared to China, India, and the Philippines.

Malaysia's productivity growth is ahead of advance economies such as the Luxembourg, United States, Japan, Australia and Singapore; however, Malaysia lagged behind in terms of productivity level.

Figure 1.1 : Labour Productivity Performance of Malaysia vs Selected Developed Countries, 2017

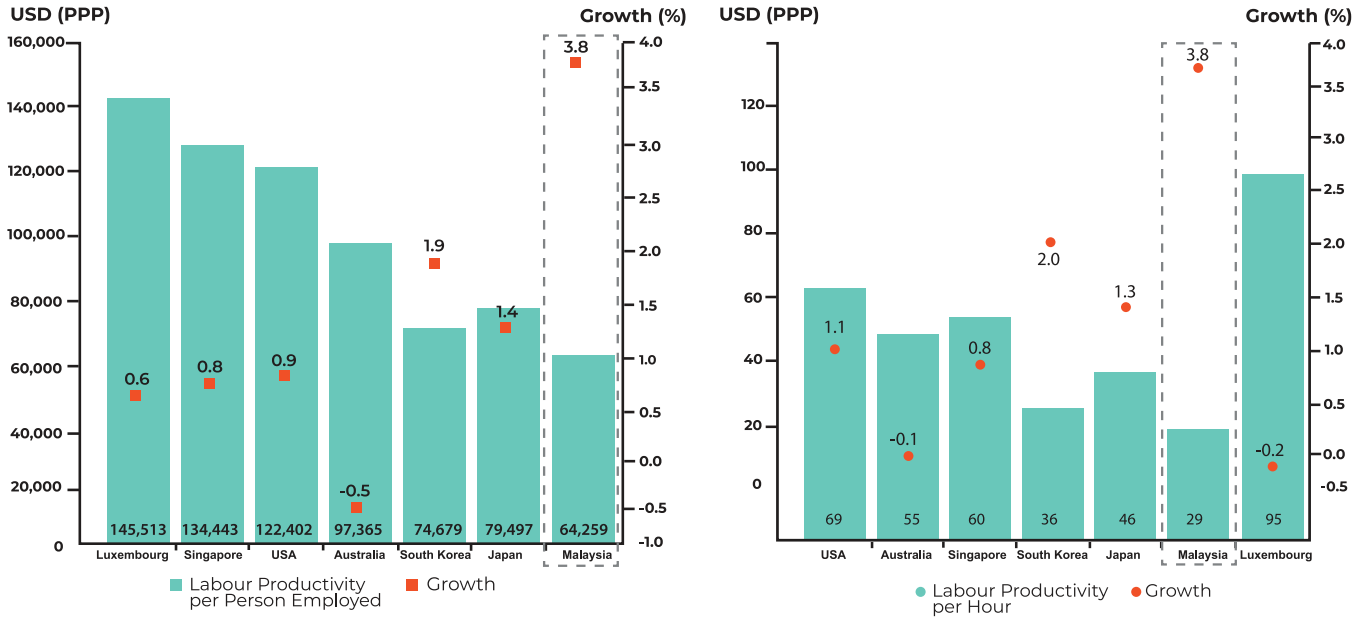
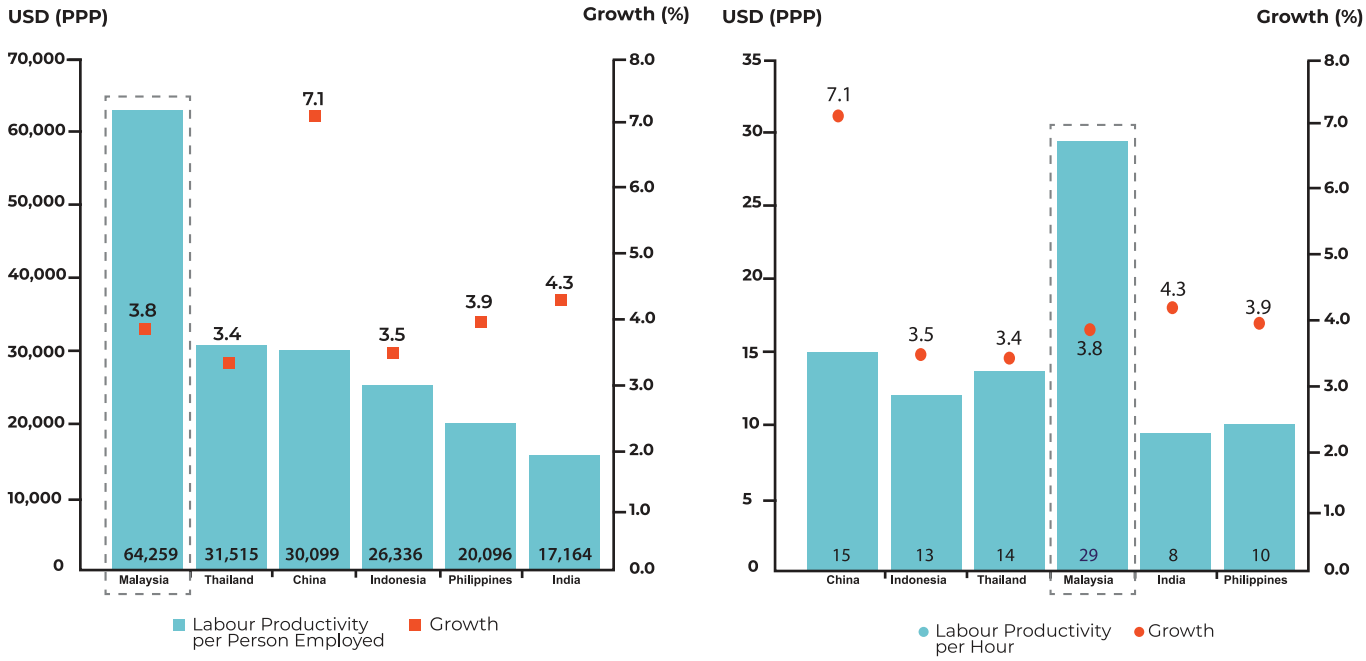


Figure 1.2 : Labour Productivity Performance of Malaysia vs Selected Asian Countries, 2017



Source : World Competitiveness Yearbook 2018, IMD

LABOUR PRODUCTIVITY DETERMINANTS

Economic growth over the long term is determined by supply factors like employment and labour productivity growth. The latter is affected by various factors, such as Multi Factor Productivity (MFP) and capital intensity (Appendix A.2). Productivity growth means that more value is added to products and services, which will then create greater income for distribution.

From 2011 to 2017, Malaysia's growth in labour productivity was a result of equal contributions from both capital intensity and MFP (Figure 1.3).

However, from 2011 to 2015, labour productivity was mostly driven by MFP. Therefore, it could be concluded, the country has increased its investment in capital in the last two years (2016 and 2017), as it prepares for the Fourth Industrial Revolution (Industry 4.0).

From 2011 to 2017, labour was the main contributor to Malaysia's GDP at 53.9%. This was followed by capital (23.3%) and MFP (22.8%) (Figure 1.4).

Figure 1.3 : Labour Productivity, Capital Intensity and MFP, 2011-2017

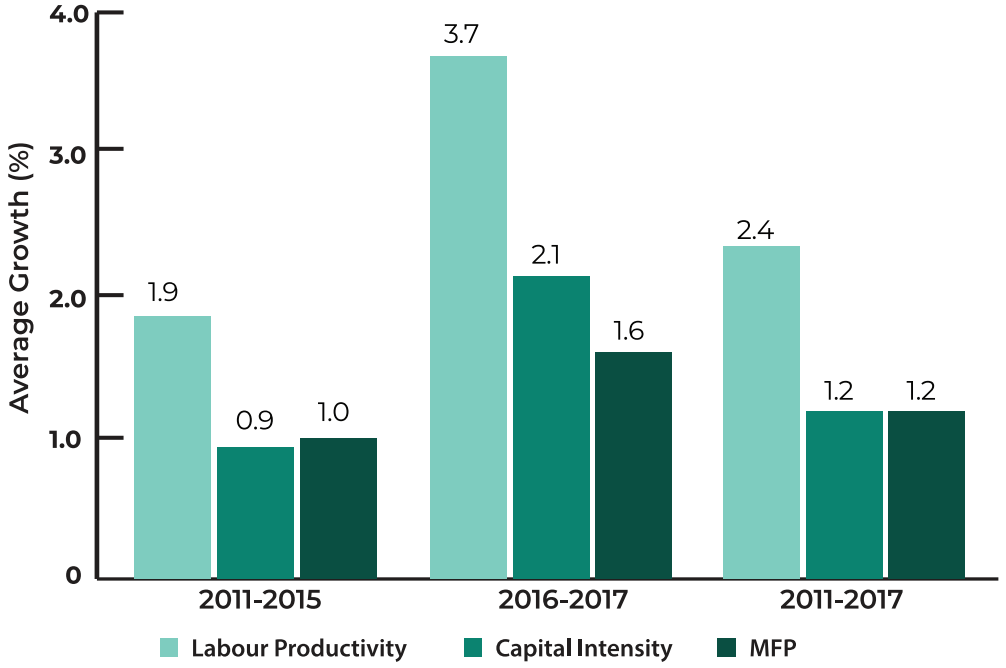
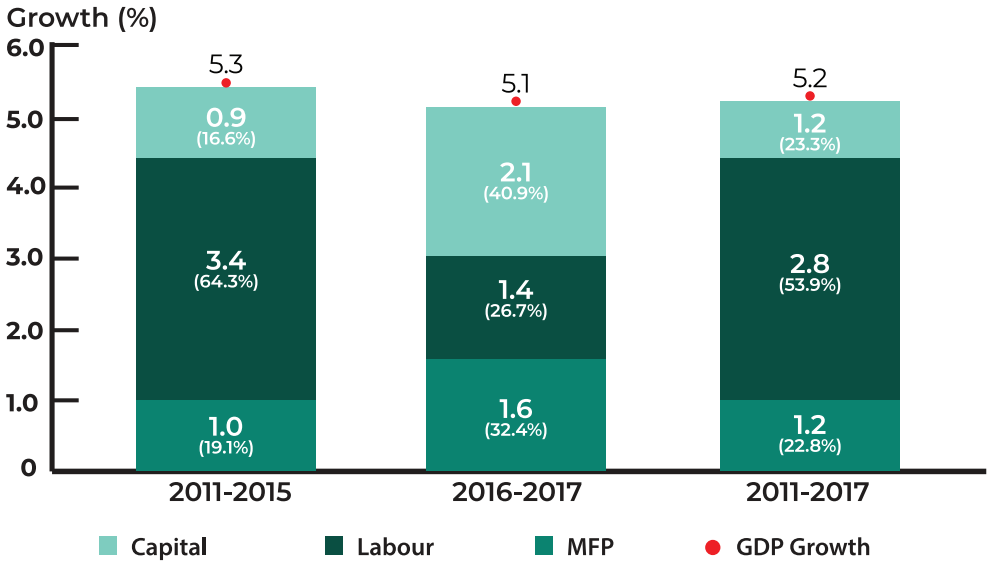


Figure 1.4 : Contribution and Growth of Capital, Labour and MFP to GDP



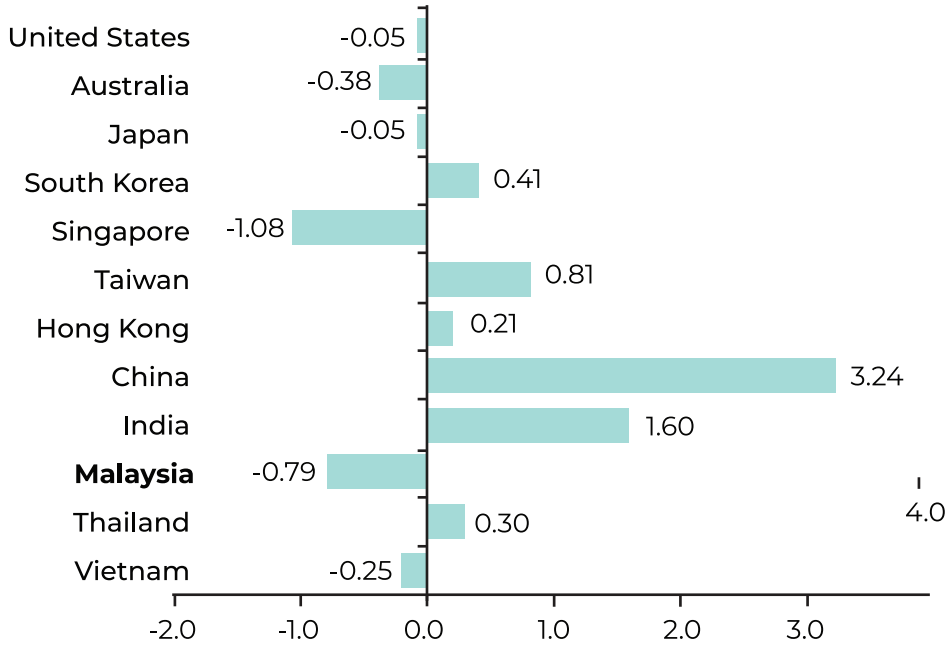
Note : Values in brackets represent contribution to GDP
Source : MPC

MFP OF SELECTED COUNTRIES

Malaysia's MFP performance in the past 10 years (2007-2016) was recorded at -0.8% as the country was affected by the global financial crisis, the weakening ringgit, and the volatility of crude oil prices during the period. MFP growth of developed countries namely the United States, Australia, and Japan also recorded a contraction during this period with Singapore recording the greatest contraction of 1.08% (Figure 1.5).

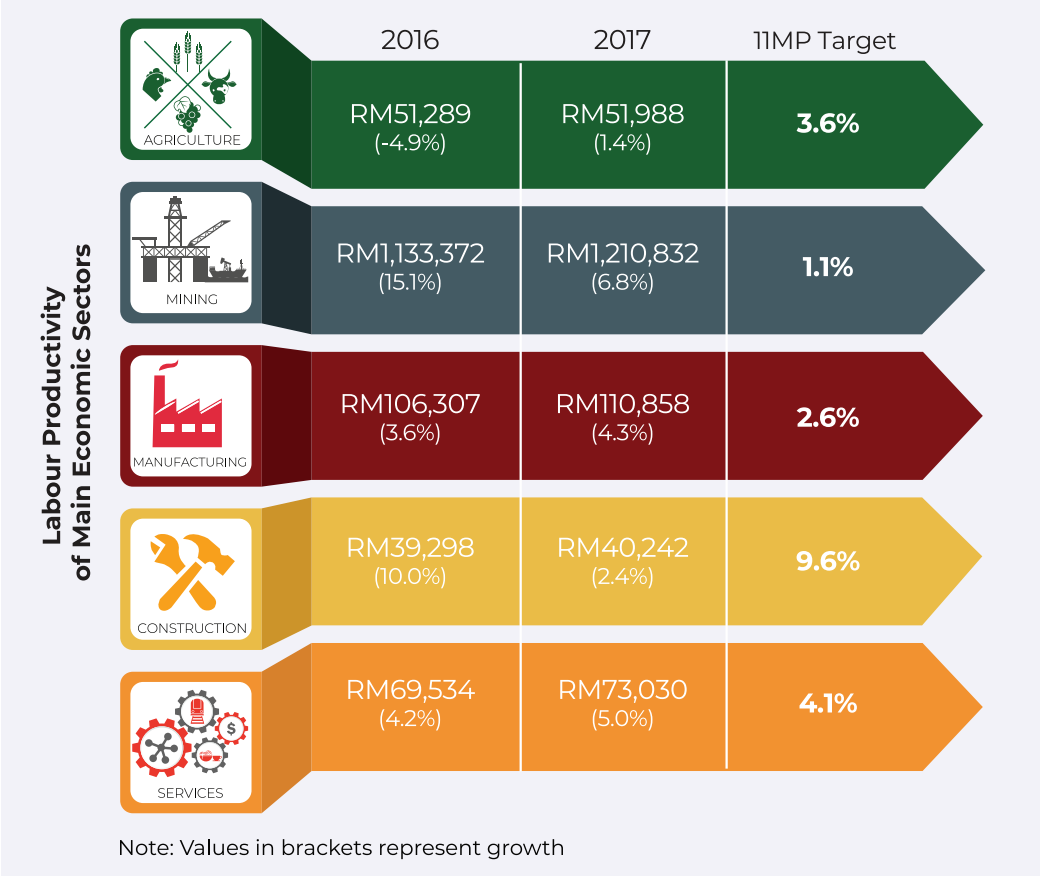
Meanwhile, China, India and South Korea recorded a positive MFP growth of 3.2%, 1.6% and 0.4% respectively during the same period.

Figure 1.5 : MFP Growth of Selected Countries, 2007-2016



Source: Total Economy Database, The Conference Board

SECTORAL LABOUR PRODUCTIVITY PERFORMANCE

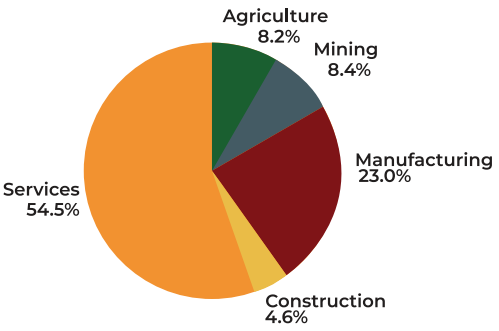


Note: Values in brackets represent growth

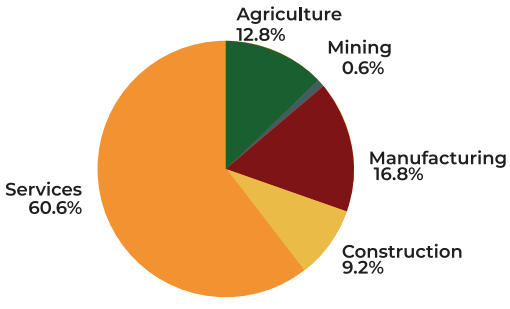
In 2017, all main economic sectors registered growth in labour productivity. The services sector accounted for the largest contribution to total GDP at 54.5%, and it also registered a high productivity growth of 5.0%. The sector recorded significant growth in added value at 6.2%, while employment growth was at 1.1%. The second largest contributor to GDP was the manufacturing sector, which recorded labour productivity growth of 4.3%, while added value and employment growth was at 6.0% and 1.7% respectively.

Meanwhile, the construction sector registered labour productivity growth of 2.4% in 2017, with added value growth at 6.7% and employment growth at 4.2%. The agriculture sector too experienced labour productivity growth with slower rate of 1.4%, despite a high added value growth of 7.2% and employment of 5.8%. Another sector that recorded high labour productivity growth was mining; which charted 6.8% growth, as added value grew at 1.0%, while employment recorded a decline of 5.5%.

Added Value Contribution

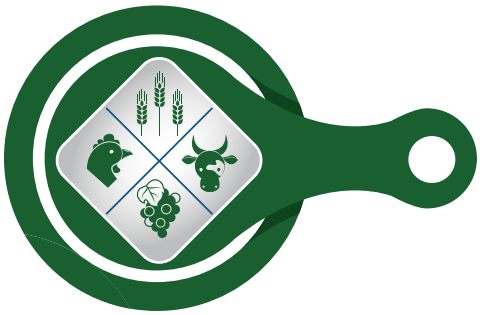


Employment Contribution



Source: Department of Statistics, Malaysia

Key Contributors to the Sector's Labour Productivity Growth



AGRICULTURE

Crops & Livestock
Growth: 4.4%
Attributed to:
An increase in crude palm oil (CPO) production, with the industry recovering from the negative impact of the previous year's El Nino phenomenon

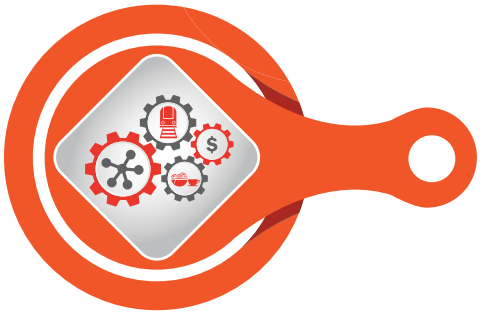
MANUFACTURING

Domestic-Oriented Industries
Growth:
- Transport Equipment, Other Manufacturing & Repair (8.8%)
- Vegetable & Animal Oils & Fats & Food Processing (7.3%)

Attributed to:
Stability in demand for food-related products and construction-related materials

Export-Oriented Industries
Growth:
- Wood Products, Furniture, Paper Products & Printing (6.3%)
- Electrical, Electronic & Optical Products (5.8%)

Attributed to:
Recovery in global demand



SERVICES

Retail Trade
Growth: 7.9%
Attributed to:
Higher consumer spending, especially from sales in non-specialised stores and other goods in specialised stores

Transportation and Storage
Growth: 5.7%
Attributed to:
Land transport, with more passengers on KTM's Electric Train Service and intercity services, as well as a sharp increase in traffic volume on tolled highways

Food and Beverage (F&B)
Growth: 4.0%
Attributed to:
Increase in demand

Source: Department of Statistics, Malaysia

Internationally, the IMD World Competitiveness Yearbook 2018 ranks Malaysia among 62 other countries in 3 main sectors; namely, agriculture, industrial, and services.[1] The report ranks Malaysia 27th at USD46,777 for agriculture, where Malaysia is 3.6 times lower than top-ranked Norway at USD166,655. In the industrial sector, Malaysia ranks 26th with USD92,722 which is 3.8 times smaller than the top-ranked Ireland at USD354,150, while in the services sector, Malaysia ranks 46th at USD54,811, being 3 times smaller than the top-ranked Qatar at USD167,067.

For the period 2011-2017, the construction and services sector productivity growth were mainly driven by MFP (Table 1.2). The MFP growth in the construction sector was largely due to intensive demand resulting from mega construction projects nationwide. Conversely, productivity of the manufacturing sector was largely due to capital intensity, as the sector is transforming to become a capital intensive industry in preparation for Industry 4.0.

Table 1.2: Capital Intensity, MFP and Labour Productivity Growth of the Main Economic Sectors, 2011-2017

	Labour Productivity (%)	MFP (%)	Capital Intensity (%)
Agriculture	0.3	-3.0	3.3
Mining	-9.0	-6.8	-2.2
Manufacturing	3.4	1.3	2.2
Construction	5.9	5.1	0.8
Services	3.0	2.6	0.4

Source : MPC

1
Agricultural productivity (PPP) - Estimates: Related GDP (PPP) per person employed in agriculture, USD
Productivity in industry (PPP) - Estimates: Related GDP (PPP) per person employed in industry, USD
Productivity in services (PPP) - Estimates: Related GDP (PPP) per person employed in services, USD

PRODUCTIVITY DRIVERS AND POLICY

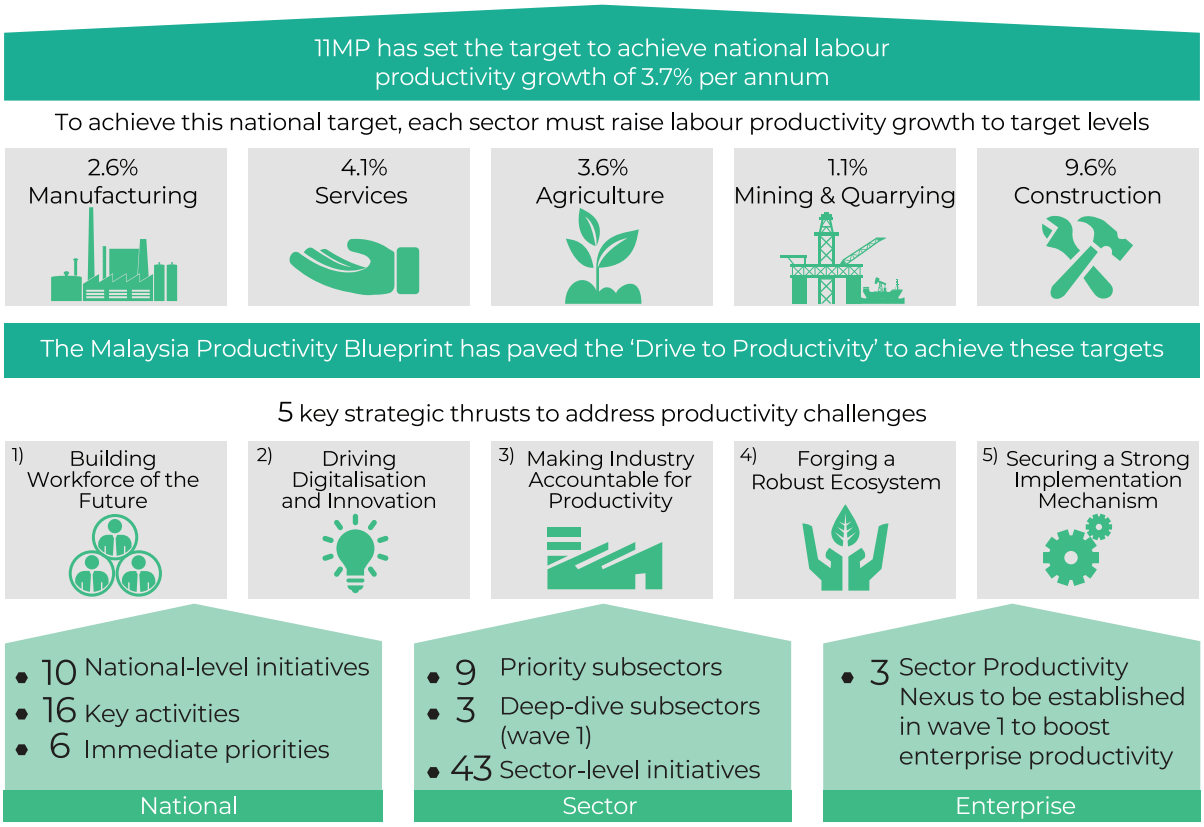
Productivity is the single most important factor in a country's long-term growth. High-productivity nations are able to quickly adapt to changes in macroeconomic challenges, as well as fundamental shifts brought on by technological advancement. Realising the importance of productivity to the nation, the 11MP has specified unlocking the potential of productivity as one of the 6 game-changers for the country to achieve high-income status by 2020.

Productivity has been identified as the most vital part in the 11MP's implementation, which calls for renewed efforts to boost productivity in a focussed and targeted manner, with clear outcomes at the national, sectoral, and enterprise levels. The 11MP has introduced the Malaysia Productivity Blueprint (MPB) in May 2017 as a strategy to realise this aspiration.

PRODUCTIVITY AS A GAME CHANGER

The 11MP has set, as a minimum target, an annual labour productivity growth of 3.7%, and a productivity level of RM92,300 by 2020. Five key strategic thrusts have been formulated as the basis of recommendations to raise productivity. The 5 key strategic thrusts are building the workforce of the future, driving digitalisation and innovation, making industry accountable for productivity, forging a robust ecosystem, and securing a strong implementation mechanism. From these strategic thrusts, 10 national-level initiatives and 43 sector-level initiatives have been identified, with 3 Sector Productivity Nexus driving change at the enterprise level (Figure 1.6).

Figure 1.6 : Boosting Productivity Holistically
5 Strategic Thrusts, 10 National Level Initiatives, 43 Sectoral-level Initiatives



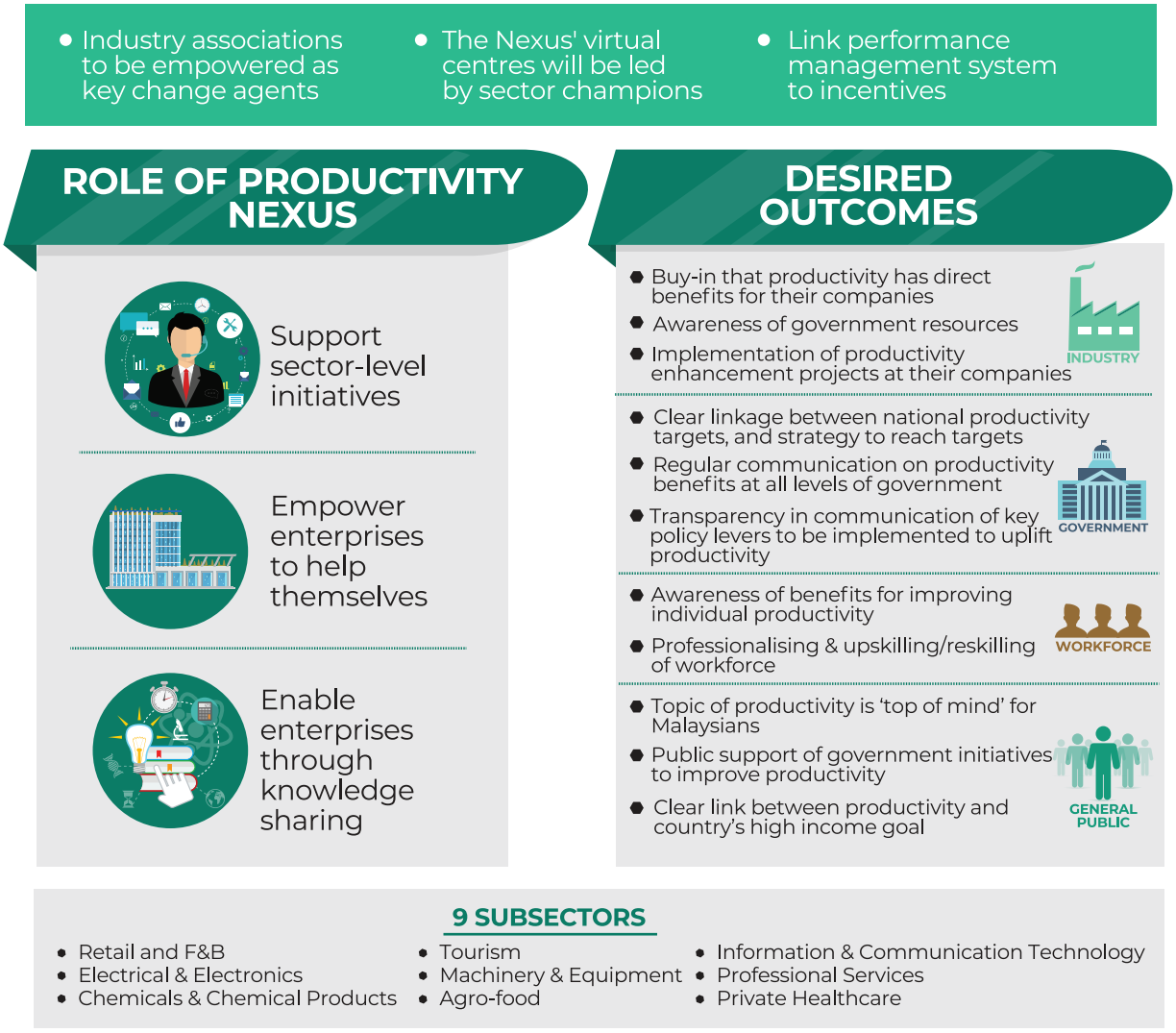
Source: Economic Planning Unit

SECTOR PRODUCTIVITY NEXUS

At the sectoral and enterprise levels, 9 priority subsectors have been identified. These are retail and food & beverage (F&B), electrical and electronics (E&E), chemical and chemicals products, agro-food, professional services, tourism, information and communication technology (ICT), machinery and equipment (M&E), and private healthcare. These subsectors have been selected based on 5 main criteria; the subsector's productivity gap, impact on GDP, percentage of workforce, readiness of the subsector to implement productivity improvement and existing Government plans. It is targeted by 2020, these subsectors will comprise 30% of Malaysia's GDP and provide 40% of total employment.

The productivity initiatives in these subsectors are implemented through the introduction of the Productivity Nexus, led by the respective subsector's Association. The Productivity Nexus's role is to support sector-level initiatives, empower enterprises to help themselves, and enable enterprises through knowledge-sharing (Figure 1.7). The performance of these Productivity Nexus will be discussed in Part 2 of the report.

Figure 1.7: Productivity Nexus in a Nutshell



Source: Economic Planning Unit

OUTLOOK 2018

Malaysia's economy is anticipated to sustain its growth as the global economy continues to recover in 2018. This will contribute to the positive impact on Malaysia's labour productivity, which is expected to expand between 3.0% and 4.0% (2017: 3.8%). This performance is expected to contribute to the estimated GDP growth, between 5.5% and 6.0% in 2018. It is to be supported by strong domestic private consumption, with continued growth in wages, employment, and business optimism. Growth prospects are further lifted by strengthening global economic conditions, as Malaysia benefits from global demand, exposure to the global technology cycle, and new export production capacity.

In 2018, both manufacturing and services sectors are expected to achieve a productivity growth of 4.0%. Other economic sectors, such as construction and mining, are projected to post strong productivity growth of 7.0% and 9.0% respectively, while agriculture is forecasted to experience a contraction of 2.0%.

To reach the 11MP target of 3.7% productivity growth to a productivity level of RM92,300, the country needs to continue its efforts in pushing to improve productivity performance through innovation, adoption of information technology, reducing the skills gaps, fostering regional integration, and strengthening institutions in the entire productivity ecosystem. The introduction of the Productivity Nexus in priority subsectors will drive the industries in pursuing higher levels of technology adoption and innovation, as well as inculcating a culture of productivity. The Nexus will be supported by regular reviews of government strategies and implementation, as well as identifying and adopting best practices among institutions. They will complement other efforts to shift the productivity mindset and boost the productivity of the nation.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PRODUCTIVITY PERFORMANCE OF PRIORITY SUBSECTORS

This part reviews the productivity performance of the 9 priority subsectors, as identified by the MPB through the establishment of Productivity Nexus. A detailed look at each priority subsector; their respective classifications and productivity performance, the value chains, ecosystems, and challenges are also featured.

Productivity challenges are being addressed through various means at three distinct levels; national, sectoral, and enterprise. At the national level, this is done through 5 strategic thrusts; namely, building a workforce for the future, driving digitalisation and innovation, making industry accountable for productivity, forging a robust ecosystem, and securing a strong implementation mechanism. At the sectoral and enterprise levels, productivity challenges are addressed through the Productivity Nexus.

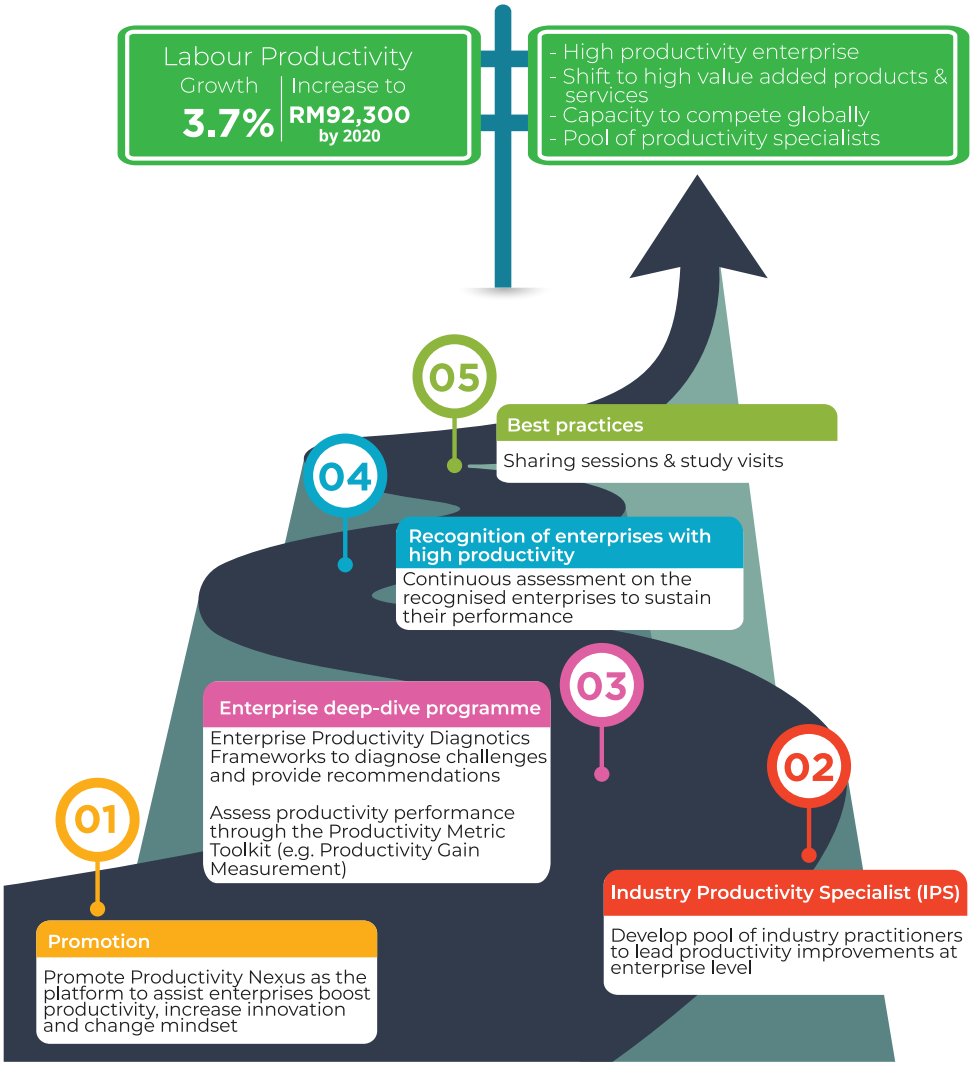
PRODUCTIVITY NEXUS

The Productivity Nexus supports sector-level initiatives, by creating awareness, improving understanding, and facilitating the adoption of the sector-level initiatives. Productivity Nexus are implemented for 9 priority subsectors to help enterprises produce high-value output at lower costs.

Additionally, the nexus will develop and disseminate tools, contribute to best practices, and create recommended pools of consultants to support enterprises in their efforts to address industry-specific issues. This will strengthen partnerships between government, enterprises, and trade associations and chambers.

The 9 priority subsectors identified are retail and food & beverage (F&B), professional services, tourism, information and communication technology (ICT), and private healthcare (subsectors of the services sector); electrical and electronics (E&E), chemicals and chemical products, machinery and equipment (M&E) (subsectors of the manufacturing sector), and agro-food, which is an agriculture subsector. These subsectors are prioritised based on criteria such as productivity gap, contribution to GDP and employment, and readiness to implement productivity improvement under the existing Government plan.

Productivity Nexus Roadmap



RETAIL AND FOOD & BEVERAGE (F&B) SUBSECTOR

At a Glance

CLASSIFICATION

PERFORMANCE

	2016		2017	
	SERVICES	RETAIL AND F&B	SERVICES	RETAIL AND F&B
Added Value (RM Million)	602,261 (5.7%)	95,170 (7.3%)	639,568 (6.2%)	103,776 (9.0%)
Employment (Million)	8.661 (1.5%)	2.612 (2.3%)	8.758 (1.1%)	2.675 (2.4%)
Labour Productivity (RM)	69,534 (4.2%)	36,437 (4.9%)	73,030 (5.0%)	38,797 (6.5%)

: 1 Million

Note : Values in brackets represent growth
Source : Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF THE RETAIL AND FOOD & BEVERAGE (F&B)

The retail industry in Malaysia has experienced rapid transformation and expansion in recent decades due to consumers' changing lifestyles and increased disposable income. Traditionally, the retail business in Malaysia has been dominated by small 'mom-and-pop' grocery stores. Its development into a modern and sophisticated retail environment has been helped along by the emergence of foreign retailer participation, with the establishment of large department stores such as AEON, Isetan, and Sogo, and the emergence of hypermarkets such as AEON Big, Econsave, Giant, Mydin, NSK, and Tesco.

The Malaysia F&B industry has also seen significant development over the past few decades. International quick service restaurant (QSR) brands have established themselves here. These include companies such as McDonald's, Subway, Nando's, and Yum! Brands (the owner of KFC and Pizza Hut, amongst others). Franchisors including Kenny Rogers and Sushi King also have made their presence felt. The industry has also seen a marked improvement in its service quality.

The retail and F&B subsectors were the main drivers of the services sector's added value growth contributing 16.2% in 2017. It is anticipated to continually experience an increase in its contribution.

The subsector performance improved significantly in 2017, charting a growth of 9.0% to RM103.8 billion, compared with RM95.1 billion in 2016. The subsector employed a total of 2.7 million workers in 2017, which was 30.5% of the services sector's total workforce.

The retail and F&B subsector registered productivity growth of 6.5% which amounts to RM38,797 in 2017, compared with 4.9% in 2016. The Malaysian Government has introduced various initiatives to assist Malaysian entrepreneurs in their efforts to penetrate online trade. Amongst the initiatives was the development of Malaysia's e-Commerce industry, which includes the establishment of the world's first Digital Free Trade Zone (DFTZ), in collaboration with Alibaba. This has supported the subsector to significantly improve its productivity performance.

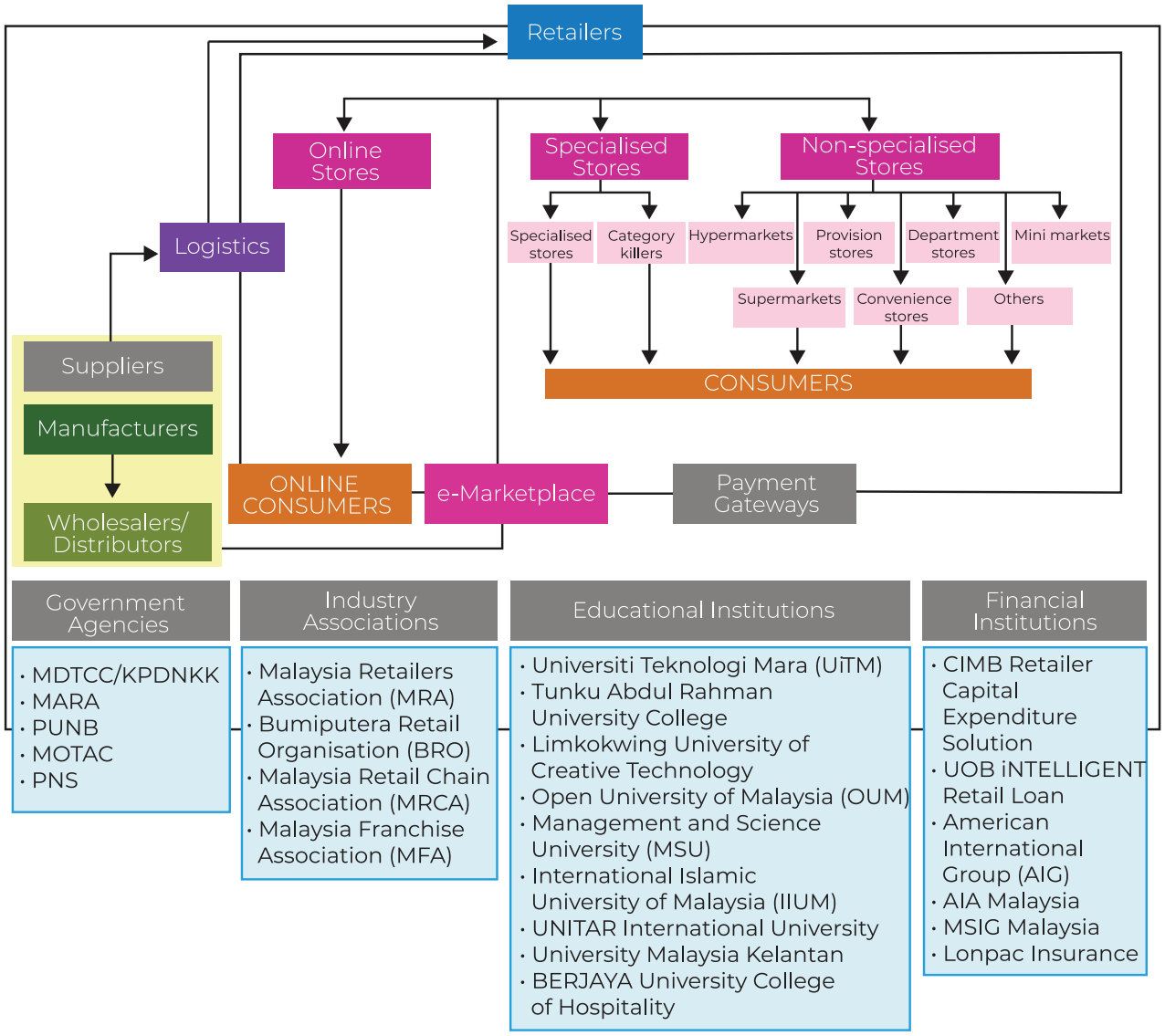
SUPPLY NETWORK

The Retail Supply Network

As the retail industry embraces the digital era, it sees a seismic shift from a traditional value chain into a digital supply network. The retail supply network, which forms the framework for adding value to the retail value chain (Figure 2.1), is causing changes in retail formats by blurring the relationship between sectors and focusing more on consumer on-demand fulfilment. The incorporation of the value chain and the digital medium is intended to provide an enhanced consumer experience. The primary role of this framework is to create better prospective opportunities and enhance retailer's competitive advantages.

The retail supply network allows the whole system of entities to connect either directly or indirectly, in an interlinked and interdependent fashion, to serve the consumers. The retail supply network is a tool for retailers and other stakeholders to have visibility of the overall movement of materials or information from the beginning till the end, enabling them to realise the benefits of working together, while ensuring the best possible value is provided to the end users.

Figure 2.1: Retail Supply Network

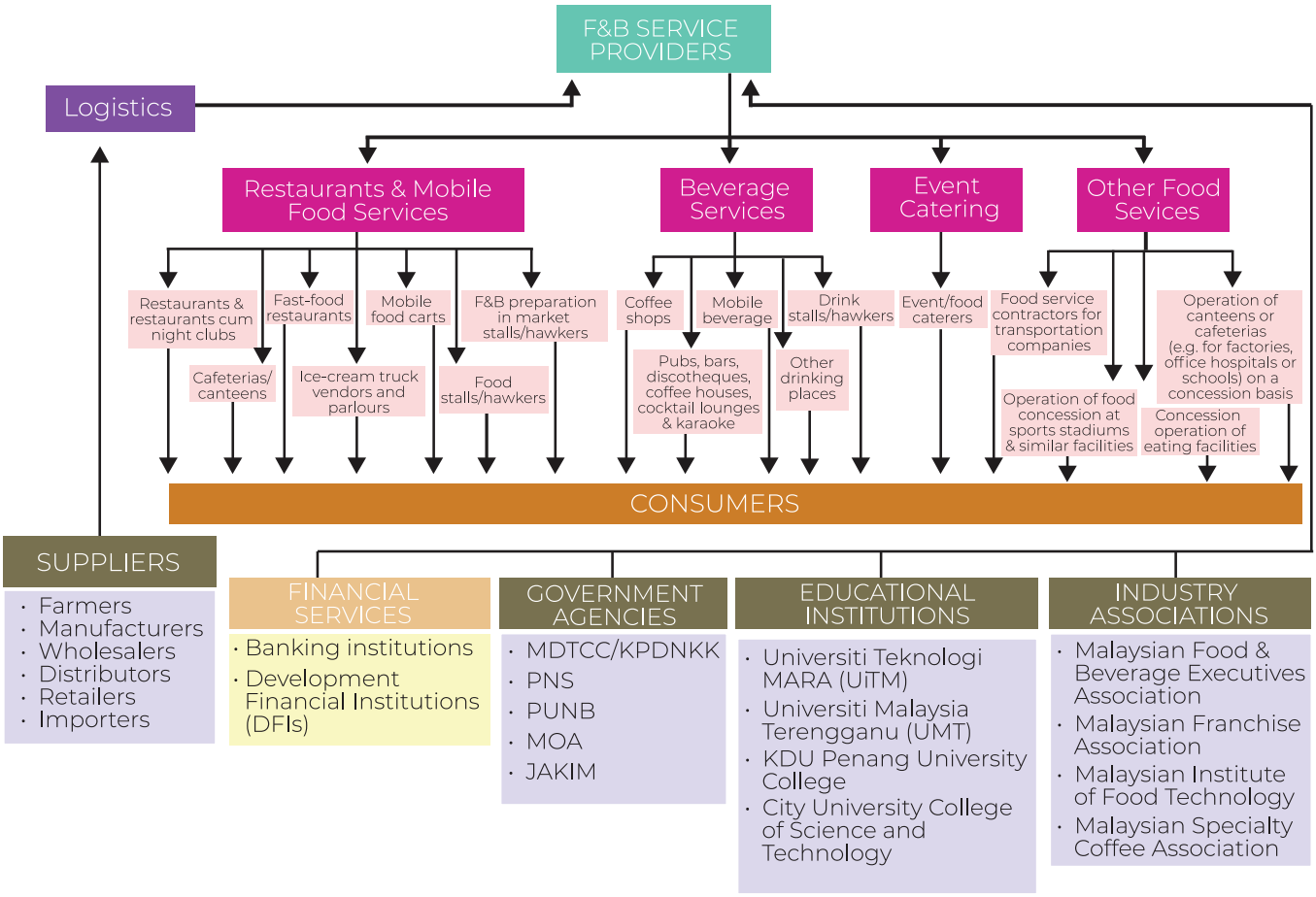


The F&B Supply Network

The growing number of marketing channels, such as food television shows and the influence of social media, has contributed considerably towards the F&B market. The F&B sector is made up of multiple horizontal and vertical relationships. The dynamic nature of these relationships plays an important role in innovating F&B service operations, which involves a multitude of activities in the supply network. Engaging consumers and enabling innovations in the supply network is critical to ensure that services delivered are of the highest quality. All establishments are required to work together and in sync to serve consumers; be it restaurants, mobile food vendors, beverage caterers, event caterers, or other food service providers.

F&B services can be broadly defined as the process of preparing and presenting food and beverage to consumers. These services encompass businesses delivering food and beverage to their consumers at certain locations (on-premises) such as hotels and restaurants, or to the premises of the consumers (off-premises or outdoor catering). The F&B supply network, which forms the framework for adding value to the services (Figure 2.2), is meant to operate cohesively and in synergy with supply network players. A clear view of the entire supply network is needed, to assess the supply chain impact for service efficiency and effectiveness, which leads to the increase of productivity performance.

Figure 2.2: The F&B Supply Network



CHALLENGES AHEAD

The retail and F&B industry players are faced with issues related to workforce, technology, regulation, enterprise mindset and consumer behavior.

It is the hope of business enterprises that awareness of these challenges can help them nip issues in the bud and move on to a more promising future.

Retail and F&B Subsector Challenges

Mindset

- Lack of awareness on available government initiatives. Many small retail and F&B enterprises are not affiliated to any associations. This poses difficulty for them to be aware of governments' initiatives
- Spending on innovation, technology and talent development is perceived as cost rather than investment by many retailers and F&B operators.
- Productivity often not seen by enterprise as a priority. Retail and F&B players are unable to relate the importance of productivity to their daily business operations
- Limited use of productivity and operational efficiency tools to monitor business process operations

Regulations

Currently, the minimum wage in East Malaysia is RM920 and RM1000 for West Malaysia. Though the law is supposedly helpful for the public, some enterprises felt that it is somewhat unfair to the people. This is because the minimum wage is standardised to the whole West Malaysia and East Malaysia. The cost of living on the other hand, varies throughout states. Some workers that earn a certain amount in the city may find it harder to survive compared to someone in rural areas

Workforce

- Difficult to retain the workers due to unstructured career path with long promotion time and low average pay
- Retail and F&B subsector is perceived as 'unglamorous' with long working hours, shift work and tough work

Technology

- Low adoption of technology prevalent across Retail and F&B subsector
- Slow adoption of e-Commerce
- Unable to adapt to new technologies due to lack of funding

Consumer Behavior

- Consumer tends to be more particular on their spending habit and focus more on basic necessities instead of luxury items.
- Consumer continue to look out for value-for-money goods and services.
- Rising cost of living continued to weaken Malaysian purchasing power

SEAMLESS RETAIL PAYS OFF FOR SENHENG

Established in 1989, Senheng Electric (KL) Sdn. Bhd. (Senheng) is a leading Malaysian consumer electronics chain store with 121 outlets nationwide. However, 2014 to 2016 saw business declining by about 6% to 7% annually as customer traffic migrated from bricks-and-mortar to online. Senheng found out that with the introduction of new technologies, digital stores and the increasing ubiquity of smartphones has led to a change in the retail business and consumer expectations.

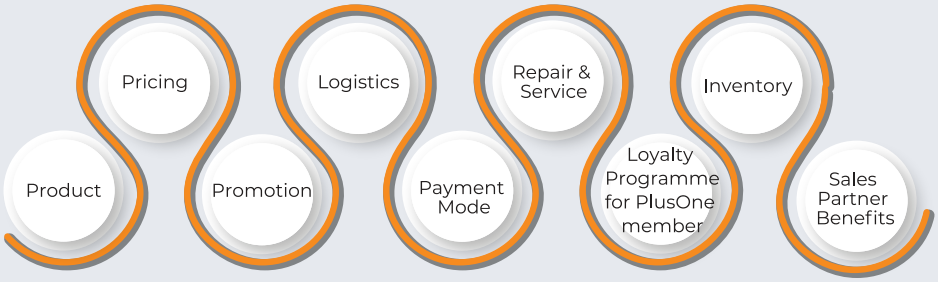
"We are seeing an online-to-offline (O2O) revolution that changes the way people shop. Consumers expect a seamless shopping experience across various channels that can be accessed whenever and however they choose. Retailers that do not meet these expectations will lose traffic," - Lim Kim Heng, Managing Director (MD), Senheng Electric (KL) Sdn. Bhd.

As a retail business, continuous improvement in efficiency, adapting to ever-changing market situations and where industry players must innovate rapidly in tandem with the speed of changes in the market, Senheng launched its seamless business model called 'SEAMLESS 2.0' on its 28th anniversary in 2017. 'SEAMLESS 2.0' streamlined Senheng's 121 retail stores nationwide with an effective online channel to offer more value-added O2O shopping experience.

With an investment of RM5 million, Senheng's SEAMLESS 2.0 platform uses big data analytics to develop personalised strategies to better target customers, thus improving sales and overall satisfaction. There are 9 elements involved in order to implement the seamless retail concept.

THE 9 ELEMENTS

- Ensures the best price by conducting daily price competitiveness ranking using Online Market Survey Solution
- Centralises all the supplies and operation based on a single window for business partner to replenish orders on daily basis
- Tracks the progress of their service request by downloading the Senheng App from the Apps Store
- Applies 80-20 long- tail concept where 80% comprises of popular, high demand products and the less popular models make up the 20% balance



- 40 international brands to participate under the shop-in-shop (SIS) concept to have the largest assortment of stock keeping unit (SKU) in the country
- Consolidates the brands and promotions to ensure that online and offline customers enjoy the same benefits and entitlements
- Assuring online buyers enjoy the same varied mode of payment as in-store buyers
- Enjoys an extra one-year Senheng warranty on top of the manufacturer's warranty when purchasing products online or offline
- The online lead and the store service staff share the sales commission equally with the cross-channel sales commission sharing scheme

THE IMPACT OF THE SEAMLESS 2.0

Current
Average
16 %
increase in turnover

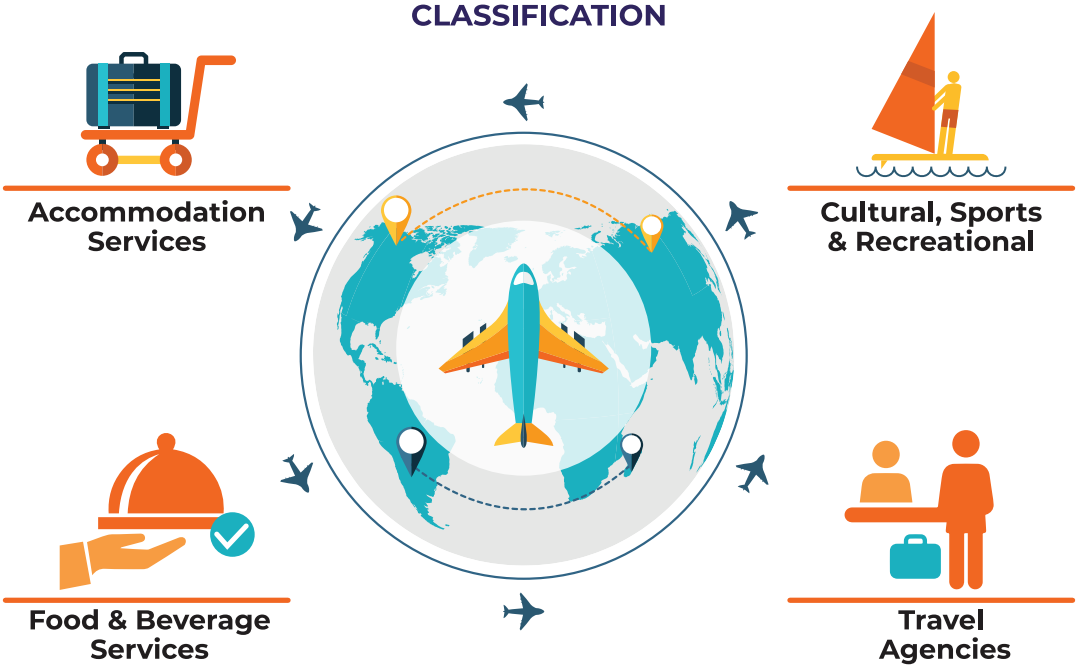
Future
To go totally seamless and paperless by mid-2018

Source : bond.mpc.gov.my

TOURISM SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	SERVICES	TOURISM	SERVICES	TOURISM
Added Value (RM Million)	602,261 (5.7%)	12,040 (5.8%)	639,568 (6.2%)	12,683 (5.3%)
Employment (Million)	8.661 (1.5%)	0.239 (0.6%)	8.758 (1.1%)	0.249 (4.2%)
Labour Productivity (RM)	69,534 (4.2%)	50,379 (5.2%)	73,030 (5.0%)	50,914 (1.1%)

: 1 Million

Note : Values in brackets represent growth

Source : Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF TOURISM SUBSECTOR

This subsector is one of the Government's focus areas, which aims to help transform Malaysia into a high-income nation by 2020. Its impact is felt in the world of travel and hospitality, with game-changing innovations and an excellent service culture.

Tourism is an opportunity to further showcase Malaysia's economic, social, cultural, environmental, and heritage values. It is becoming a more significant engine of economic development. Therefore, the Government puts more emphasis on strategic planning for sustainable growth in this subsector.

This subsector's resilience is demonstrated by people continuing to travel, spend, and discover new places, despite the various economic, political and other challenges faced globally.

In 2017, the tourism subsector recorded an added value growth of 5.3% to RM12.6 billion, from RM12 billion in 2016. The subsector's positive performance is a result of various government strategies, such as the decision made in 2016 to enable eVisa applications from China, including visa-free options (eNTRI) for Chinese visitors throughout 2016. Upon the pilot's success, the eVisa facility was subsequently extended to India, Bangladesh, Nepal, and Myanmar.

Meanwhile, employment in this subsector grew by 4.2% to 249,000 workers, as compared to 0.6% (239,000 workers) in 2016. This is in line with the expansion in the tourism subsector.

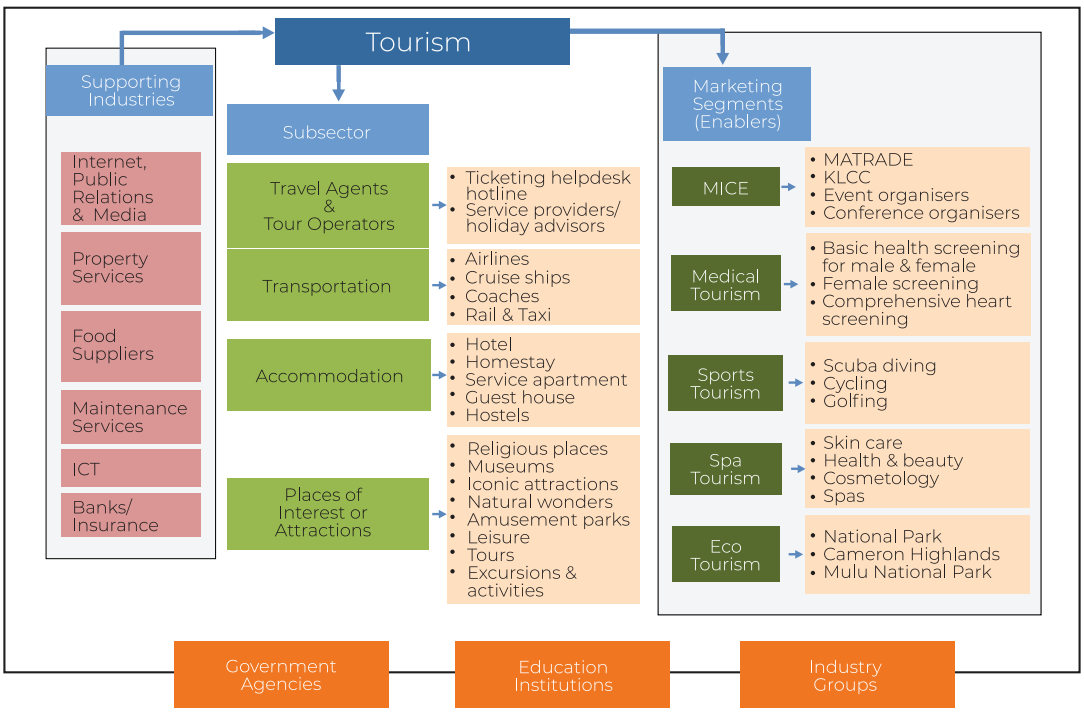
Productivity in the tourism subsector registered growth of 1.1% to RM50,914 in 2017, as compared to RM50,379 in 2016. This is attributed to the industry's improved ability to offer better service standards, and its continued adoption of ICT in day-to-day operations. The performance improvement is also due to employers providing more on-the-job training and hiring more skilled workers.

ECOSYSTEM VALUE CHAIN

The tourism's ecosystem value chain as shown in Figure 2.3 plays an important and significant cohesive role in coordinating synergy; driving efficiency, and productivity of the tourism subsector. The ecosystem improved in delivering services to tourists for unmatched travel experiences of a lifetime.

The activities involve in the ecosystem will add value to tourism services related to accommodation, transportation, retail, F&B, travel agents and tour operators, and places of attraction. The collaboration between government agencies, educational institutions and industry groups will further strengthen and enhance the competitiveness and productivity of this subsector.

Figure 2.3: Tourism Subsector Ecosystem Value Chain



PART 2

CHALLENGES AHEAD

Collaborative efforts need to be fostered between public and private tourism providers in the ecosystem value chain to reap synergistic benefits. The industry's progress has been relatively slow in Malaysia compared to its neighbouring competitors.

Identifying issues and challenges dampening such progress, resolving these issues timely, and improving the redress mechanisms are some critical measures necessary to increase productivity to remain competitive.

Tourism Subsector Challenges

CAPITAL AND INVESTMENT

- Enhancing and/or expanding current educational and training establishments to focus on building skills that can add value to the tourism industry
- Investing in identified segments of the tourism ecosystem value chain that can directly contribute to economic gains
- Creating funding schemes for key players in the tourism ecosystem value chain, enabling them to obtain the necessary expansion/working capital
- Investing in appropriate and relevant technology for direct economic benefits, rather than to follow a trend
- Reviewing the outcome of investments already made to identify weak areas for rectification/enhancement
- Making the right investments to improve the stock of capital; more capital for each worker means improving the returns to labour and entrepreneurial efforts

TECHNOLOGY AND INNOVATION

- Embracing ongoing innovation and advanced technology adoption to stay competitive in the global tourism market (e.g. artificial intelligence, mobile apps, Internet of Things). This may prove to be costly; therefore, expenditure should be directly relevant to increase the industry's economic gains
- Providing incentives for new innovations that directly add value to the tourism industry/value chain
- Encouraging the synergistic use of technology amongst players in the ecosystem value chain. Such synergy helps integrate the services process flow in a seamless fashion, prevent bottlenecks, save time and costs, as well as promote quality in service

LABOUR PRODUCTIVITY

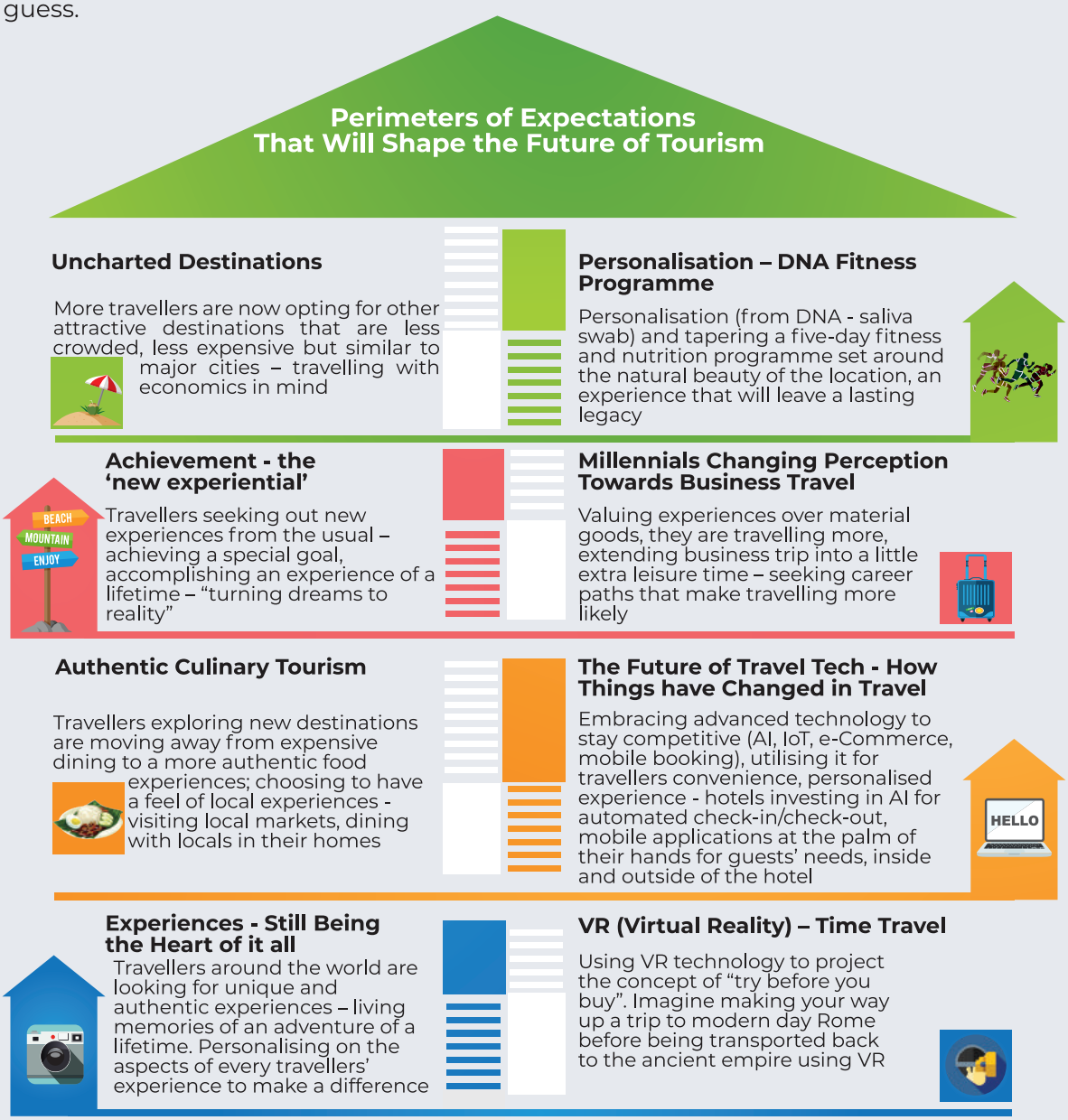
- Increasing tourism's skilled labour force, measuring skills with a designated and acceptable framework. Such skills need to be better matched to industry requirements to boost wages
- Recognising productivity and quality of work; promote innovative incentives schemes and improve the labour-to-capital allocation within the production process
- Reducing the reliance on unskilled foreign labour in the tourism and hospitality industry

PROFITABILITY AND COLLABORATION

- Encouraging new enterprises to put more competitive pressure on existing businesses in the tourism ecosystem value chain. This will drive them to improve their product quality in the value chain to stay competitive
- Facilitating efforts by enterprises to consolidate for economies of scale, resource sharing and learning, and optimising profits

FUTURE TRENDS IN TOURISM

Various highlights of some mixed future trends in tourism are being envisioned by renowned global media, world tourism industry journalists, consulting firms and the tourists themselves, based on progressive studies of the industry throughout the years. How the individual tourist feels about their travel and hospitality needs is anyone's guess.

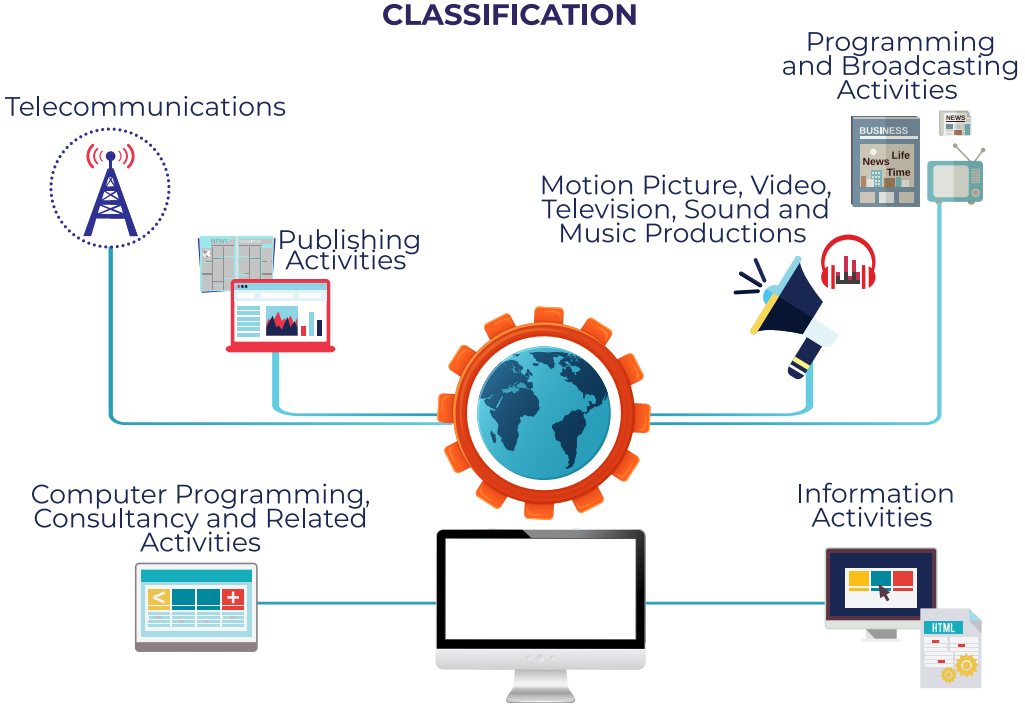


Source: Productivity in the Malaysian Tourism Industry, MPC

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	SERVICES	ICT	SERVICES	ICT
Added Value (RM Million)	602,261 (5.7%)	65,580 (8.1%)	639,568 (6.2%)	71,110 (8.4%)
Employment (Million)	8.661 (1.5%)	0.222 (-1.8%)	8.758 (1.1%)	0.232 (4.7%)
Labour Productivity (RM)	69,534 (4.2%)	295,426 (10.1%)	73,030 (5.0%)	305,942 (3.6%)

: 1 Million

Note : Values in brackets represent growth

Source : Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF THE ICT SUBSECTOR

The ICT subsector has evolved beyond being a mere collection of technological tools. It is a socio-economic enabler, as well as a key driver of business transformation. The ubiquity of ICT's pervasiveness and characteristics has revolutionised society as well as the economy. ICT continues to stimulate and drive whole industries and is recognised as one of the most dynamic and fastest growing economic segments in Malaysia. The subsector remains vibrant and subject to new and exciting trends, such as the emergence of next generation technologies in the form of big data analytics (BDA), the Internet of Things (IoT), cloud computing, as well as mobility and social media solutions.

The scope of contemporary ICT not only entails the traditional technology dimension per se, but also the role of such technologies as enablers and drivers towards a knowledge-based economy and society. As such, these components can be broadly grouped under digital content development, e-Commerce, e-Learning, e-Government or e-Public services, and ICT R&D and intellectual property (IP).

The ICT subsector registered an added value growth of 8.4% (RM 71.1 billion) in 2017, up from 8.1% (RM65.6 billion) in 2016. It accounts for 11.1% of the services sector's total added value, making it one of the country's largest economic subsectors.

The subsector's notable growth is due to the positive competition between industry players, which has encouraged them to innovate and produce higher-value products. Moreover, the Government's support in terms of funding schemes, such as the MSC Development Grant Scheme (MGS) and the Industrial Research and Development Grant Scheme (IGS) for idea generation and R&D, has further enhanced the performance of this subsector.

Employment growth of the ICT subsector increased significantly by 4.7% to 232,000 workers, from 2016's figure of 222,000 workers, due to the higher demand for ICT-skilled workers to manage systems and equipment.

Productivity grew by 3.6% at RM305,942 in 2017 compared to RM295,426 in 2016. The factors that contributed to this positive growth include sourcing for the right employees, enhanced training and development, better working conditions, more financial and non-financial incentives, and incentive-driven wage policies.

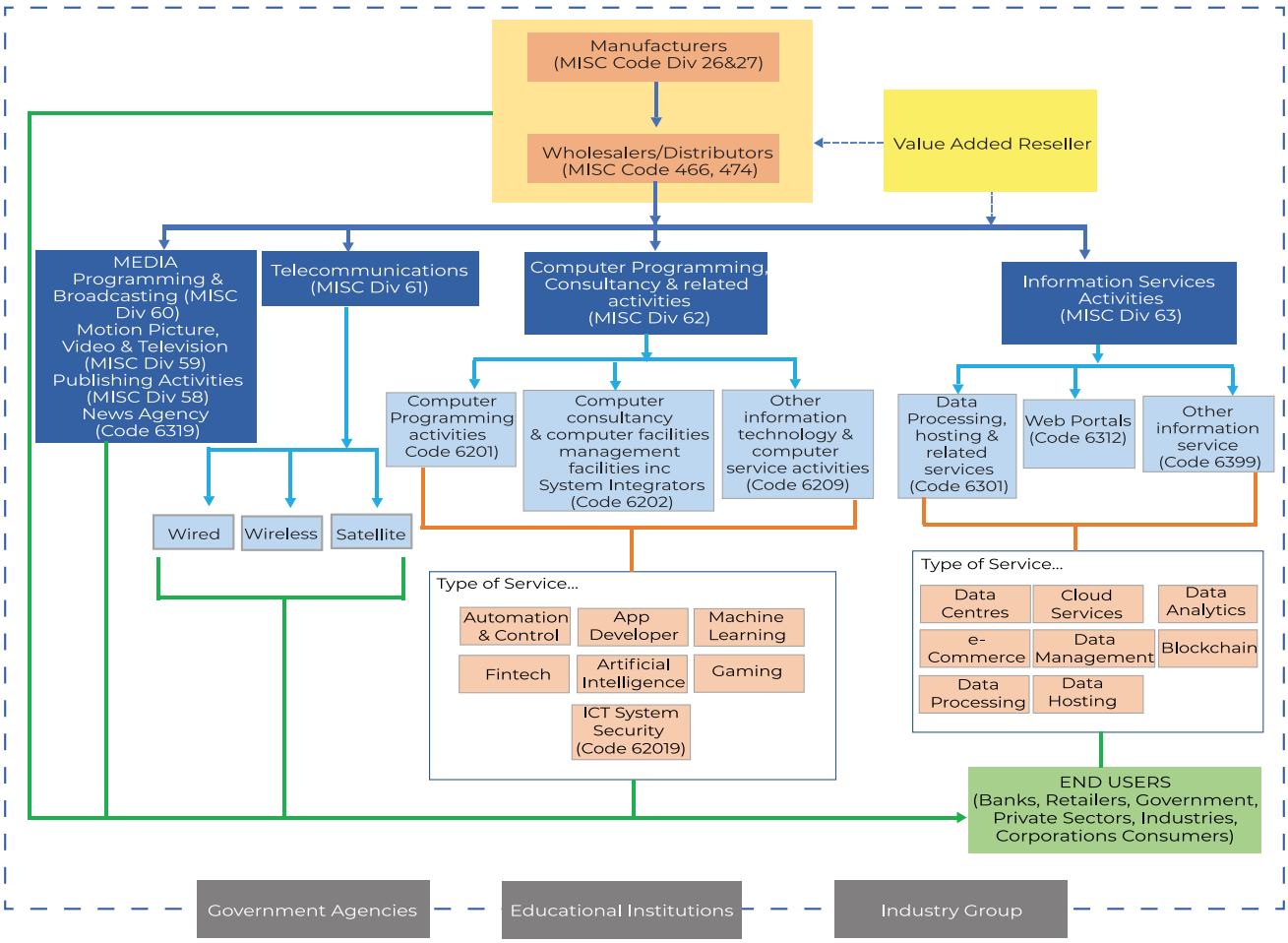
VALUE CHAIN

The ICT subsector value chain encompasses the stakeholders (government agencies, industry groups, and educational institutions), hardware and software manufacturers, wholesalers and distributors, DOSM defined subsectors as well as their main activities, and the end users, which include consumers, banks, government bodies, corporations and retailers.

The subsector's value chain is fragmented yet interconnected. It is fragmented as the subsector relies on specialised producers at different stages, and thus the value chain is split according to the countries' specialisations.

However, with the advent of the Internet, players in the primary activities are interconnected. Every supply chain player and end user is capable of being in contact with one another for the purpose of information sharing. Through e-Commerce platforms, sales transactions are made possible without going through traditional sales channel. The green lines represent the interconnectivity among the manufacturers, supply chain players and the end users (Figure 2.4).

Figure 2.4: ICT Subsector Value Chain



CHALLENGES AHEAD

Despite its growing dynamism and the positive overall growth, the nation's ICT subsector continues to face several persistent challenges.

Among the challenges are ICT workforce, talent migration, ICT users and research, development and commercialisation culture.

ICT Subsector Challenges

ICT WORKFORCE

- ICT enrolment in public universities has stagnated due to limited capacity, as a result of budget constraints
- A drop in the number of students in Computer Science programmes, resulted in fewer Computer Science graduates. This may be due to some parents' perceiving that there is a lack of job opportunities in the ICT industry
- Quality, competency, and employability of ICT graduates vis-à-vis matching the industry's real-world requirements
- Jobs do not match candidate qualifications and experience. This could be caused by a surfeit of curricula and glorified names for degree offerings in IHLs. It has been claimed that ICT-related degrees are often named based on what is perceived as marketable
- Job-hopping continues to be a common practice, especially for the younger generation

TALENT MIGRATION

- Critical talent, particularly in the ICT services segment, is likely to migrate to neighbouring countries and English-speaking countries that offer better-paying jobs – due in part to the weakening of the ringgit

ICT USERS

- Due to the absence of adequate data governance policies, organisations are bound to hit problems pertaining to data neglect, data quality issues, conflicting information and contradicting interpretations
- ICT adoption in rural areas is yet to reach encouraging levels
- Users' apparent phobia of using ICT

RESEARCH, DEVELOPMENT AND COMMERCIALISATION CULTURE

- The shift from an ICT "Consumption" to an ICT "Creation" culture is not very apparent. Although there are continuous promotions for entrepreneurship by the Government, the statistics indicate that Malaysia is still lacking in terms of R&D, innovation, patenting, and commercialisation

ONLINE CASH, ONLINE FRAUD

The demand for Internet and mobile banking solutions has been growing exponentially. This growth has been supported by initiatives that have strengthened the framework for secure and safe financial transactions. Regulations, supervisory services, multi-faceted e-payment systems, legalities, licensing, and policies have come together to facilitate online transactions. High-speed Internet access and the rapid adoption of advanced mobile devices such as tablets and phones are also key developments in this arena. Executing financial transactions through the Internet is convenient and practically instantaneous. Mobile banking simply requires a smartphone/tablet compatible with the apps offered by the relevant banks. Internet banking has grown at a prolific rate, as shown below;

	2005	2014
Internet banking subscribers	2.5 million	17.6 million
Mobile banking subscribers	127,600	5.64 million

Naturally, the value of financial transactions jumped, growing by an AAGR of 26.0% to 144.3% over the last five years. Credit card transactions recorded an AAGR of 4.6%, while debit card payments grew with an AAGR of 43.4%. Meanwhile, e-Money usage is also on the rise. ATM cash withdrawals continued its growth, as did the number of transactions.

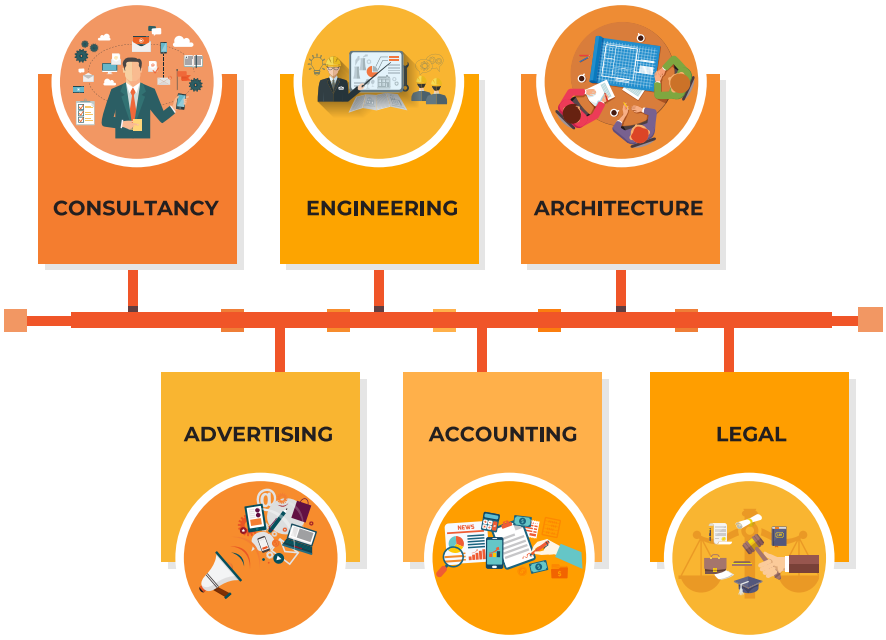
The growth in electronic payment methods has led to an increase in electronic payment fraud. Banks are being challenged to provide fraud detection and prevention solutions. The wide range of access points for financial information – smartphones, tablets, and PCs at work or at home – provide fraudsters an array of options to plan and execute their attacks. Criminals today coordinate fraud schemes across all transaction channels, and intrusion detection and prevention systems often cannot keep up with the wide array of attacks on data and data sources. Banks must start implementing a proactive, analytic approach to this increasingly significant challenge.

Source : pikom.org.my/2015/ICT_Job_Market_Outlook/090715_ictjobmarket2015

PROFESSIONAL SERVICES SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	SERVICES	PROFESSIONAL SERVICES	SERVICES	PROFESSIONAL SERVICES
Added Value (RM Million)	602,261 (5.7%)	22,615 (8.3%)	639,568 (6.2%)	24,723 (9.3%)
Employment (Million)	8.661 (1.5%)	0.313 (1.6%)	8.758 (1.1%)	0.312 (-0.4%)
Labour Productivity (RM)	69,534 (4.2%)	72,171 (6.6%)	73,030 (5.0%)	79,192 (9.7%)

: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF THE PROFESSIONAL SERVICES

Professional services are knowledge-intensive, highly differentiated, and comprise highly-valued skills and services. Industry players in this subsector can therefore charge a premium for the services offered, which translate into high wages and profit margin.

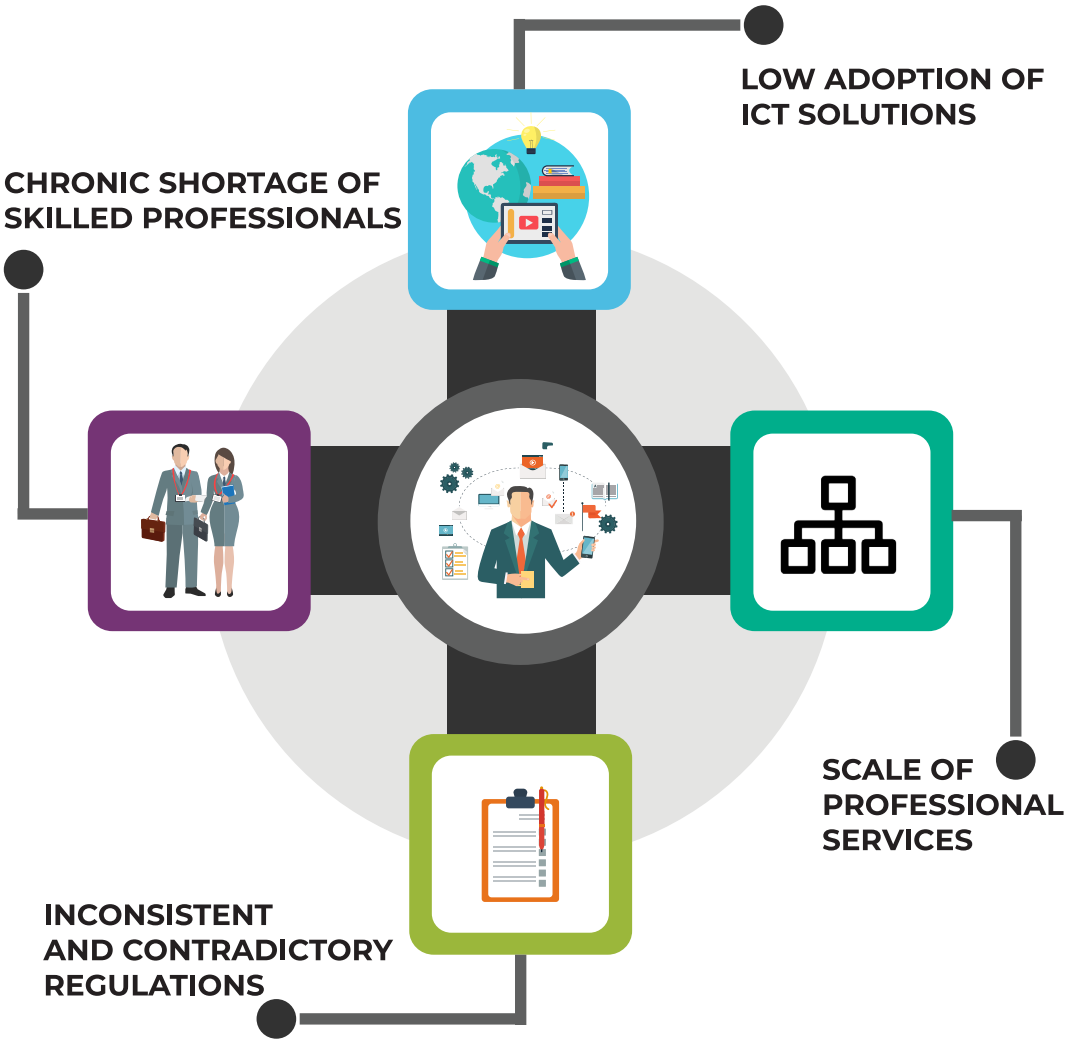
In 2017, the professional services subsector accounted for 3.9% of the services sector's added value, amounting to RM24.7 billion. There were 312,000 workers employed in this subsector, which is a contraction of 0.4% from 2016. It contributed 3.5% to the total employment in the services sector.

The productivity of the subsector grew by 9.7% to RM79,192 in 2017, up from RM72,171 in 2016. Rapid changes in the IT environment have impacted the whole subsector, especially the accounting industry in particular.

CHALLENGES AHEAD

Although exports are becoming increasingly important in Malaysia, the market for professional services is largely domestic. Globalisation, liberalisation, and economic fluctuations, all pose challenges to the subsector. Most professional services companies in Malaysia are dominated by SMEs. On the contrary, the global professional services market comprised mainly of large firms that often form consortia to undertake major projects. Other challenges facing this subsector are; chronic shortage of skilled professionals, a low adoption rate of ICT solutions, small-scale industry players, as well as inconsistent and contradictory regulations that leads to regulatory risks and compliance cost.

Professional Services Subsector Challenges



FIRST THING, UPGRADE ALL THE LAW FIRMS

Singapore, has not been idle when it comes to helping professional service providers improve their productivity through ICT solutions. On 27 February 2017, the Ministry of Law, the Law Society of Singapore, and the Standards, Productivity and Innovation Board (SPRING Singapore), launched the 'Tech Start for Law' programme to help Singapore law practices embrace and leverage technology.

According to the Ministry of Law's press release, the Law Society commissioned a study in 2016 that showed that 91% of Singapore SME law practices did not use technology-enabled productivity tools, primarily due to the cost of adoption. Tech Start for Law was aimed at helping defray some of that initial cost and kick-start the wider adoption of basic technologies.

Through the programme, Singapore law practices could get funding support of up to 70% of the first-year cost of adopting specific technology products for practice management (CoreMatter; Lexis Affinity; Clio), online legal research (INTELLLEX), and online marketing (Asia Law Network). Practice management systems help law practices streamline their work processes such as cases and client record management, timekeeping and billing, and calendaring.

The online legal research tool provides legal practices access to a composite database of cases, commentaries, and regulatory materials across jurisdictions on a single platform, organising the information into a personal knowledge-base for easy retrieval. The tool also provides them with a systematic way of recording past research materials for knowledge management.

The online marketing tool helps law practices establish their online presence and publicise their services to potential clients, including those overseas.

Law practices could apply for funding support for up to three of these solutions (i.e. one practice management system, the online legal research tool, and the online marketing tool). SGD 2.8m had been allocated for the programme, supporting up to 380 units of these technology solutions.

Tech Start for Law is administered by the Law Society and funded by SPRING Singapore under its Collaborative Industry Project (CIP) initiative.

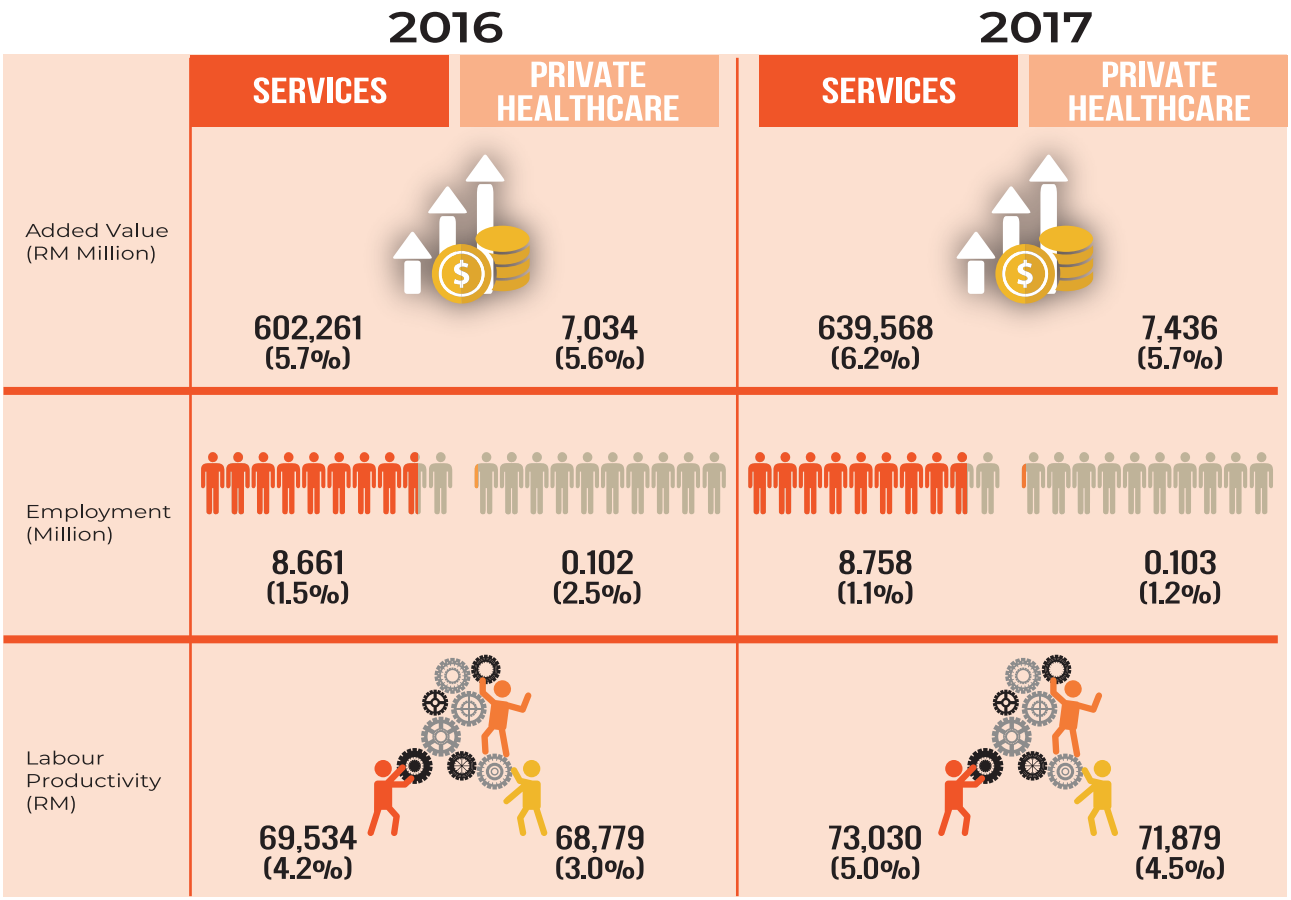
Source: https://www.mlaw.gov.sg/content/minlaw/en/news/press-releases/launch-of--2-8m-tech-start-programme-to-help-singapore-law-pract.html

PRIVATE HEALTHCARE SUBSECTOR

At a Glance

CLASSIFICATION

PERFORMANCE



: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF PRIVATE HEALTHCARE

The global healthcare industry is among the most dynamic and rapidly growing industries in the world economy. Demand for healthcare is likely to expand in the future based on the stimulated demographic shifts such as the increase in the number of elderly people, extended longevity; and a rise in lifestyle diseases. Hence, the consumers' awareness on the importance of healthcare services have grown and accessibility to obtain these services have also improved.

The Malaysian Healthcare system is advanced due to extensive support from the Government through investment in hospital's medical insfrastructure. The improvements in the last ten years are significant enough to be on par with well-developed countries, comprising of both well-trained medical staff and excellent hospital facilities.

The number of private hospitals, clinics, and dental surgeries have increased gradually over the last decade, with the healthcare subsector showing stronger resilience to economic slumps compared to other subsectors. Amidst recent political and economic challenges, the Government has revived its ambitions to bring in one million healthcare travellers for medical tourism; a flourishing sector with healthy growth prospects.

Additionally, the ringgit's continuing depreciation since 2015 is an attractive pull factor for foreign medical tourists seeking economically cost-effective treatments. Malaysia's availability of halal food, medicine, and treatment are reasons that contribute to the generous flow of Middle Eastern patients.

The subsector's added value rose by 5.7% to RM7.4 billion in 2017 from RM7 billion in 2016. This was due to the industry's ability to offer better facilities and a higher quality of service at affordable rates, in its efforts to cater to the sizeable volume of medical tourists.

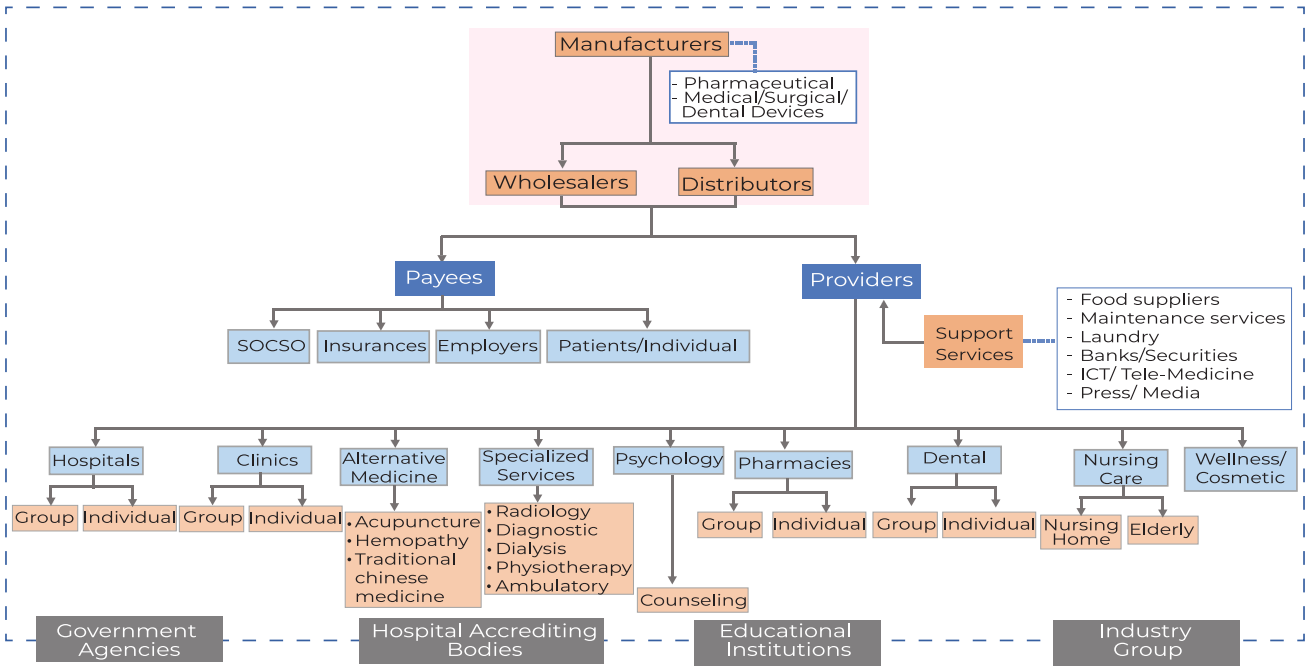
Productivity of the subsector rose by 4.5% to RM71,879 in 2017 from RM68,779 in 2016. Employment in the private healthcare subsector saw an increase; with 103,000 workers in 2017 compared to 102,000 workers in 2016. This was because of the wider range of services offered, which naturally called for more personnel to be employed.

VALUE CHAIN

The private healthcare industry is symbolised by the framework of services and facilities established in defining to add value to the services footprint for competitive advantage, higher margins in profits, at low costs parameters.

The framework plays a significant cohesive role in coordinating the required synergy to drive efficiency and productivity in delivering the utmost in healthcare needs to patients, and, to help contribute towards the nation's growth target in productivity by 2020.

Figure 2.5: Private Healthcare Subsector Value Chain



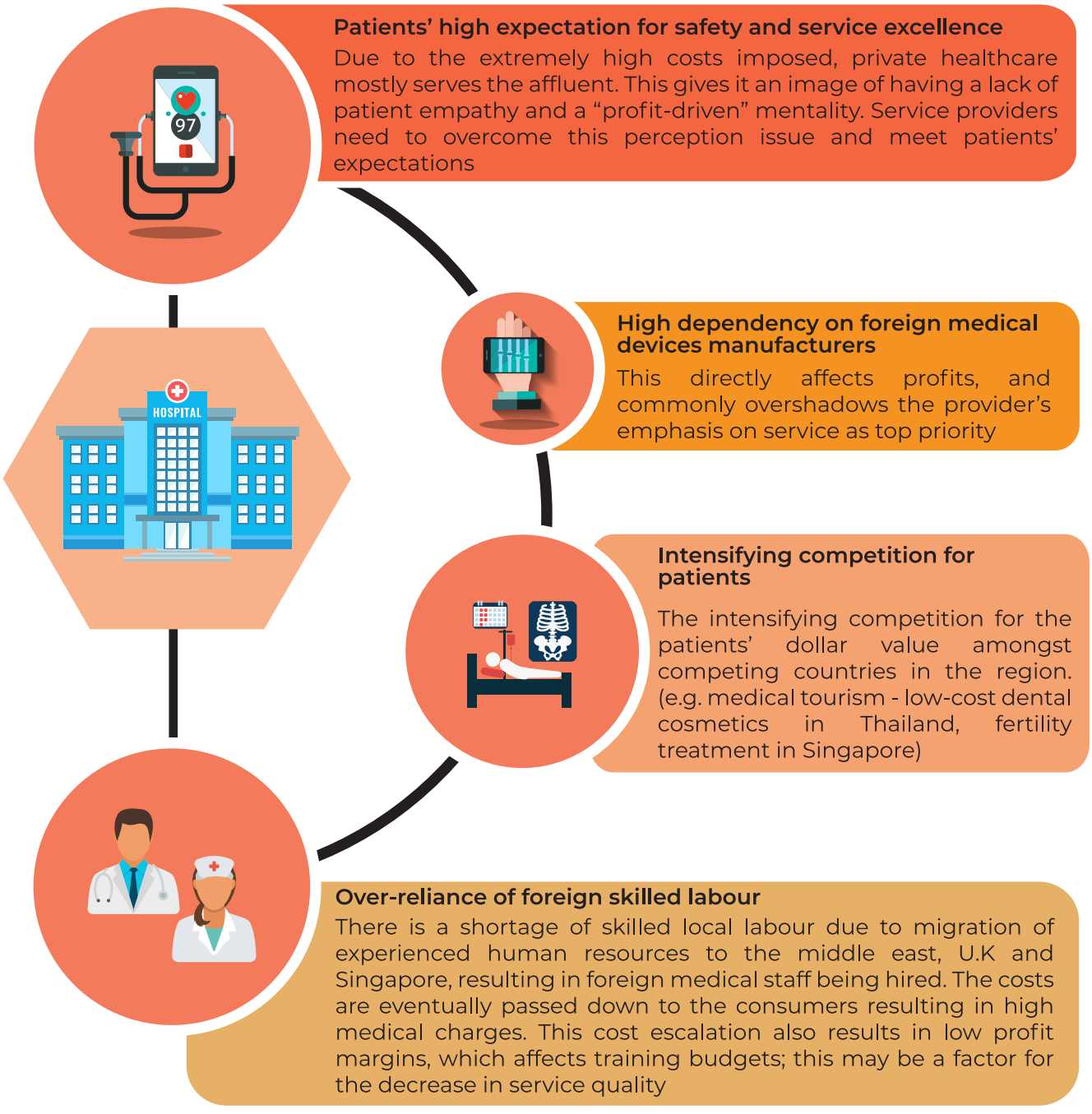
PART 2

CHALLENGES AHEAD

As with other emerging global economies, the Government has implemented various initiatives over the years to spur the Malaysia private healthcare subsector. This subsector continues to be competitive, constantly innovating to stay ahead of rivals in the Asia-Pacific region.

Compared to some neighbouring emerging markets, the nation has moved ahead as a result of various core technologies to accelerate the transformation of Malaysia into an innovation-based and knowledge-based economy and an industrialised nation by 2020. Some of the key challenges impacting the productivity levels of the private healthcare subsector are illustrated below.

Private Healthcare Subsector Challenges



PENANG ADVENTIST HOSPITAL (PAH)

Established in 1924 by Dr Earl Gardner, the Penang Adventist Hospital (PAH) is part of an international Adventist Network of some 600 not-for-profit hospitals, clinics, and dispensaries worldwide. Having become a tertiary healthcare centre for the Malaysian community and international visitors, PAH is supported by dedicated physicians, nurses, and healthcare professionals. It employs modern medical equipment in providing quality healthcare, and also in educating the community to make informed choices regarding their general well-being. The implemented Baby-Friendly Hospital Initiative (BFHI) is a global effort involving practices that protect, promote, and support breastfeeding. PAH has been awarded the JCI accreditation representing the "Gold Seal of Approval" in healthcare, as well as the Malaysian Society for Quality in Health (MSQH) in ensuring safety and continuous quality improvement in providing healthcare facilities and services in the country. Its general initiatives cover these main areas:

- Multi-lingual staff
- International patient services
- Modern facilities, technologies
- Excellent services – Centres of Excellence
- Baby-Friendly Hospital Initiative (BFHI) accreditation
- Participating in cardiac stem cell research studies
- Cardiac rehabilitation programme

The impact of its actions are reflected in the following good practices:

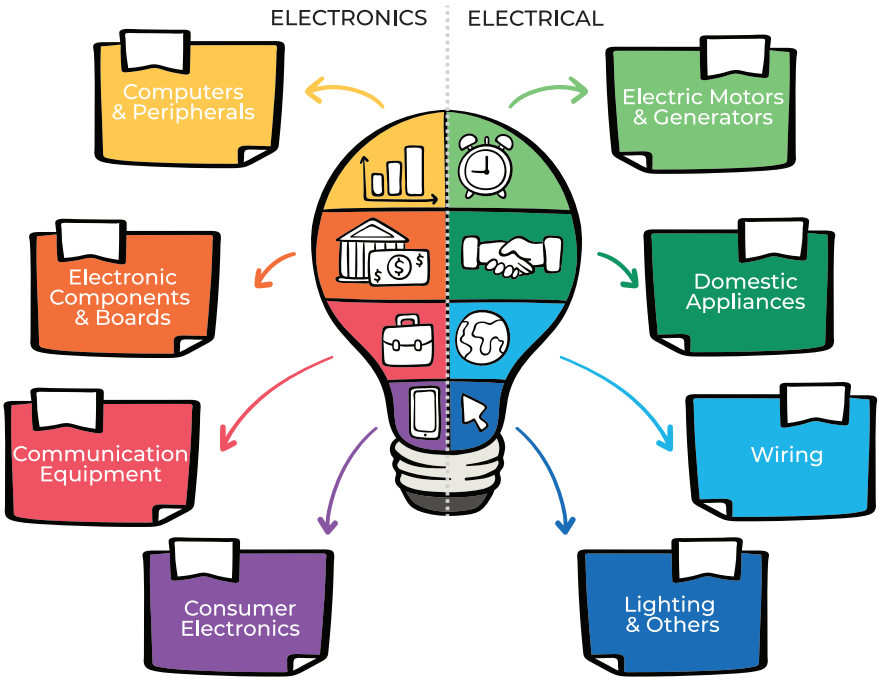
- Nurturing each employee by recognising and rewarding outstanding performances
- Providing continuous professional development initiatives
- Functional professionals working as a team - adjusting the team to match the patients' condition changes over time
- Lifestyle/work culture choices are in accordance to stated regulations and policies, moral, and social standards, with the commitment to fostering healthy, loving, and accountable relationships
- Dedication to achievement of excellence with a passion for continuous quality improvement
- Displaying active, open communication to building trust by honouring commitments, holding each other accountable to set corporate standards
- Constantly looking for creative ways to be relevant – embracing technological change and innovation to stay current and to improve their services

Source: Productivity in the Malaysia Private Healthcare Industry Report, MPC

ELECTRICAL AND ELECTRONICS SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	MANUFACTURING	ELECTRICAL AND ELECTRONICS	MANUFACTURING	ELECTRICAL AND ELECTRONICS
Added Value (RM Million)	254,472 (4.4%)	62,635 (7.5%)	269,804 (6.0%)	67,749 (8.2%)
Employment (Million)	2.394 (0.8%)	0.474 (0.5%)	2.434 (1.7%)	0.485 (2.3%)
Labour Productivity (RM)	106,307 (3.6%)	132,085 (7.0%)	110,858 (4.3%)	139,724 (5.8%)

: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF THE ELECTRICAL & ELECTRONICS SUBSECTOR

The electrical & electronics (E&E) industry is a major subsector of the manufacturing sector, which has grown by leaps and bounds since 1972. The subsector is divided into two main industries; namely, computer, electronic, and optical products, and electrical equipment.

In 2017, the E&E sector accounted for 44.7% of the manufacturing sector's exports, and was again the country's largest export earner at RM343 billion, accounting for 36.7% of Malaysia' total exports. Singapore, USA, China, Hong Kong, Japan, Germany, Mexico, India, and UAE were among the top export destinations.

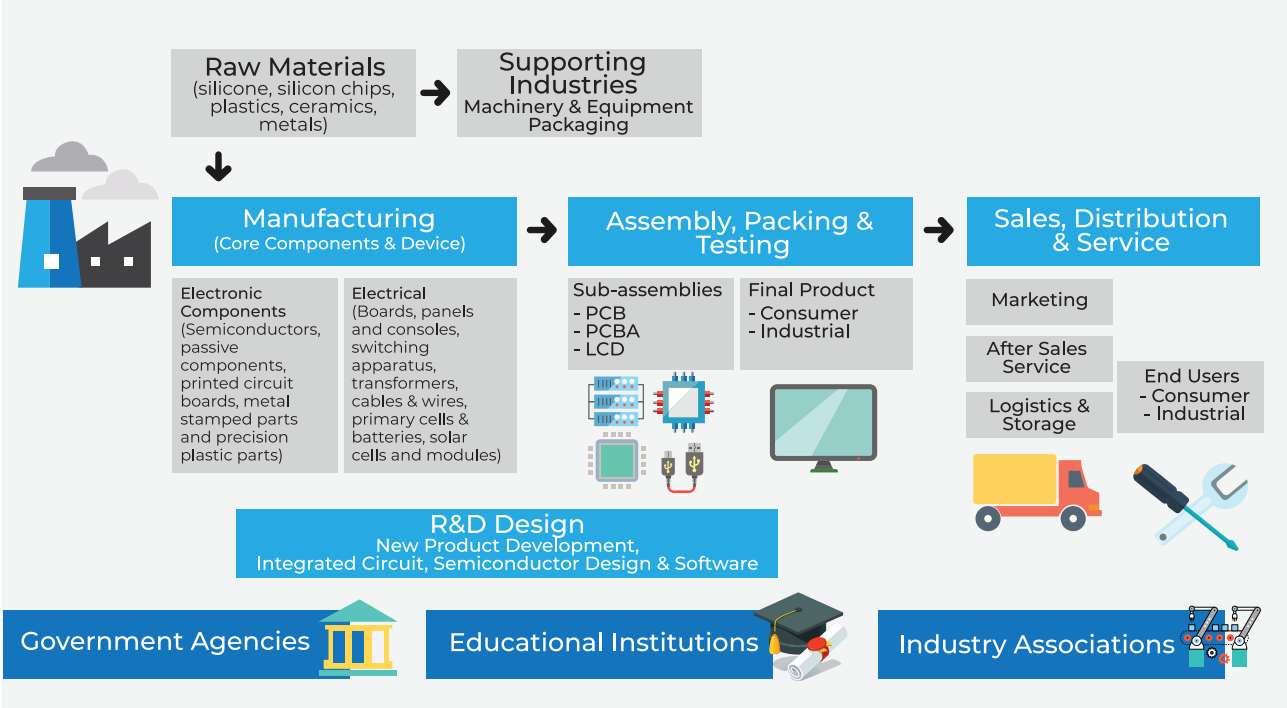
The added value for E&E increased by 8.2% to RM67.7 billion in 2017, as compared to RM62.6 billion in 2016. This trend is reflective of a concerted, industry-wide effort to shift from low value-added activities to high-value operations in order to remain competitive in a globalised economy. The impact of this performance has resulted in employment of the E&E subsector growing by 2.3% to 485,000 workers in 2017 and making up 19.9% of the total manufacturing workforce. Meanwhile, productivity in the E&E subsector increased by 5.8% to RM 139,724 in 2017 from RM132,085 in 2016, mainly due to the robust demand for E&E products.

VALUE CHAIN AND ECOSYSTEM

The ecosystem of the E&E value chain as shown in Figure 2.6 consists of raw materials and inputs, components, sub-assemblies, final product assembly for a variety of end market segments and the ultimate buyers of final products.

The activities involve in the ecosystem will add value to final products outside of the manufacturing process related to research, product and process development, design, marketing and after-sales service.

Figure 2.6 : The Electrical & Electronics Subsector Value Chain & Ecosystem



CHALLENGES AHEAD

Malaysia's E&E subsector continues to face increasing competition from other countries that offer low-cost labour and manufacturing expertise. At the same time, Malaysia needs to be ready in its transition to become a high-tech manufacturing destination. The challenges of E&E are as illustrated below:

E&E Subsector Challenges

Significant room for improvement on critical enablers to industry players

- Ensure the right operating environment, mainly in the availability of talent, infrastructure and government facilitation, as well as creating the technical ecosystem to avoid competing directly with countries like China, by moving up the value chain
- Competition in investment for higher value added industries with regional competitors (e.g. Singapore & Taiwan)

Talent pool lacks quality and experience

- In Malaysia's E&E industry, there are either too few experienced engineers in the field, or the quality of the engineers is inadequate
- E&E companies have indicated Design and Development (D&D) activities can be expedited by hiring higher-quality and more experienced engineers

Various factors impede local companies' abilities to compete globally

- Financial assistance is needed in the areas of technology acquisition, product commercialisation, branding, and setting up global networks and business connections to compete globally
- There is a lack of collaborative programmes between SMEs and MNCs to increase SME exposure to the global marketplace, and nurture them to grow
- Academia needs to keep up with industry requirements, and to be innovative to offer new products and services

Concentration of effort in assembly activities results in lower value-add

- Most of the activity in the E&E clusters is in relatively low-value-added assembly, rather than the higher value added activities such as component manufacturing or R&D

Relatively unfocused capabilities in E&E across a range sectors

- Malaysia's E&E subsector is focused on manufacturing E&E products; many firms produce similar products and are engaged in passive component assembly
- E&E manufacturing is the least value added activity in the subsector, while research and market exploration are the highest value added activities; there is a need for Malaysia to shift from manufacturer to innovator

ICC IMPROVEMENT IN MEETING CUSTOMER REQUIREMENT

Fuji Electric (Malaysia) Sdn. Bhd. (FEM) uses Innovation and Creative Circle (ICC) programmes to reduce operational costs, increase production efficiency, and to lead the organisation towards being more competitive. After the completion of the ICC programme, the reduction of rework has resulted in the decrease of overtime cost of 10 employees which brings a savings of RM31,600 monthly on labour costs.

With all the implementations identified during the project, productivity at FEM has improved, non-value-added activities have been eliminated and FEM was able to save a total cost of RM3 million simultaneously. This enhances customer experience and confidence thus building a larger market to fulfill customer demand.

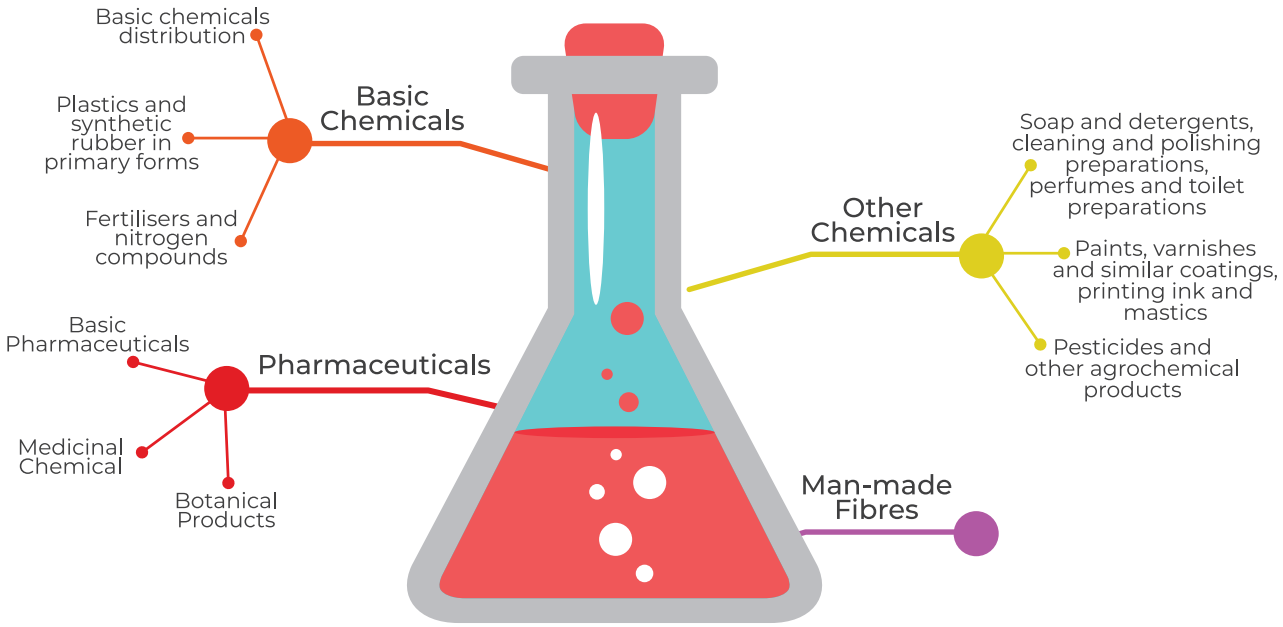
Description	Before ICC	After ICC
Productivity (piece/hour/line/headcount)	20	25
Equipment investment cost (RM)	2,717,750	1,087,100
Equipment maintenance cost (RM)	165,000	66,000
Cost of module rework (RM)	239,250	87,000
Cost savings of labour cost (RM/month)	0	31,600
Total cost savings for process optimisation, new ribbon redesign, and sleeve tube installation (RM/month)	0	3,070,824

Source : bond.mpc.gov.my

CHEMICALS AND CHEMICAL PRODUCTS SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	MANUFACTURING	CHEMICALS & CHEMICAL PRODUCTS	MANUFACTURING	CHEMICALS & CHEMICAL PRODUCTS
Added Value (RM Million)	254,472 (4.4%)	25,340 (5.9%)	269,804 (6.0%)	26,486 (4.5%)
Employment (Million)	2.394 (0.8%)	0.102 (0.7%)	2.434 (1.7%)	0.104 (1.6%)
Labour Productivity (RM)	106,307 (3.6%)	248,164 (5.2%)	110,858 (4.3%)	255,376 (2.9%)

: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF CHEMICALS AND CHEMICAL PRODUCTS SUBSECTOR

The chemicals and chemical products subsector covers a wide range of goods, including chemicals and chemical products, pharmaceuticals, medicinal chemicals, and botanical products. It is one of the leading economic subsectors in Malaysia, accounting 8.9% of Malaysia's total export for manufactured goods.

The number of employees registered in this subsector continued to increase in 2017 at 1.6% compared to 0.7% in 2016. It employed 104,000 workers in 2017, accounting for 4.3% of the manufacturing sector's total workforce. It also contributed 9.8% (RM26.5 billion) to the country's total added value in manufacturing destinations.

In 2017, productivity for chemicals and chemical products grew by 2.9% to RM255,376 from RM248,164 in 2016. The subsector's productivity growth was due to an increase in exports and expansion of domestic industries that require chemical inputs, such as agriculture, construction, automotive, and machinery.

VALUE CHAIN

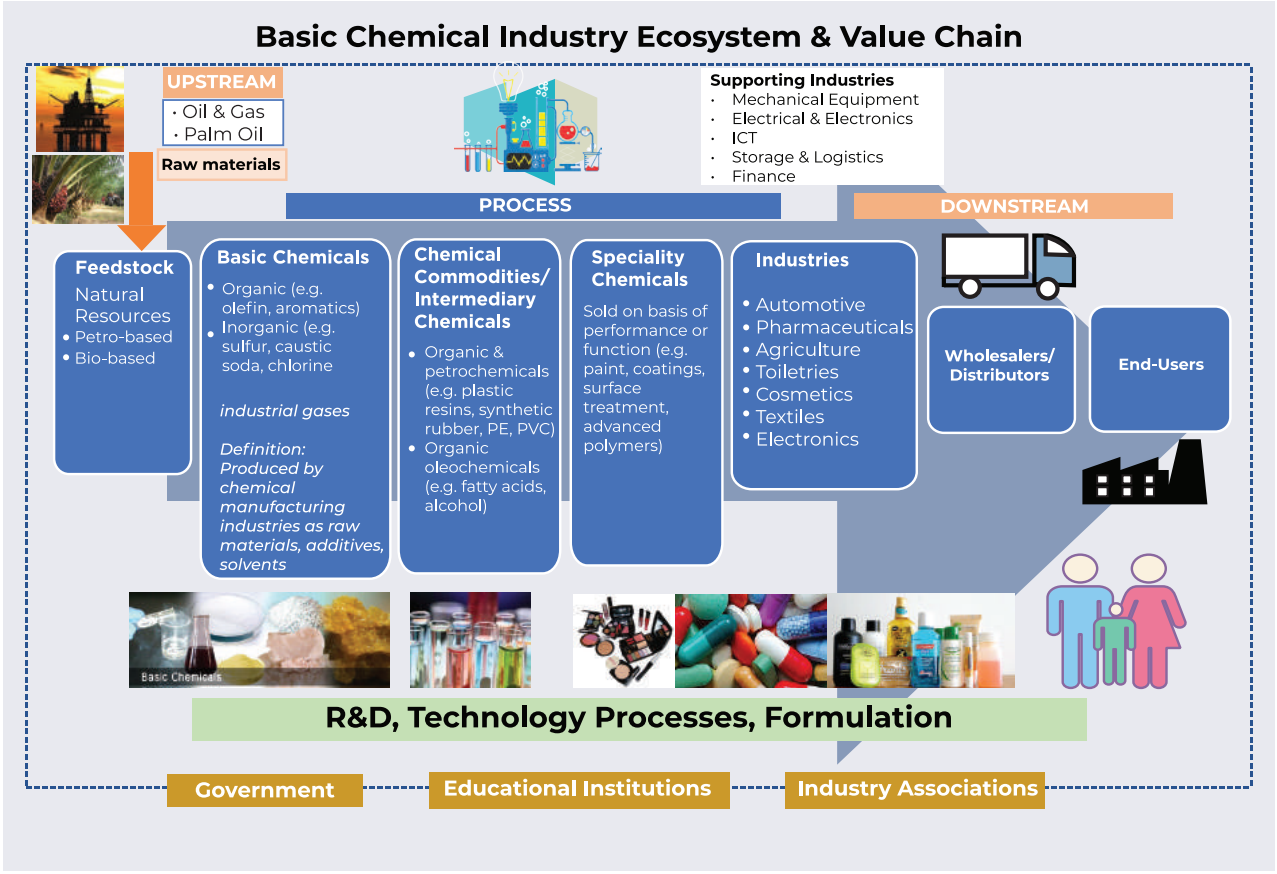
The chemicals and chemical products subsector comprises a wide range of products categories, each with its own ecosystem and value chain (Figure 2.7). This subsector covers the complete range of basic chemicals to high-value products, such as pharmaceuticals.

The basic chemical industry requires raw materials from upstream activities; namely,Oil and Gas (O&G) as well as Palm Oil. These raw materials can primarily be categorised as either petroleum-based or bio-based.

These raw materials will then be processed into basic chemicals, intermediary chemicals, or specialty chemicals.

All along the production process, R&D, technology, and product formulation are critical to ensure that products are value added at each step. The industry requires support from the government, educational institutions and industry associations in terms of expertise, financing, as well as R&D facilities.

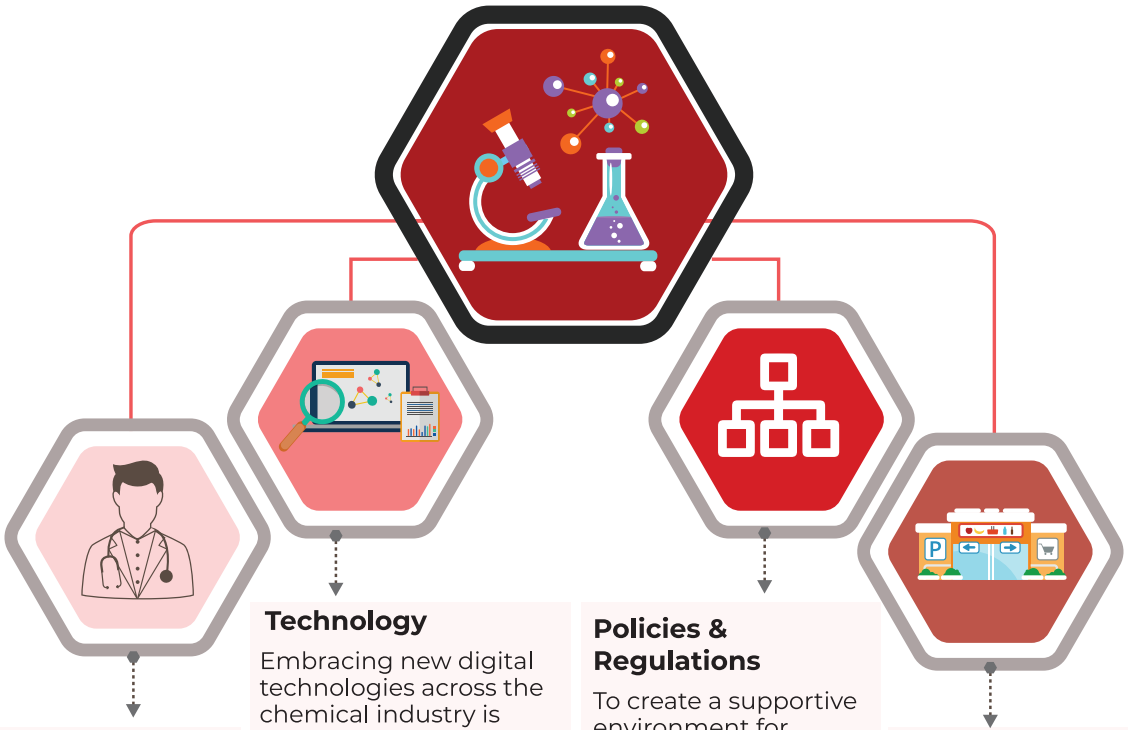
Figure 2.7 : Chemicals and Chemical Products Subsector Value Chain



CHALLENGES AHEAD

Among the challenges faced by the chemicals and chemical products subsector are human capital, technology, policies & regulations, and competitiveness.

Chemicals and Chemical Products Subsector Challenges



Human Capital

Issues in building the necessary skills and scale, due to the lack of quality local graduates who are not industry–ready and unable to meet the changing market demands. Hence, employers opt to hire foreign talent, thus resulting in high employee turnover rate

Technology

Embracing new digital technologies across the chemical industry is extremely important, as the existence of rapid changes and development due to increased digitalisation within businesses around the globe is a challenge in this sector

Policies & Regulations

To create a supportive environment for science and industry aimed at embracing innovation, promoting broader public acceptance of manufacturing industries, and fostering a conducive environment, it is important to have clear straightforward policies and regulations which enables customers and industries to jointly develop a value network

Competitiveness

As an 'enabling industry', the chemicals and chemical products subsector plays a pivotal role in providing innovative materials and technological solutions to support industrial competitiveness of the country. Currently, this subsector is undergoing rapid structural change as it faces major challenges, including increased competition from other countries and rising costs

LEAN'S CAPABILITY TO ELIMINATE WASTE IN COMPLEX PRODUCTION PROCESSES

Lipidchem Sdn. Bhd. is a company that manufactures cosmetics and self-care products. To date, more than 30 products have made it to the market based on the results of its research and development. The company is highly committed in reaching the top, through its effort and determination to provide client satisfaction.

The company believes that improving work process efficiency will increase its productivity. Lipidchem is confident that LEAN management can help to make improvements at the organisational level. It is a systematic approach that aims to eliminate waste and increase work efficiency, while focusing on customers' satisfaction.

Lipidchem's involvement in LEAN started in April 2016 and completed in October 2016. A total of 20 employees were involved in the implementation of LEAN processes, which has also shaped the company's new working culture.

Employees that participated in the LEAN project agreed to make improvements in the Stearic Acid Powder (SAP) production process. Emphasis was given to SAP because it is the company's main product. The Visual Stream Mapping (VSM) method was used to develop the activity flows involved in the production process.

The impact of LEAN project to Lipidchem Sdn. Bhd.

SAP production process	Before LEAN	After LEAN
Total lead time for *PJO (minute)	251	66
PJO processing time (minute)	81	53
PJO efficiency rate (%)	32	80
Total lead time for label (minute)	462	247
Label processing time (minute)	252	237
Label efficiency rate (%)	55	96
Average time of accepting liquid raw materials (minute/ton)	5.7	4.7

Sample testing process	Before LEAN	After LEAN
Sample testing time (minute)	65	58.5

Presence of **fSONO	Before LEAN	After LEAN
Number of fSONO (unit/quarterly)	9	3
Operational cost (RM/month)	8,374	-

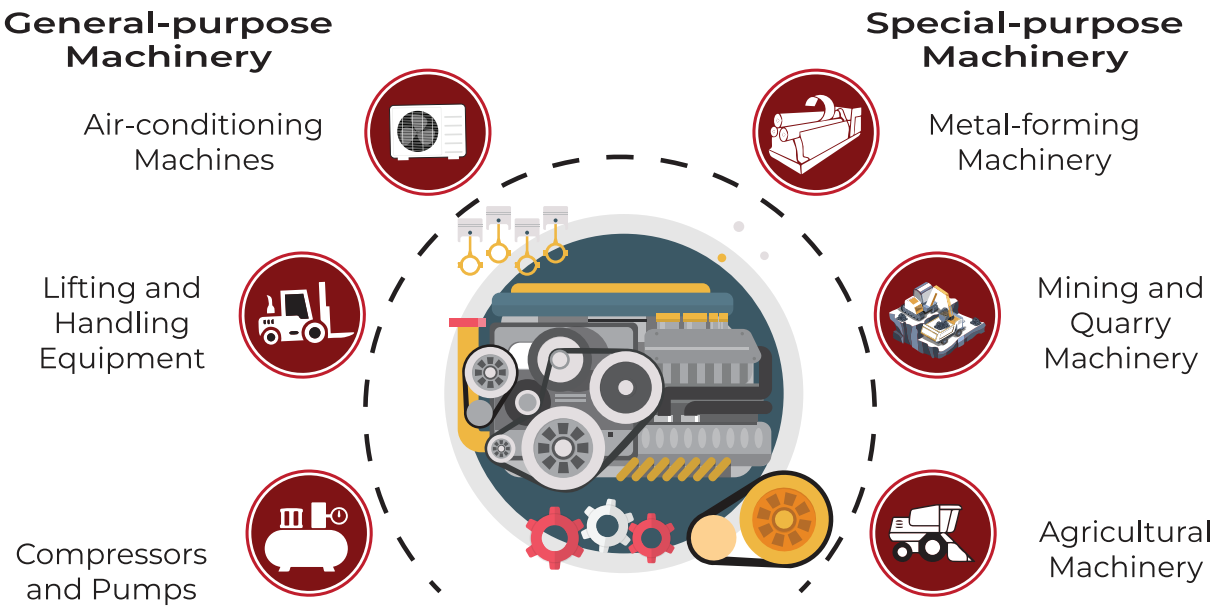
Overall, this demonstrates that wastage in Lipidchem was eliminated, successfully reducing operational costs by RM8,374 monthly.

Notes :
* PJO - Production Job Order
** fSONO - Faulty SONO Screen Mesh
Source : bond.mpc.gov.my

MACHINERY AND EQUIPMENT SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	MANUFACTURING	MACHINERY AND EQUIPMENT	MANUFACTURING	MACHINERY AND EQUIPMENT
Added Value (RM Million)	254,472 (4.4%)	6,668 (4.4%)	269,804 (6.0%)	7,102 (6.5%)
Employment (Million)	2.394 (0.8%)	0.092 (4.8%)	2.434 (1.7%)	0.093 (0.9%)
Labour Productivity (RM)	106,307 (3.6%)	72,453 (-0.4%)	110,858 (4.3%)	76,515 (5.6%)

: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF MACHINERY & EQUIPMENT SUBSECTOR

In 2017, the machinery and equipment (M&E) subsector contributed 2.6% of the manufacturing sector's total added value. The subsector employed 93,000 workers, which represents 3.8% of the total manufacturing workforce.

The subsector contributed 5.2%, or RM40.2 billion to total manufacturing exports in 2017. Based on this favourable performance, M&E subsector exports is projected to reach RM43 billion in 2020. Major export destinations include Singapore, USA, Japan, and Europe.

In 2017, M&E registered a productivity level of RM76,515, which is an increase of 5.6% from RM72,453 in 2016. This performance was mainly due to a 6.5% increase in added value, as compared to marginal growth of 0.9% in employment.

ECOSYSTEM

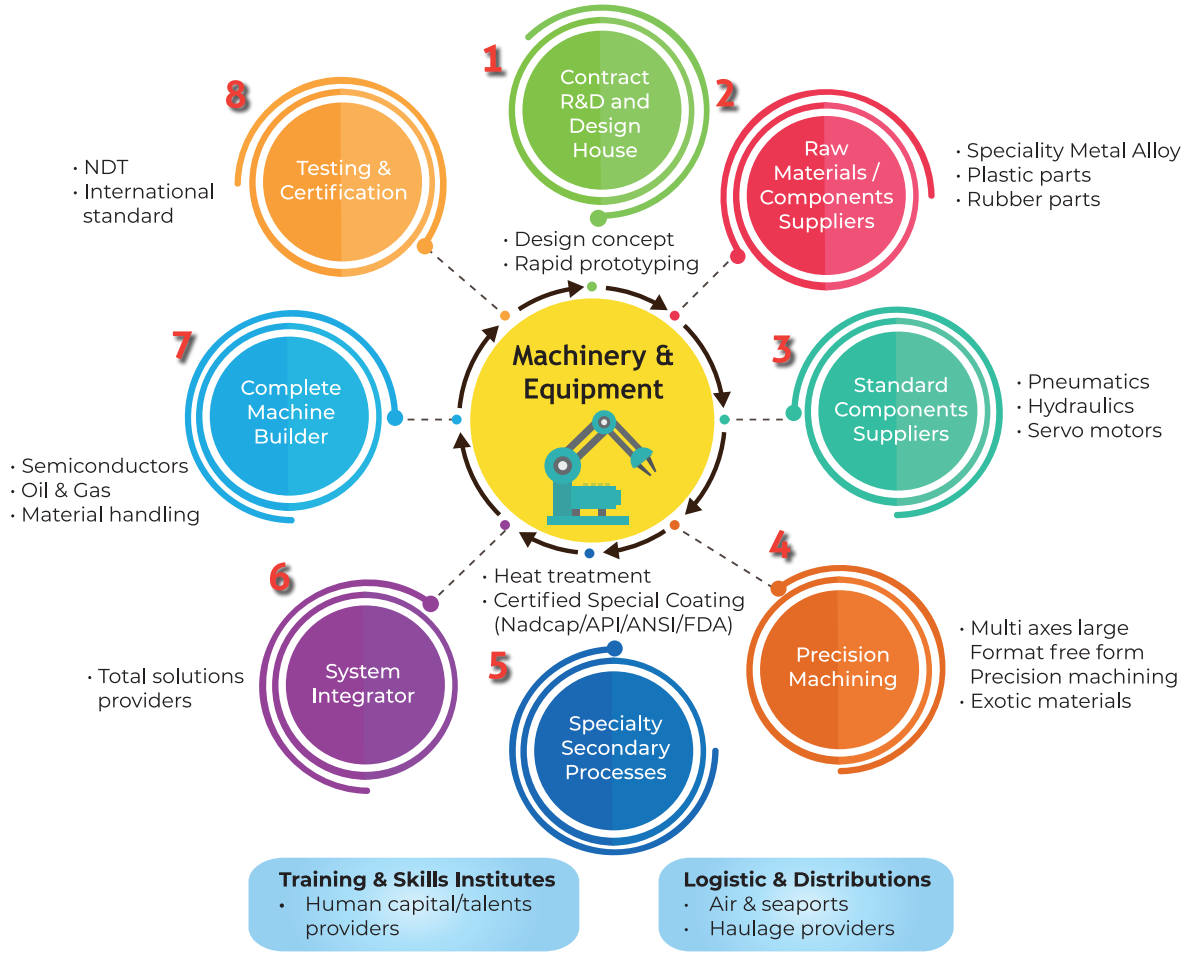
The M&E subsector provides important contributions to other major manufacturing subsectors, as it produces a wide variety of machinery and equipment for power generation, specialised-process M&E for specific industries, metalworking, and general industrial activities (Figure 2.8).

Manufacturing machines and equipment involve many business activities along its value chain, from designing and conceptualisation, to selection of raw materials and component suppliers, precision machining, specialty secondary processing, and system integration, prior to the production of the complete machinery.

These then need to undergo testing and certification processes, which are subject to extensive and stringent global conformity requirements and standards. Strong support systems from Institutes for Higher Learning (IHLs) and Technical and Vocational Education and Training (TVET) institutions, as well as logistics and distribution specialists, are also required to ensure this eco-system continues to work effectively.

One way in which this testing can be done is through non-destructive testing (NDT). This is required to test the properties of a material, component or system without causing damage. It is a highly valuable technique that can save both money and time in product evaluation, troubleshooting, and research.

Figure 2.8 : The M&E Subsector Value Chain & Ecosystems



Before the 1970s, all these activities especially product conceptualisation, serial production, packaging, testing, certification, and logistics were conducted and managed in-house, to safeguard proprietary technologies and maintain quality. From the 1970s onwards, stiff competition globally brought about the need for quick and rapid technological growth, as well as business agility.

Companies were forced to concentrate and divert more resources to their core competencies such as R&D; prototyping, design, and development; software development; system integration; and proprietary knowledge development in their growth markets. Outsourcing began to take place, particularly concerning primary-level parts and components, resulting in thousands of vendors flooding into the market.

Globalisation further increased the scope of outsourcing; including even the core activities of complete assembly, R&D, D&D, prototyping, and software development.

CHALLENGES AHEAD

The M&E subsector comprises knowledge-based industries that are very dependent on high-skilled labour, especially in high-precision mechatronics and engineering. Retaining talent in these areas is a challenge to employers, and the turnover rate is generally quite high. Other than this challenge, investment, upskilling, and contract manufacturing mentality are also challenges faced by this subsector.

M&E Subsector Challenges

Investment

Malaysian engineering industries urgently need to replace or upgrade their production infrastructure in order to keep up with advanced economies. However, most of the players in the M&E and Engineering Support industries are locally-owned SMEs, and do not have access to the financial resources required. Industry and Government must then work together to facilitate industry players in modernising and upgrading their manufacturing facilities to fully embrace Industry 3.0, before adopting Industry 4.0.

Technology Convergence to Compete Globally

Malaysian M&E industry players need to adopt and embrace automation and smart concepts, such as embedded systems driven by the Internet of Things (IoT), in their processes in order to remain ahead in the highly-competitive global area.

Emergence of new technologies such as data lakes will enhance the ability of manufacturers to capture and upscale their production, by adopting smart manufacturing concepts and leveraging the growing opportunities to integrate into the global supply chain to achieve international recognition.

Upskilling Talent

A significant increase in a technical-adept workforce in Malaysia is vital, as the current number of qualified Malaysian technicians and technical graduates are insufficient to meet industry demands, leading to the influx of foreign technical workers.

There is also a marked lack of awareness amongst school-going student vis-à-vis career paths for technical and vocational graduates, who have a high probability of being fully employed in the M&E industry with high salaries.

Contract Manufacturing Mentality

Malaysia cannot continue with the bulk of its industries focusing on sub-contracting or contract manufacturing business. There is an urgent need to join developed nations in innovating products, moving away from the subsector's contract manufacturing mentality. At the moment, the level of R&D and innovation capabilities in Malaysia is far lower than that of developed countries as the benefits of R&D are long term, most SMEs shy away from it due to financial constraints. Hence, the Government needs to step in with aggressive funding assistance.

TRIMMING WASTE BY GETTING LEAN

SunEdison Kuching Sdn. Bhd. (SE) is the world's largest renewable energy development company and among the world's top solar wafer companies with a production capacity exceeding 800 MW annually. To be competitive and mantain market sustainability, SE adheres to the principle of cost saving and waste reduction in solar production operations. It's LEAN program was introduced in 2013 to find an effective way to improve solar wafer quantity variance. The 12-months long project has a positive impact to SE and SE's staff were able to contribute to its fullest potential, which ultimately pushed the company to greater heights.

Matrix before and after LEAN project:

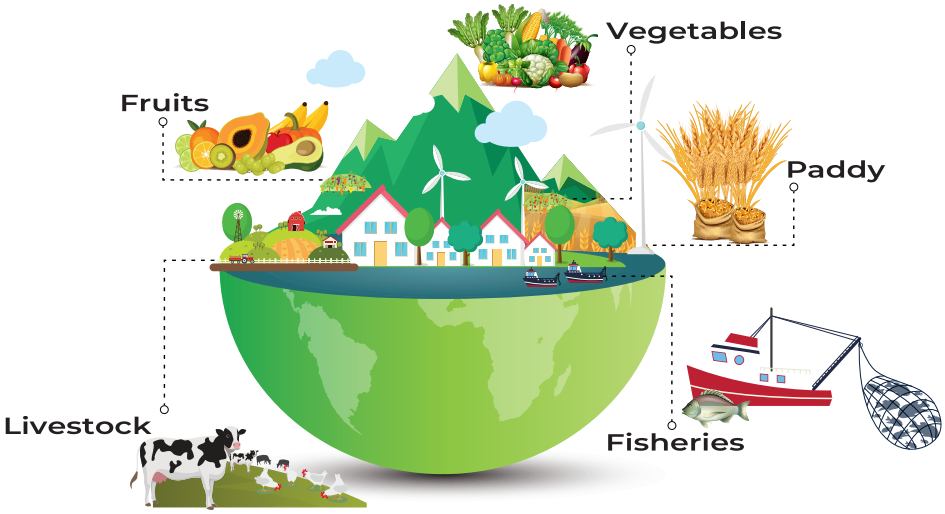
Description	Before LEAN	After LEAN
1. Processing time	2,800WPH with1.1loss	2,900WPH with 0.3 loss
2. Cost savings (RM)	-	7.5 mil
3. Process step	Manual	System (Counter): non-human dependent

Source : bond.mpc.gov.my

AGRO-FOOD SUBSECTOR

At a Glance

CLASSIFICATION



PERFORMANCE

	2016		2017	
	AGRICULTURE	AGRO-FOOD	AGRICULTURE	AGRO-FOOD
Added Value (RM Million)	89,509 (-5.2%)	36,975 (3.5%)	95,968 (7.2%)	37,670 (1.9%)
Employment (Million)	1.745 (-0.3%)	0.515 (-0.03%)	1.846 (5.8%)	0.494 (-4.0%)
Labour Productivity (RM)	51,289 (-4.9%)	71,811 (3.6%)	51,988 (1.4%)	76,210 (6.1%)

: 1 Million

Note: Values in brackets represent growth
Source: Department of Statistics, Malaysia

OVERVIEW AND PERFORMANCE OF THE AGRO-FOOD SUBSECTOR

The agro-food subsector is described as a competitive and sustainable industry, which can increase the income of agropreneurs. Hence, in order to improve the subsector's performance, there have been many programmes implemented under the National Agro-Food Policy (2011-2020). These include increasing food production through optimised and sustainable land development, upgrading agricultural infrastructure, and increasing the quality and safety of food by expanding standards compliance throughout the subsector.

Beyond that, efforts have been put in place to strengthen human capital, to ensure there is sufficient skilled labour in the agricultural sector.

In addition, the use of modern technology and mechanisation can help further reduce the sector's manpower intensity. The Government also provides sector-based incentives to encourage private entities to invest in the agriculture and agro-based industries.

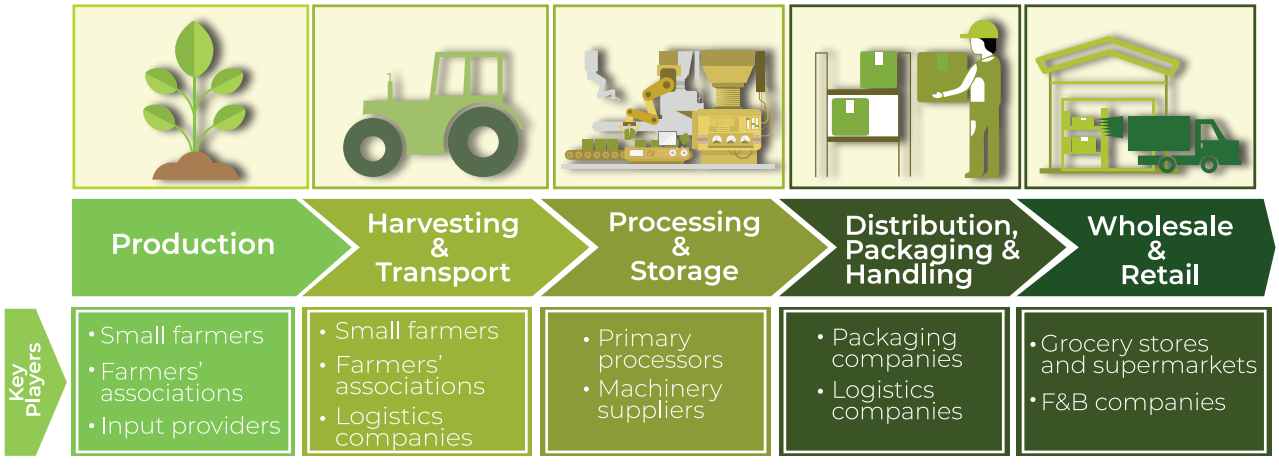
Labour productivity of the agro-food subsector grew by 6.1% to RM76,210 in 2017, compared to RM71,811 in 2016. Despite registering a positive productivity growth, employment contracted by 4.0% (2016: -0.03%). This subsector contributed 39.3% to the total added value and 26.8% to the employment of the agriculture sector.

SUPPLY CHAIN

The success of the agro-food subsector is dependent on the strong linkages along its supply chain. The agro-food supply chain is the network of organisations running the complete range from production to consumption. This encompasses raw commodity suppliers upstream, the retailers of products or services downstream, and the end consumer. It is the sum of all existing relationships involved in building the agro-food business ecosystem. An optimal supply chain succeeds in meeting or even exceeding customer expectations.

Therefore, engaging and connecting with every stage of the supply chain leads to a better supply chain management and enhances business operations (Figure 2.9).

Figure 2.9: Supply Chain of Agro-food Subsector



Source: Malaysia Productivity Blueprint, Economic Planning Unit (EPU)

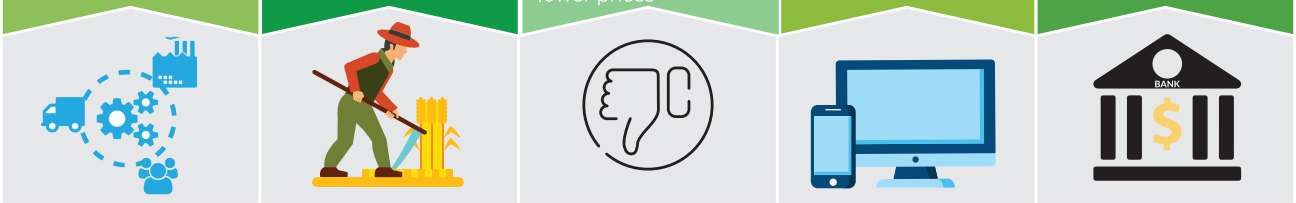
The agro-food supply chain starts with farm production inputs and links the farm to the end consumer. Both independent farmers as well as contract farmers act as producers. The growth of the subsector is dependent on subsequent parts of the supply chain including harvesting and transport, primary processing and storage, distribution, packaging and handling, and selling the product to wholesale and retail markets. Production, harvesting and transport activities are classified as upstream activities, while processing and storage, distribution, packaging and handling, and wholesale and retail activities are classified as downstream activities.

CHALLENGES AHEAD

Issues highlighted as key productivity challenges for the agro-food subsector include insufficient focus on value-adding activities and disconnections along the value chain, too many small players with low level of productivity, issues with quality and standards across the sector and low adoption of technology and modern farming technique. However, the main issue that needs to be emphasised is related to the disconnection along the value chain. There are other issues raised by the industry players as illustrated in the infographic below.

Agro-food Subsector Challenges

Value Chain	Small Players	Product Quality and Standards	Technology	Funding Issues
• Poor connectivity & communication within the value chain entities • Insufficient information	• Many small players with low levels of productivity knowledge & limited resources (e.g. capital, manpower, technology) can hinder agro-food productivity	• Inconsistency in the quality of standards and prices by the local market leads to dissatisfaction and rejection by larger corporations, thus leading them to import from other countries that offer products with consistent quality at lower prices	• Lack of practice in knowledge transfer between the participating parties	• Very few financial institutions are willing to underwrite agriculture businesses



The Challenges Which Impact the Productivity Levels of the Agro-food Subsector

Scarcity of Farm Land	Poor Quality of Input Supply	Insufficient Human Capital	Inefficient Logistics	High Production Costs
• Limited availability of land for specific usage vs product demand	• Food crops – seeds and seed banks • Ruminants – animal feed • Fisheries (coastal fishing)-overfishing; unsustainable fishing practices • Fisheries (deep-sea fishing) – large boats that are able to fish beyond 100 km off the coast	• Malaysians unwilling to take up '3D Jobs'	• Due to geographical locations, farmers are required to arrange their own transport to bring their goods to market	• Burdensome rising production costs for primary producers

INNOVATION IN WORK PROCESS TOWARDS HIGH PERFORMANCE – THE SIME DARBY PLANTATION EXPERIENCE

The company identified a few facets of its operations that required improvement using ICC techniques and tools.

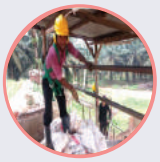
ICC is used to resolve the problem of inefficiency in work processes to fulfill the strategies of Sime Darby Plantation's Upstream Operations

ICC techniques and tools can help Sime Darby Plantation to increase output and ensure optimal operation

This approach can also be utilised to achieve lower costs in the production process and field maintenance

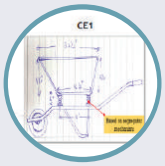
Solution

Before ICC

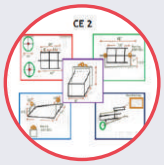


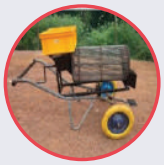
An inefficient segregator machine was found to be a major issue which led to the high costs in the loose fruit handling process, loose fruits' contamination and the delay in field maintenance processes

After ICC



CE1 was invented to replace the old segregator machine. The sketch and fabrication of a prototype portable loose fruit segregator was done by the Chaah Estate's workshop supervisor based on the need and work environment



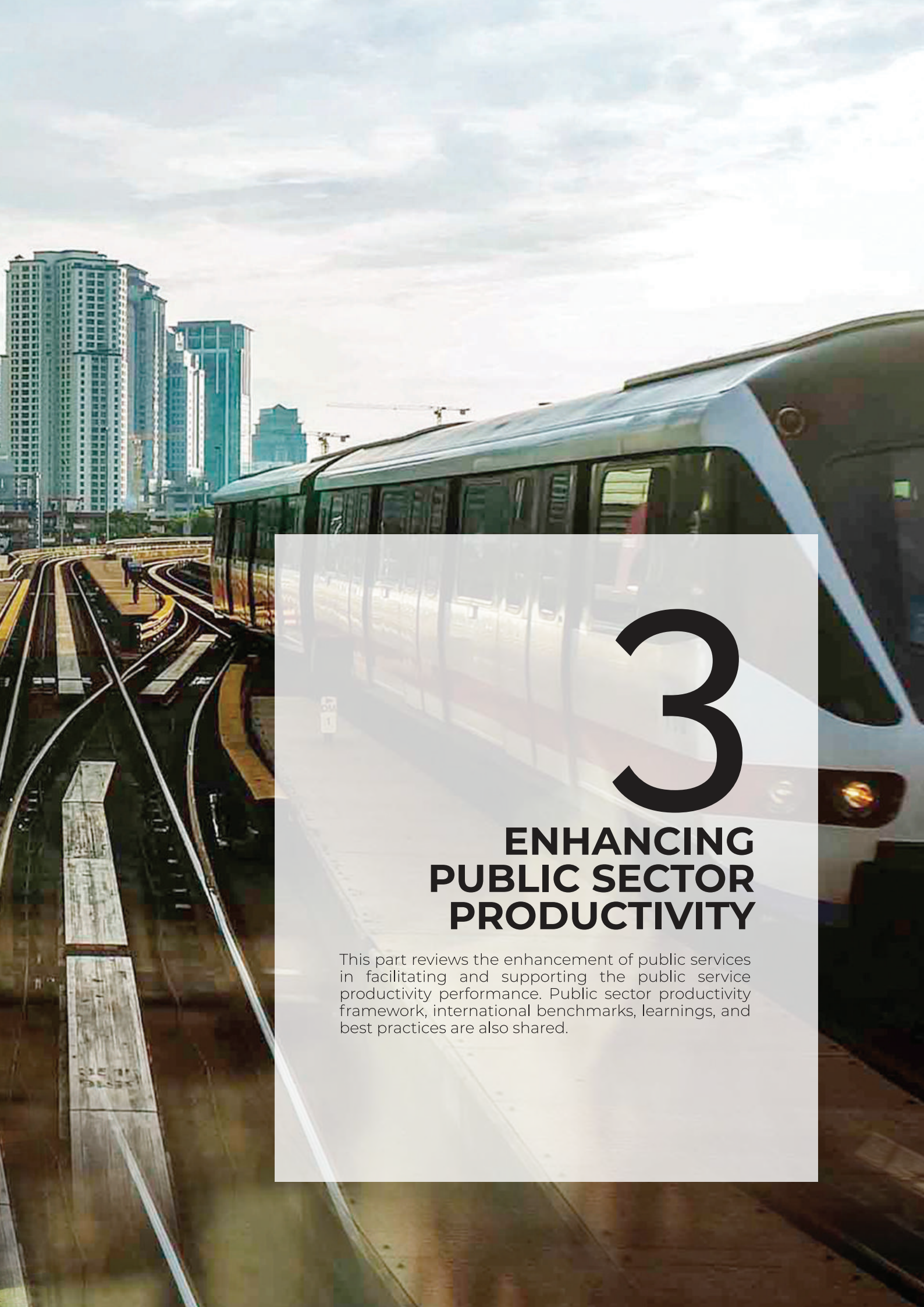


This new tool, known as CE2, has enhanced the efficiency of the loose fruit handling process and supervision.

Results

1. The cost of handling loose fruit reduced from RM6.87/MT to RM3.49/MT
2. Cost savings through this initiative is expected to reach a potential benefit of RM21 million if CE2 can be replicated to all estates
3. The loose fruit delivery time has also significantly improved from 7 hours 11 minutes to 5 hours 52 minutes

Source: bond.mpc.gov.my



3

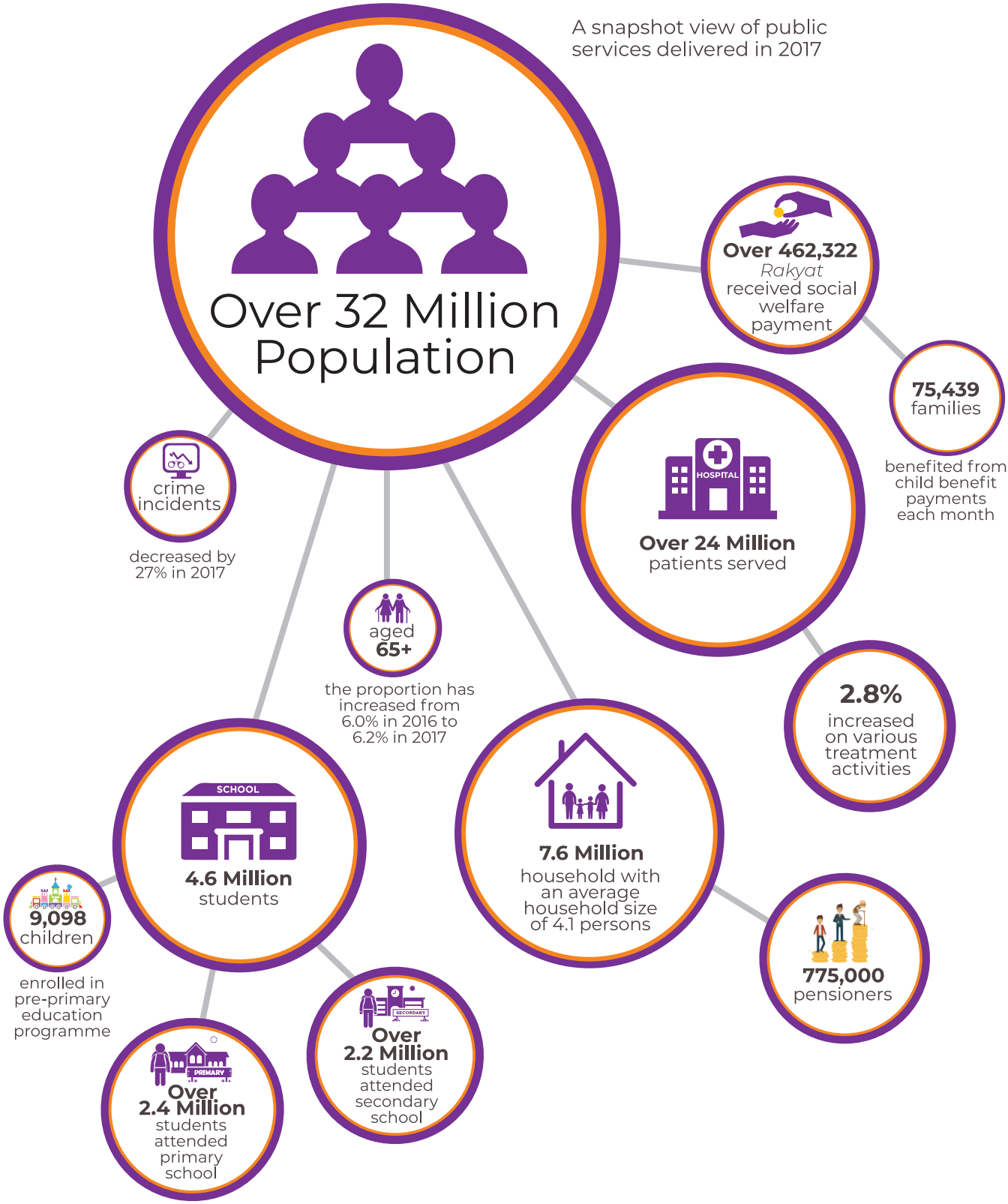
ENHANCING PUBLIC SECTOR PRODUCTIVITY

This part reviews the enhancement of public services in facilitating and supporting the public service productivity performance. Public sector productivity framework, international benchmarks, learnings, and best practices are also shared.

Malaysia's Public Services

At a Glance

A snapshot view of public services delivered in 2017



OVERVIEW OF THE PUBLIC SERVICE

The public sector continues to play an important role in the Malaysian economy in delivering efficient and effective services out of limited Government resources. The role of public sector is important for its direct and indirect contributions to the Malaysian economy. In 2017, the sector had contributed approximately 16% to the Malaysian economy, which was most notable in the health and education services, administration of the welfare system, and law enforcement. The Government, like any other part of the economy, provides the public with goods and services, or 'output', by using a set of 'inputs' – labour, intermediate goods and services, and capital equipment.

However, despite the considerable importance of the Government's output, little is known about the level of output produced or services rendered. Importance has been placed on how much is spent on inputs in a particular area, rather than how much output is produced as a result.

Before looking at the outputs delivered across the public service rendered, it is important to know the resources utilised to deliver public service outputs and the targeted outcomes. While size, costs and inputs alone are not the sole or even the main determinants of good public administration, the value for money in the delivery of public services and to monitor, these inputs are also an essential consideration.

In 2017, the operational expenditure incurred by the public service was close to RM220 billion and was distributed among the sub-programmes as shown in Figure 3.1.

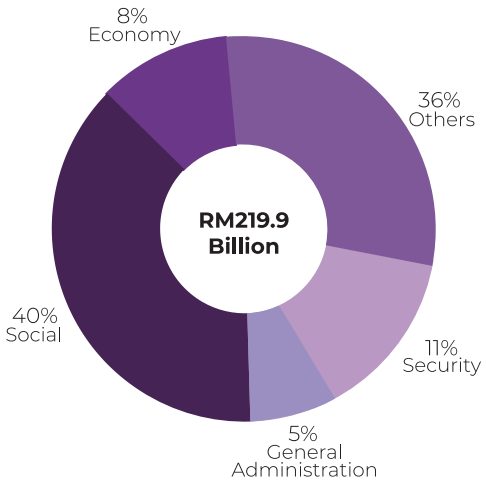
In 2017, over 1.7 million public servants delivered a diverse range of services across numerous numbers of ministries and agencies. Figure 3.2 shows the distribution of public service employees across a range of sub-programmes.

Figure 3.3 shows the trends in emoluments and the number of public service employees. The number of public service employees remains relatively unchanged in line with the Government's policy to maintain its optimum level.

However, emoluments and pension payments continue to rise at an average rate of 5% for the period 2014-2017. The increase was due to two salary increments, implementation of minimum wages and improvements of selected service schemes for support staffs.

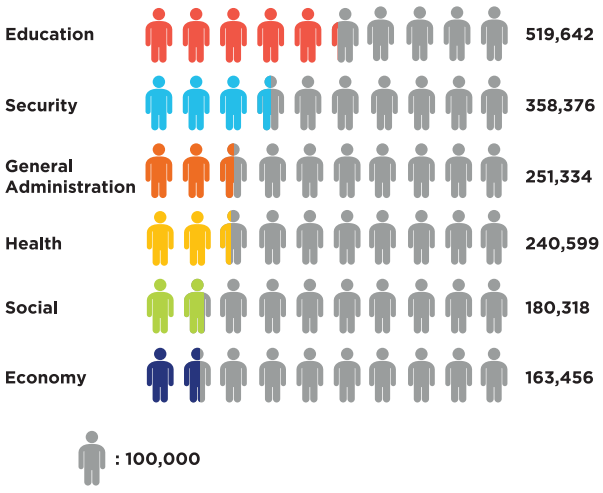
Emoluments remained the largest component of operating expenditure, representing 35.4% of the total gross expenditure. The total gross expenditure on emoluments and pensions for 2017 is RM102,449 million or 19.4% of the country's GDP.

Figure 3.1 : Federal Government Operational Expenditure, 2017



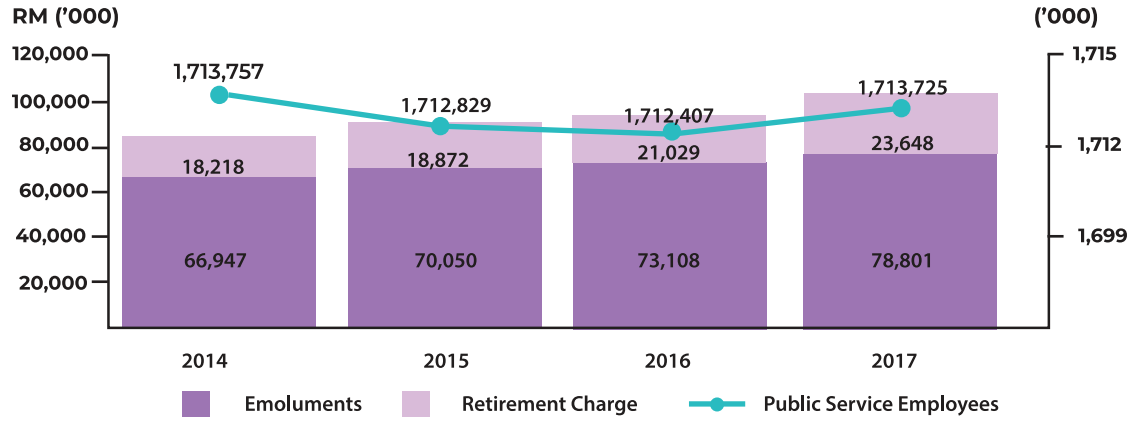
Source : Bank Negara Malaysia

Figure 3.2 : Total Public Service Employees



Source : Annual Report, Public Service Department (PSD)

Figure 3.3: Emoluments, Retirement Charge and Public Service Employees, 2014-2017



Source : Annual Report, Public Service Department (PSD) and Economic Report, Ministry of Finance

WHAT IS PUBLIC SECTOR PRODUCTIVITY

Improving public sector productivity means exhibiting efficient and effective performance given limited Government resources. In technical terms, it is represented by standardised efficiency (output per unit resource) and effectiveness (quality output). Generally, it is about ensuring value for taxpayers' money, as public sector's financial resources largely come from taxes.

Over the years, improvements in public sector efficiency and effectiveness have been realised through supporting activities such as increasing workers' motivation and skills, strengthening management systems and performance measurement coupled with incentive schemes. Other activities such as reorganising jobs and work processes, reduce bureaucracy, budget reform, service quality improvement, and the application of technological and operational innovations are also practice for similar reason.

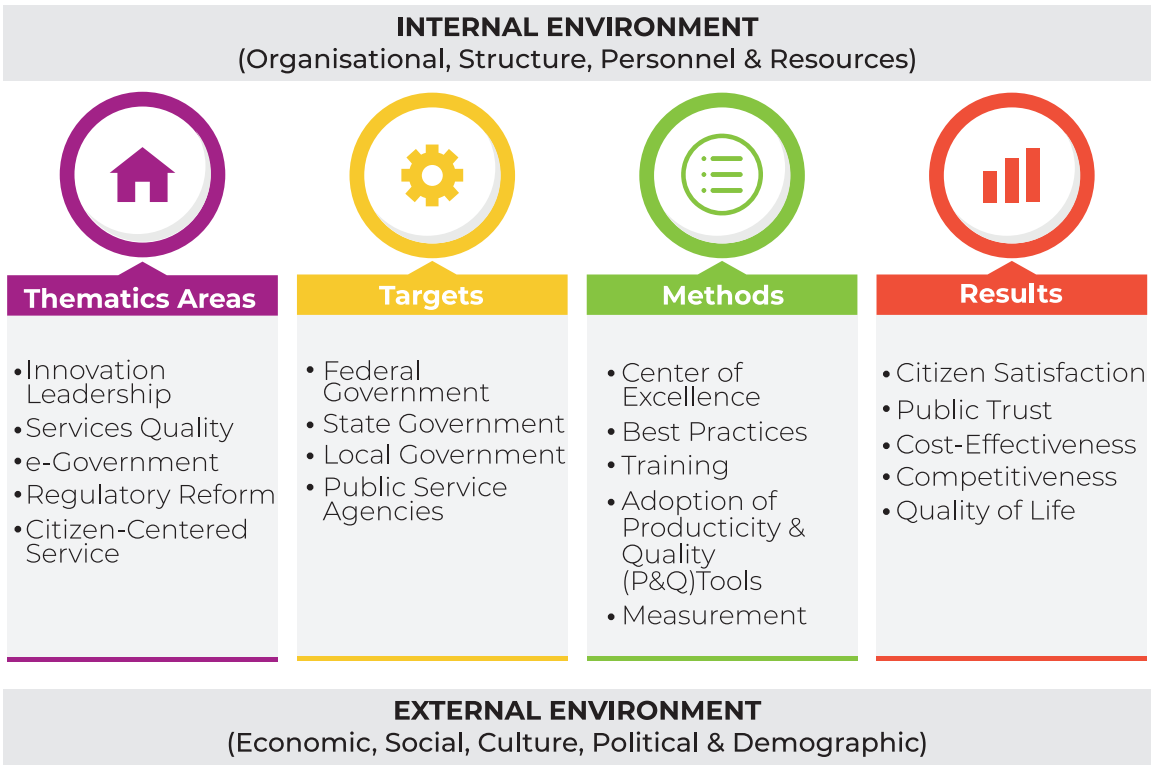
PUBLIC SECTOR PRODUCTIVITY FRAMEWORK

In order to achieve public sector productivity target and to improve its performance and quality of public services, Asian Productivity Organisation (APO) has developed a public-sector productivity framework used across the Asian member countries.

The framework illustrates most urgent and relevant vital elements to enhance productivity in the public sector, as well as to achieve desired results.

Five thematic areas have been identified as priority areas in the framework namely, innovation leadership, service quality, e-Government, regulatory reform and citizen centred services. Initiatives undertaken by the public sector in enhancing efficiency among others, include the 5 key thematic areas.

Figure 3.4 : Public Sector Productivity Framework



Source: www.apo-tokyo.org/

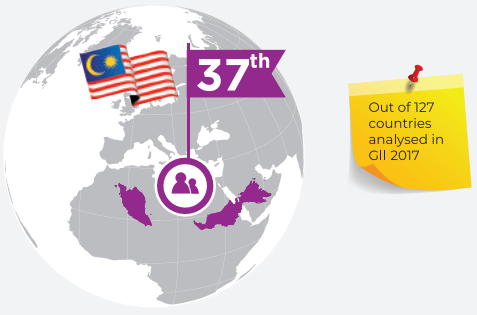
Innovation Leadership

Innovation leadership results in the creation of more efficient, effective products and services that are readily available to Governments by influencing others in the accomplishment of public tasks. An innovative leader does not need to be the person who creates the idea behind an innovation. He or she simply recognies a great idea and is able to share that idea with employees, suppliers, business partners and then envisions the path that leads to that idea becoming a reality.

Malaysia's public sector today possesses many of the qualities of an innovation leadership as reflected in the Global Innovation Index (GII).

The report aims to capture the multi-dimensional facets of innovation and provides tools to assist in tailoring policies to promote long-term output growth, improved productivity, and job growth in a country. In 2017, Malaysia was ranked 37th out of the 127 economies it assessed. The report states that Malaysia is developing its innovation agenda quite rapidly. Among the 35 upper-middle income economies, Malaysia ranked 3rd after China and Bulgaria. Malaysia is also among the top 10 in the upper-middle income economies for the Innovation Input sub-index (2nd) and the Innovation Output sub-index (4th).

Malaysia's Ranking in GII 2017



Source: The Global Innovation Index 2017

Services Quality

Services quality is an important dimension of organisational performance in the public sector services, as the main output is services. The public sector's role is to serve as facilitators, pace-setters, and socio-economical developers of the nation.

There are various management techniques that can be used to promote excellent service in any public sector organisation.

LEAN Management, introduced by Malaysia Productivity Corporation (MPC) is one of the systems that can offer an alternative in overcoming problematic areas through continual improvement in public-sector services. It aims to provide customers with the best solutions of products and services in the best possible way. Implementation of LEAN Management has been successful in improving productivity and cultivating a creative culture, within many organisations in the public sector as shown in Table 3.1.

Table 3.1: Successful LEAN Projects in Public Service Organisations

Organisations	Project Goal	Implementation	Successful
Dewan Bandaraya Kuching Utara (DBKU)	Speeding up the issuance of assessment rate bills on new residential properties	Simplified process	Profit Gain • Speed up the issuance of assessmentrate bills, increased surplus to RM681,132
Pejabat Kesihatan Wilayah Persekutuan Putrajaya (PKPj)	Enhancing patients' experience in maternal and child health clinics	Reduced discharge time	Profit Gain • Received 113% increase in bedrevenues
Hospital Sultanah Nur Zaharah (HSNZ)	Minimising the time to dispense antibiotics to infected patients	Streamlined Procedures	Met Customer Needs • Achieved an overall improvement of 30% in terms of patients receiving antibiotics within an hour
Hospital Universiti Sains Malaysia (HUSM)	Minimising Extracorporeal Shock Wave Lithotripsy (ESWL) treatment fees	Ensured competitive pricing	Met Customer Needs • Reduced ESWL treatment fee by 8.7%
Tabung Haji Johor	Improving counter service processes for customer satisfaction	Reengineered counter services	Met Customer Needs • Served customers within 25 minutes on average
Majlis Perbandaran Kuantan (MPK)	Faster approval for residential development plans	Faster approval process	Increase in Customer Satisfaction • Received zero complaints as compared to 40 complaints previously. Only three consecutive processes are executed in the residential development plan process
Kolej Kemahiran Tinggi Mara Petaling Jaya (KKTMPJ)	Producing training materials	Minimised time taken	Productivity Gain • Developed an online system; improved the waiting time to obtain training materials by 75%
Universiti Putra Malaysia (UPM)	Minimising time and process for the approval of development services applications	Reduced lead time	Productivity Gain • Simplified 4 processes into a single computerised system. • Lead time improved to 3,904 minutes

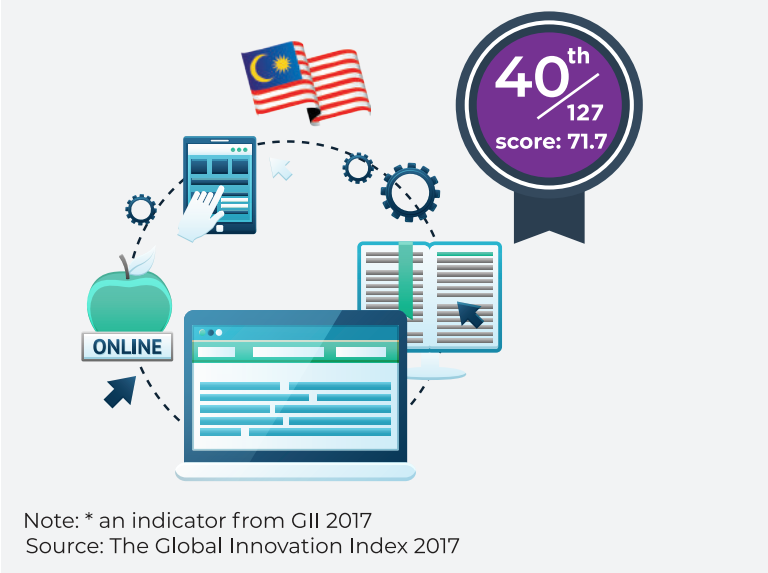
Source: Embracing a More Conducive Workplace through LEAN, MPC

e-Government

This key area focuses on the effective use of information and communication technologies in the operations of public sector organisations to improve overall productivity. It has become part and parcel of every Government's agenda. To enhance the quality of services, the Government has decided to inaugurate e-Government policies in its agencies and departments, in order to enhance the quality of services; and also for better transparency as well as greater accountability.

The application of e-Government tools can dramatically improve the performance of the public sector in many different ways such as reducing costs, preventing corruption, improving service delivery and public administration. Malaysia's performance in terms of online services is also reported in the GII 2017.

*** Malaysia's Ranking in Government's Online Service**



Note: * an indicator from GII 2017
Source: The Global Innovation Index 2017

DIGITAL FREE TRADE ZONE (DFTZ)

The Digital Free Trade Zone (DFTZ) is an area where e-Government is critical to succeed in enhancing the nation's e-Commerce and trade facilitation efficiency. More specifically, it is an e-Government initiative aimed at capitalising on the confluence and exponential growth of the Internet economy, facilitating cross-border e-Commerce activities, and turning Malaysia into a regional e-Commerce and eFulfillment hub.

The DFTZ **E-Services platform** and process improvement initiatives are meant to simplify cross-border trade facilitation and reduce the cost of doing business. Other DFTZ components that rely on ICT interlinkages with its e-Government systems include:

eFulfillment Hub, which helps SMEs/businesses export their goods easily, using leading fulfillment service providers, and

Satellite Services Hub, which connects SMEs/businesses with leading players that offer services like financing, last-mile fulfilment, insurance, and other services that are important in cross-border trade.

Regulatory Reform

Regulatory reform helps the Government to improve regulatory quality by reforming regulations that raise unnecessary obstacles to competition, innovation, and growth, while ensuring that regulations efficiently serve important social objectives. Reforming Malaysia's regulatory regime is crucial to support the country's aspiration to become a high-income nation by 2020 through private-sector driven and people-centered growth. MPC as a government agency is responsible to further enhance these initiatives at the Federal level. Under the 11MP, the policy will be extended at the states and local authority level.

In order to achieve good quality regulations, all regulations must be reviewed using Regulatory Impact Analysis (RIA).

RIA is used in many countries when proposing new and existing laws, in order to understand the consequences on competitiveness and impact on future generations, such as opportunities for the young, investments and job creations, and innovation. Table 3.2 presents the status of Good Regulatory Practice (GRP) activities from January to December 2017.

Additionally, under the National Policy on the Development and Implementation of Regulations (NPDIR), several outreach and capacity building programmes have been organised in 2017.

Table 3.3 lists the various awareness and public outreach programmes undertaken throughout January till December 2017.

Table 3.2 : GRP Activities 2017

No	Status of Regulatory Proposal Received	2017
1.	RN Received	70
2.	Exemption	10
3.	RN Withdrawn	4
4.	Proposal Undertaking RIA Process	56
5.	RIS Submission	25
6.	RIS In Progress	10
7.	Regulatory Coordinators Registered	360
8.	Number of Regulators Submitted RN	28
9.	Number of Regulators Submitted RIS	12

Table 3.3: The List of Awareness and Public Outreach Programmes

No.	Program	No. of Program
1.	Seminar	6
2.	Advisory Services	24
3.	Hands on Workshop on RIA	8

Source: MPC

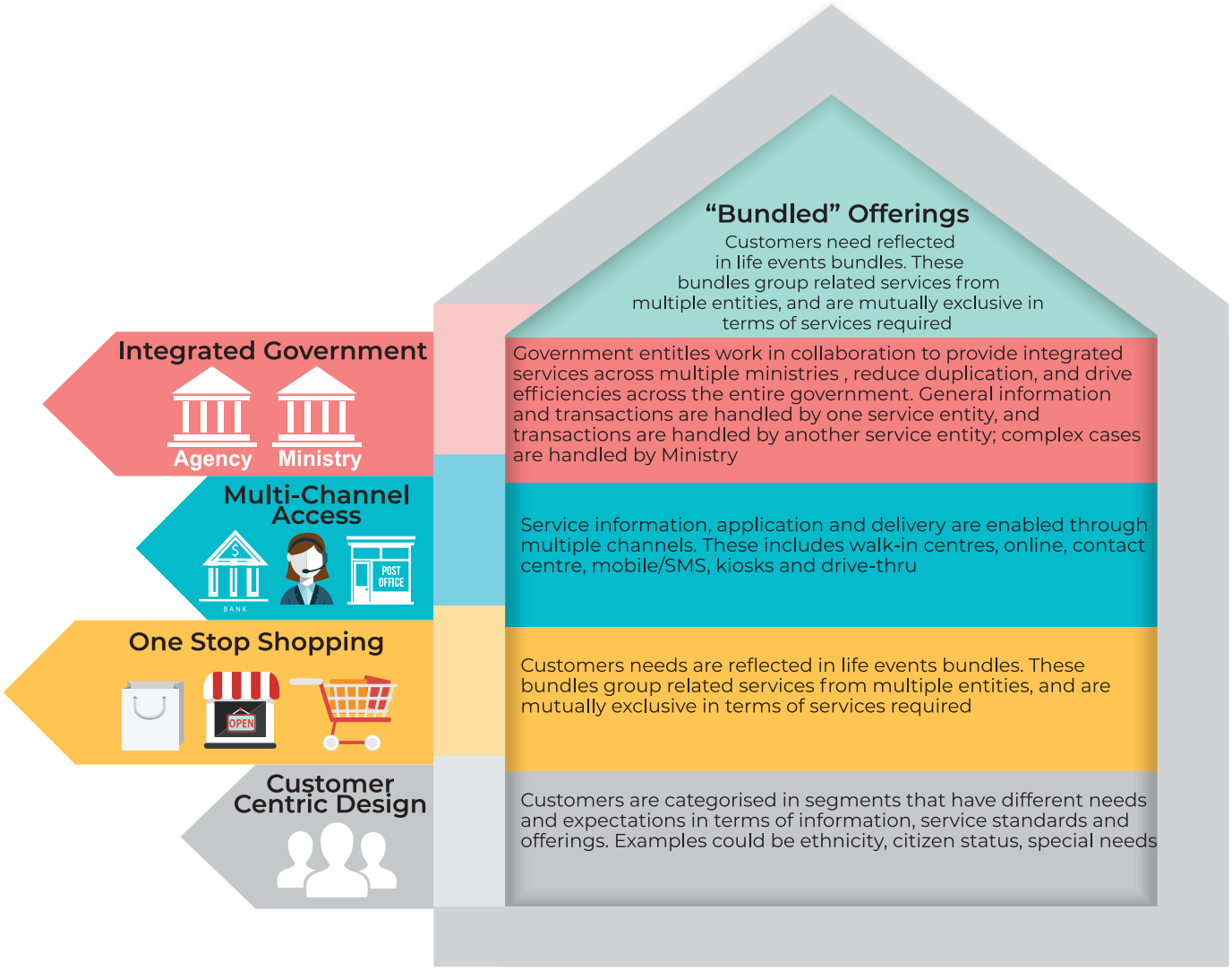
Citizen-centred Services

Citizen-centred services are Malaysia's Government initiatives to provide services and resources that are tailored to the actual needs of users, which includes citizens, residents, the civil service, and others.

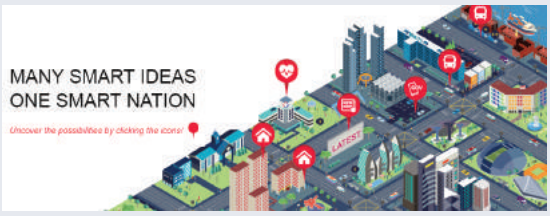
The Government has embarked on a journey in using technology as a new platform, as an enabler to deliver and integrate programmes and services, making it available and accessible to citizens through all modes of delivery channels.

Governments worldwide are striving to lower the costs of service delivery and are seeking better ways to interact with citizens and businesses. To address these trends, they are aiming to become more efficient while improving their service effectiveness. Singapore is one such nation.

Citizen-centred Services are a "One Stop Shop" for all your information and transaction needs from the Government



SINGAPORE IS A SMART NATION - EMPOWER CITIZENS TO ACHIEVE THEIR ASPIRATIONS



Singapore sees the Smart Nation concept as one where technology empowers people to live meaningful, fulfilled lives. It is a national movement, harnessing digital technologies to build the future Singapore, to improve lives and build a closer community, enable citizens to achieve their aspirations, and encourage businesses to innovate and grow.

Singapore has put in place several Key Strategic National Projects, which are critical to realise its Smart Nation drive :

- National Digital Identity – allowing citizens and businesses to conduct digital transactions in a convenient and secure manner;
- e-Payments – enabling payments that are simple, swift, seamless, and safe;
- Smart Nation Sensor Platform - deployment of sensors and other IoT devices that will make Singapore more liveable and secure;
- Smart Urban Mobility - leveraging data and digital technologies, including artificial intelligence and autonomous vehicles, to enhance public transport;
- Moments of Life - bundling government services across different agencies to the citizens at different moments of their lives.

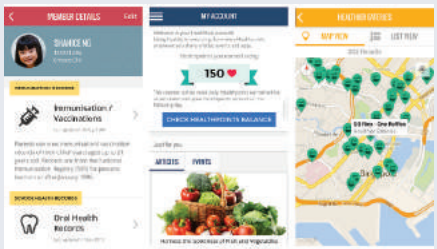
CASE I: THE HEALTHHUB APPLICATION

HealthHub is Singapore's first comprehensive online health information and services portal and mobile application. HealthHub leverages technology to provide Singaporeans easy access to reliable health-related content, key medical records and e-Services. This early release is designed to solicit user feedback to build a digital companion for healthy living, and aims to increase health literacy, encourage the adoption of healthy habits, and persuade Singaporeans to take greater ownership of their own health.

As of end January 2017, more than 84,000 Singaporeans have downloaded the HealthHub application. The HealthHub portal has 530,000 average monthly page views.

Current Features

Localised and citizen-centric health and wellness content. This takes Singapore's lifestyle and healthcare trends into consideration, and spans a myriad of topics, including chronic diseases, mental wellbeing, nutrition, and physical activity. Upon personalising their profiles, users will receive article and content recommendations based on their areas of interest. The main items can be accessed from the HealthHub are key health records, health and wellness mobile deals, healthpoints and directory of healthcare facilities and services.



Source: https://www.smartnation.sg

INTERNATIONAL COMPARISON AND BEST PRACTICES

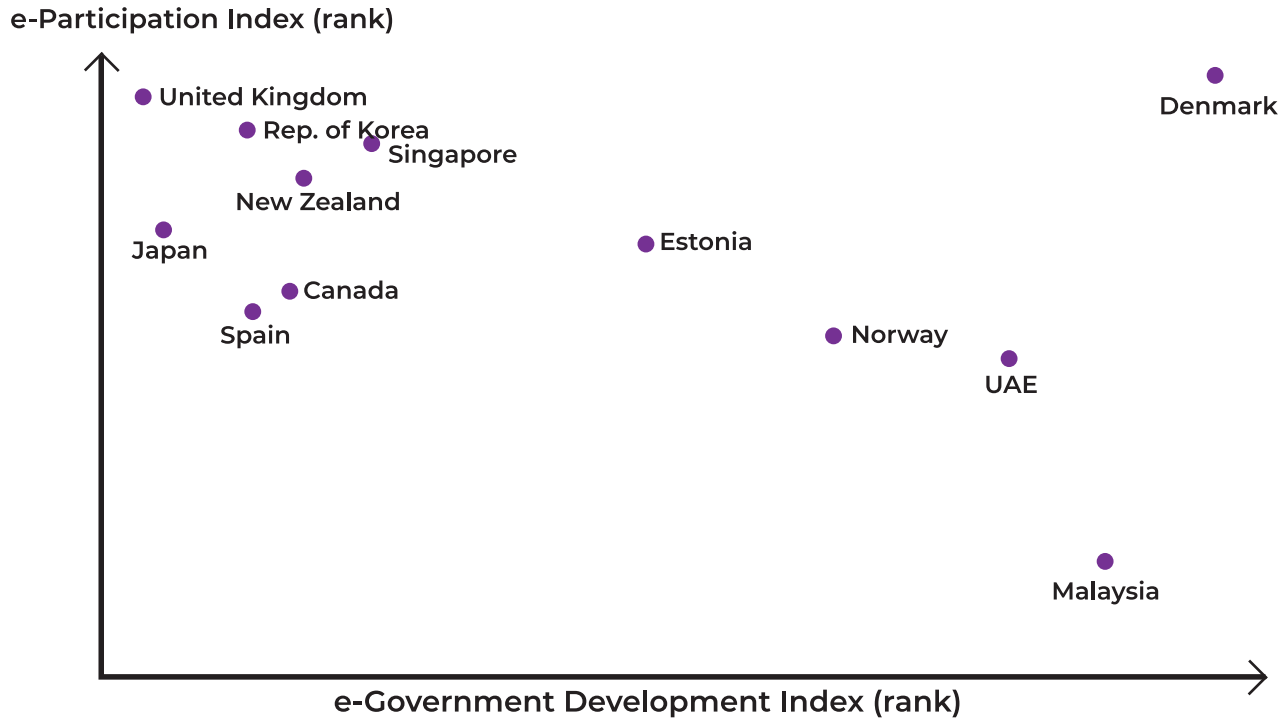
Several comparisons have been made with selected countries on implementing public sector efficiency initiatives. In order to be productive and competitive, Malaysia must have an efficient public sector that pursues continuous development and improvement in various areas. This includes e-Government innovations, expanding the usage of e-Government facilities, extending service delivery, and being efficient in managing its resources.

The United Nations (UN) e-Government Survey 2016, show that Singapore, Republic of Korea and Japan were the Asian leaders. Republic of Korea and Singapore ranked 3rd and 4th position respectively, while Japan ranked 11th in the world. These three APO member countries stand as world leaders for implementing e-Government initiatives across their public sectors.

The UN rankings provides helpful information on the global and regional leaders in applying e-Government tools and strategies, as well as identifying best practices that can be adapted by other countries at similar stages of development.

New technologies are being used in many countries to enable e-participation in decision-making and to strengthen democratic processes in several countries. The UN e-Participation Index (EPI) is a supplementary index to the UN e-Government Survey. It extends the dimension of the survey, by focussing on the use of online services to facilitate provision of information by governments to citizens (e-information sharing), interaction with stakeholders (e-consultation), and engagement in decision-making processes (e-decision making).

Figure 3.5: Correlation between e-Government Development Index and e-Participation Index



Source: United Nations e-Government Survey 2016

ESTONIA IS A GLOBAL LEADER IN e-GOVERNANCE

The Republic of Estonia recently took the e-Government spotlight when it was ranked first in the world for Internet freedom. The Estonia Government has shown that the deployment of technology is able to reform and modernise its public sector in metting its citizens' and businesses' needs, without the limitation of time and space. Through a safe, convenient, and flexible digital ecosystem, Estonia has reached an unprecedented level of transparency in governance, and built broad trust in its digital society. As a result, Estonia saves over 800 years of working time annually and has become a hassle-free environment for business and entrepreneurship. The e-Government implemented by the Estonian Government, has direct (eg. using digital signatures, the nation saves 2% of working time annually) and indirect benefits (eg. raises citizens' trust in public organisations and the Government)

Note : *Europe's Hidden Entrepreneurs: Entrepreneurial Employee Activity and Competitiveness in Europe

Source: https://e-estonia.com/

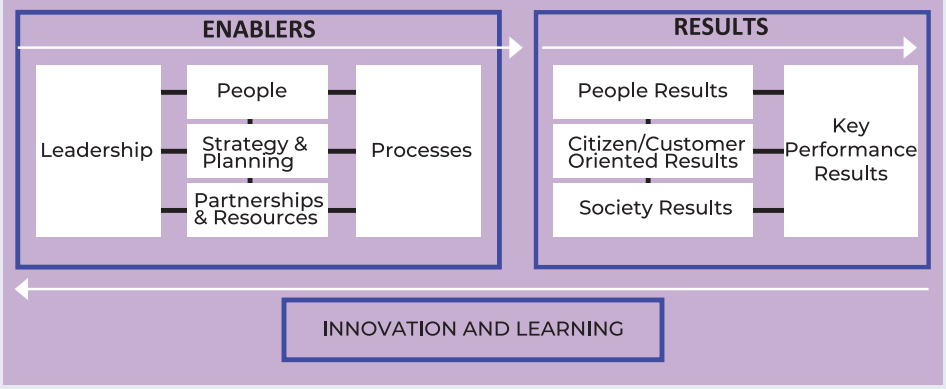
PUBLIC SERVICE EXCELLENCE FOR HIGH PERFORMING ORGANISATIONS

High-performing organisations are focussed on achieving results and outcomes. A results-oriented organisational culture is fostered to reinforce this focus. The Public Services Excellence Model draws on the best features of international excellence frameworks and assessment methodologies.

The Public Service Excellence Model consists of 9 criteria, namely :

1. **Leadership**: Provide clear direction and leadership;
2. **People**: Use a system thinking approach for continuous improvement;
3. **Strategy And Planning**: Identify stakeholder needs and expectations, and use these to define excellence outcomes;
4. **Partnership & Resources**: Build, capture and share individual, team and organisational learning;
5. **Processes**: Underpin continual improvement activities with sound planning and governance;
6. **People Results**: Use breakthrough thinking to drive and implement innovation;
7. **Citizen/Customer-Oriented Results**: Ensure that decisions are based on data, information and knowledge;
8. **Social Responsibility Results**: Focus on results and outcomes that add value in a sustainable way;
9. **Key Performance Results**

The Public Service Excellence Model



Source: Asian Productivity Organization (APO)

4

CHANGING THE PRODUCTIVITY PARADIGM

This part reviews the need for a change in mindset and the necessity of a holistic approach towards improving labour productivity. Also the importance of sustainable productivity promotion at every level and a closer look at the integrated plans, strategies, programmes and tools from MPC to help organisations improve their labour productivity.

SUSTAINABLE PRODUCTIVITY

Productivity is not a technical concept only relevant in workplaces; more broadly, it can be described as a way of thinking, regardless of one's vocation.

In this context, productivity is often linked to the 5 basic necessities that form the basis of actions taken to attain a productive life that is sustainable, balanced, and harmonious (Figure 4.1). When considered holistically, and not just its commercial or business aspects, the concept of productivity requires organisations to look at human beings beyond just their usefulness as organisational human capital. This allows organisations to consider what 'sustainable productivity' ought to be for everyone, everywhere, and every time.

To ensure productivity is culturally sustainable, each of the following 5 necessities must be interdepently related to each other. The necessities are the promotion and protection of life (including health and safety), intellect, progeny, (natural) resources, and the way of life, which connects all the rest as essential parts of living a productive life.

In practical terms, to better promote and protect life in all its forms through productivity, not only must individuals nurture and exercise discipline and thoughtfulness, the systems must also be deployed in such a way that their management and governance is directed to achieve the maximum benefits in the most dignified and humane way.

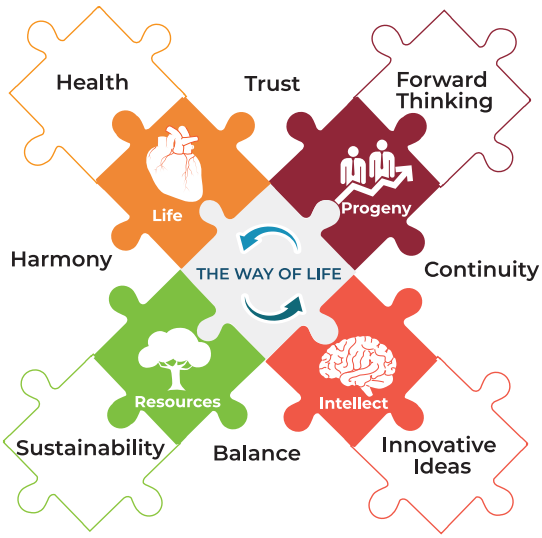
This, in turn, requires a high level of intellect and rigour of reasoning engaged to bring out the best outcomes, reflecting a holistic state of well-being based on the values of morality, integrity, and authenticity.

Over time, these practices will be inculcated in future generations (progeny), who will foster even better, more productive futures for the community, nation, and world. This can be measured through short-term outputs-economically, culturally, and socio-politically. In the long term, it upholds the principles of equitable prosperity, justice, and social cohesion, which are needed to develop a sustainable community. As such, it addresses larger societal values and concerns of environmental ethics, as part of the shared communal values and stewardship related to resources held in trust for humanity.

All these are interlinked to shape the way of life rooted in the universal values, where all 5 necessities are combined to bring about sustainable productivity. And as productivity increases, the way of life will continue to improve, bringing about an even higher state of well-being.

Through this quintuple model of sustainable productivity, people are motivated via a sense of accomplishment, and an attainment of a higher order and purpose in life that is sustainable, balanced, and harmonious. By being deeply self-motivated and engaged, other forms of incentives, recognition, and rewards can be rendered less important, thus showcasing the importance of sustainable productivity as a social movement is boosted by the principle of the 5 necessities.

Figure 4.1 : Model of Sustainable Productivity



INTEGRATED COMMUNICATION PLAN & STRATEGY

To disseminate productivity initiatives and messages to all segments of the *rakyat,* a holistic, integrated, cross-industry communication plan and strategies have been outlined. Various marketing and communication strategies have been designed to disseminate the relevant information in an easily-understood manner to meet the needs of all the targeted segments. These strategies will use internal as well as external communication channels (Figure 4.2).

In an effort to achieve labour productivity of RM92,300 by 2020, one key messaging strategy is the use of integrated communication, which combines out-of-home (OOH), wired media, activation/engagement, print, positioning and branding, and collaboration/networks (Figure 4.3).

Figure 4.2 : Productivity Expedition through Integrated Communication Strategies

MPB INTEGRATED COMMUNICATION STRATEGIES
"Driving Productivity of the Nation"

Integrated Strategic Communications		
Business Strategies		
Marketing and Communications		**External and Internal Communications** Customer experience, advertising, brand management, media relations stakeholder and community relations employee engagement, globalisation corporate social responsibility
Content Content creation, delivery and governance		**Corporate Publishing** Audience and message architecture tone of voice, content themes, topic management, multimedia stories, editorial processes, workflow cross-organisational collaboration
Channel		**Multi-channel Optimisation** User experience, task management information architecture, search metadata, taxonomy, personalisation accessibility, design, development, technology
Auditing	**Measurement**	**Return on Investment**

Figure 4.3 : Integrated Communication Strategies

Out-of-Home Advertising (OOH)

Out-of-home advertising on interactive media billboards with messages promoting productivity improvement in general for the public at large. Target locations are MRT and LRT stations, KLIA 1 & 2, hospitals, and universities.

Activation (Face-to-face programmes)

Field or on-the-ground programmes with activities that are conducted directly with target segments, such as carnivals, expos, seminars, and process improvement projects.

Collaborations/Networking

Execution of campaign programmes through collaborations and networking for wider coverage of target segments, leveraging existing promotional programmes. Examples of collaborative networks include the sector Productivity Nexus and corporate communication divisions or units in both public and private organisations.

Branding/Positioning

Using consistent taglines and messages such as "Be Together, Be Better" through popular mass media such as ASTRO, messages can be propagated to the targeted segments through TV and digital media channels.

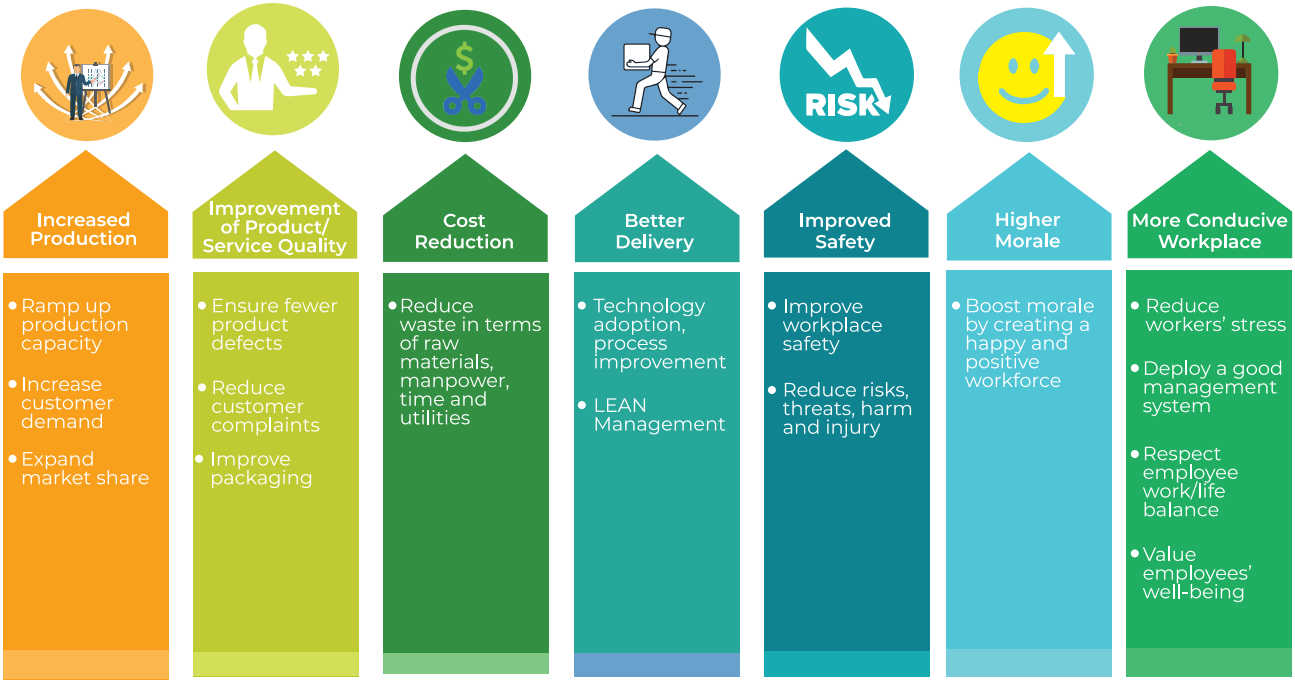
Printed Media

Optimising existing work with Media Prima's printed mainstream media platforms to disseminate information regarding productivity-related issues and activities.

Digital Media

Productivity messages need to be transmitted to the Malaysian population at large through all types of wired and online-based media, such as e-publications, mobile apps, web portals, and social media, within a common 'Productivity Way-Up' platform.

Contributing Factors to Higher Productivity



PRODUCTIVITY IMPROVEMENT INITIATIVES

MPC's continuing efforts to enhance organisational productivity have led to the development of several productivity tools and intervention programmes.

These initiatives have assisted organisations and businesses to measure, evaluate, and manage their current performance, thus improving their productivity through MPC programmes.

Productivity Tools

Productivity Gain Measurement (PGM)

PGM is an important tool that enables businesses to determine their productivity performance vis-à-vis their strategic objectives.

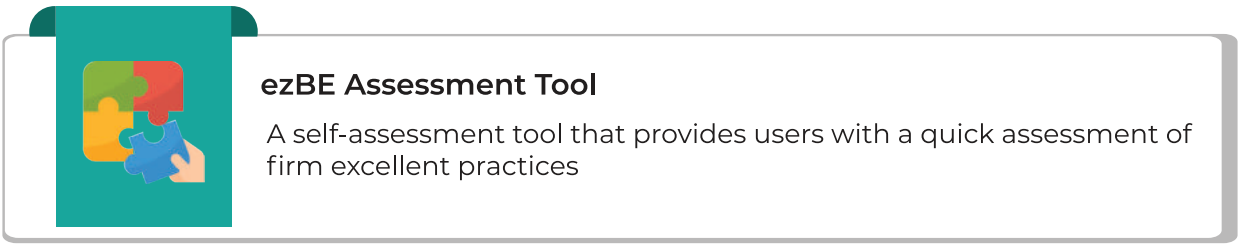
By measuring productivity performance both before and after the implementation of a strategic business intervention, companies are able to identify problems and opportunities for improvement. They will then be able to benchmark themselves with best-in-class companies within their industries or other sectors.

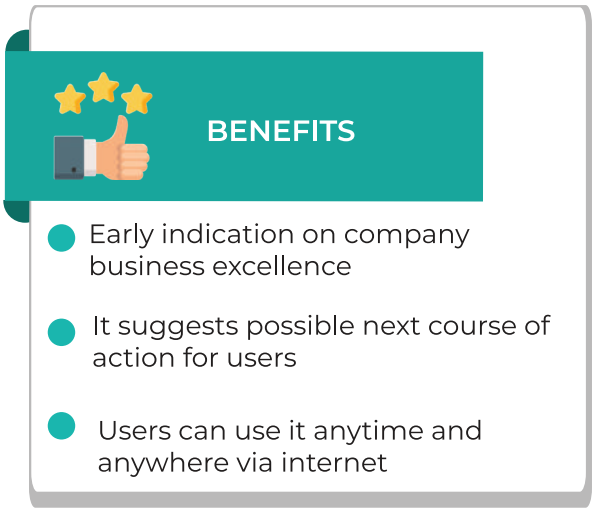
PGM will assist business owners to assess their current situation, set future targets, and inspire others to work together to achieve their desired business goals and profitability. When used as a productivity health check, an analysis of productivity ratios over a period of time will reveal problematic areas that require immediate attention, which businesses can then turn their focus to.

ezBE Assessment Tool

This is a self-assessment tool that provides users with a quick assessment of their business excellence practices. The four aspects evaluated are Strategy & Leadership, Talent Management, Operational Excellence, and Customer & Product Experience. By participating in the assessment, firms are able to assess their business excellence practices and this enables them to move up the value chain and ensure business sustainability via the adoption of best practices.

Users are required to answer 15 questions on the spot and at the end of the session, the ezBE Assessment Tool will display the results. Each evaluation aspect is assessed and graded according to colour. Green indicates that the aspect is in accordance with best practices. Yellow indicates that efforts are being made in the right direction. Red indicates that there are opportunities for improvement.





Intervention Programmes

LEAN Management

Various initiatives under the LEAN Management programme have been organised and implemented through promotional activities, capacity building, systems development, and best-practices sharing. These initiatives aimed to seek support from organisations in both public and private sectors.

In this value chain of improving organisational productivity, system development is one of the primary activities implemented as guide for clients to use hand-holding techniques, capacity-building for both employees and management, as well as providing advisory services. The implementation of LEAN programmes in organisations have resulted in improvised work processes, reduced processing time, cost savings, and overall improvement of service quality to customers.

THE SIME DARBY WAY IN LEAN SIX SIGMA (LSS) EXECUTION

01 PLAN
- Develop a 5 year plan on LSS implementation
- Set a target of 1% value from the total revenue achieved in 2012 through the 5 year plan

02 LEADERS' COMMITMENT
- Obtain buy-in from top leaders across all divisions through a series of champion workshops
- Each year, leaders of each division will identify key areas for improvement purposes in the areas of revenue generation, cost reduction and cost avoidance
- Leaders of each division recruit team leaders and a group of people from each sector to execute the LSS projects

03 COLLABORATE
Coorperate with American Society of Quality (ASQ) to ensure LSS syllabus are aligned with international standard practices.

04 HR DEVELOPMENT
- All staff will undergo training on LSS tools, techniques and methodologies based on the complexity of the LSS projects
- Three types of LSS training: White Belt, Green Belt and Black Belt
- Train and develop as many LSS practitioners as possible
- Certify LSS practitioners with ASQ certification

05 MONITOR
- Establish an Operational Excellence Division as a unit that will assist and monitor the progress of LSS implementation
- Establish an LSS Working Group Committee
- The progress and results of all LSS projects are reported to Sime Darby's Committee by LSS Working Group on a quarterly basis

06 REWARD & RECOGNITION
- LSS Champion Award: To recognise the efforts shown by outstanding leaders
- Organise an annual Group-wide LSS competition
- The winning team will participate in local and international competitions

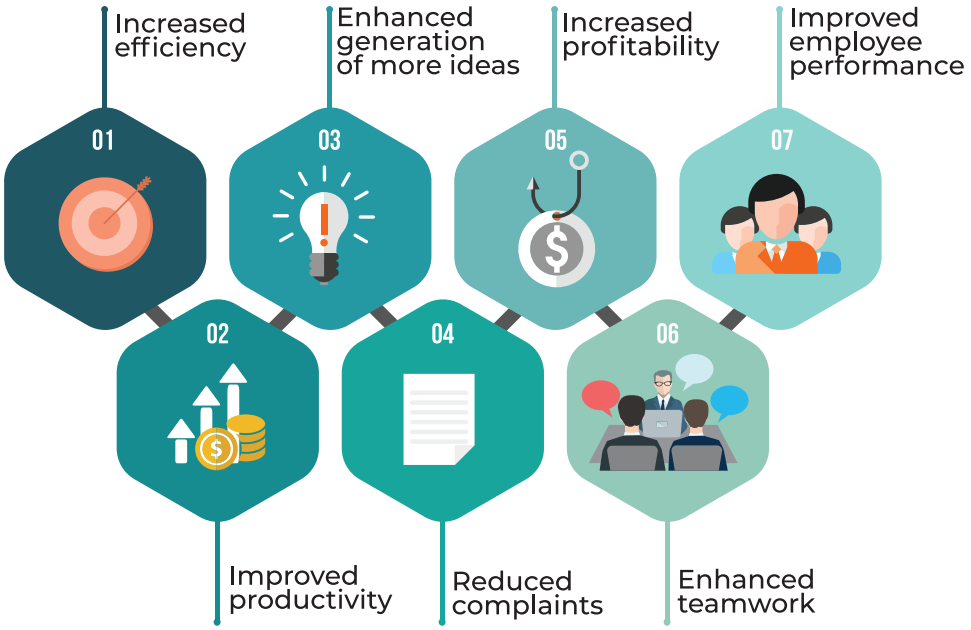
Source : bond.mpc.gov.my

Quality Environment (5S) Certification

Quality Environment (5S) certification is a public declaration of commitment to maintain a quality environment, better workplace, and continual improvement to meet customer needs. It is the beginning of a healthy, comfortable, and productive life for everyone at work. This is fundamental to improve productivity.

When implemented successfully in any organisation, Quality Environment (5S) will bring about significant changes. For example, all unnecessary items are removed from the workplace, necessary items are conveniently located near users, and machines and equipments are kept clean.

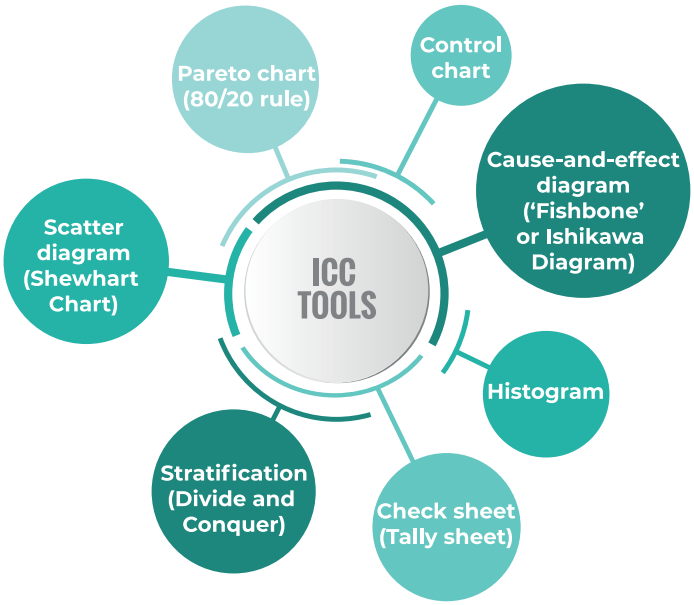
Benefits of having Quality Enviroment (5S) certification



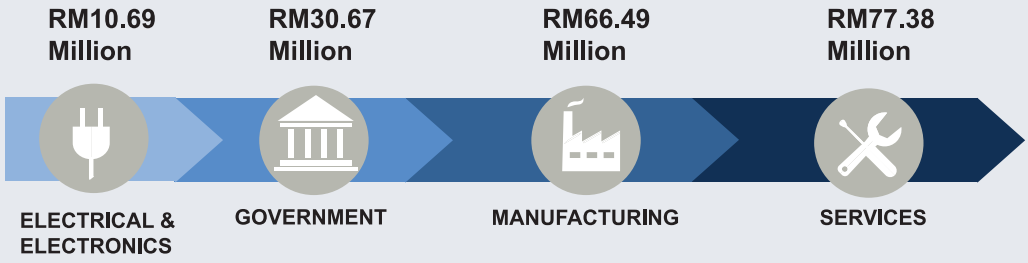
Innovative and Creative Circle (ICC)

ICC is a formation of a group of workers who sit together to investigate, analyse and find ways to solve their work problems using ICC tools and problem-solving techniques. In the ICC process, all the workers gets to contribute ideas and opinions to their groups. By having their voices heard, the workers experience a higher sense of satisfaction in their daily work lives.

This can increase their productivity and work quality. Implementing ICC activities implies the development of worker skills, capabilities, confidence, and creativity. This is primarily done through cumulative processes of education, training, work experience, and participation in problem solving process.



COST SAVINGS THROUGH TEAM EXCELLENCE PROJECTS



Examples of Best Practices on Team Excellence Projects Available at BOND

INFINEON (M)
The modification of single tray holder, double cylinder and unfit carrier have resulted in an increase in productive time rate from 55.9% to 78.2%

UNIVERSITI TEKNIKAL MALAYSIA MELAKA
The i-REG tool has cut down the time required for student registration by 86% from 29 minutes to only 4 minutes. i-REG can be used by any public or local university, as the new student registration process is similar

PETRONAS PENAPISAN (TERENGGANU)
The company used an ICC approach to design and develop the Desorbent Sight Glass (DSG). Upon the installation of the DSG into the Desorbent Sump Tank Sample Box, the desorbent sampling process time was reduced from an average of 25 minutes to 2 minutes

KEDAH MEDICAL CENTRE
The innovation in the food disposal process at Kedah Medical Centre (KMC) has reduced the food disposal cost to 68.55%. Consequently, this innovation of developing bio-fruitful enzyme has helped in producing efficient work and this alone has managed to save a total overtime cost of RM1,680 monthly

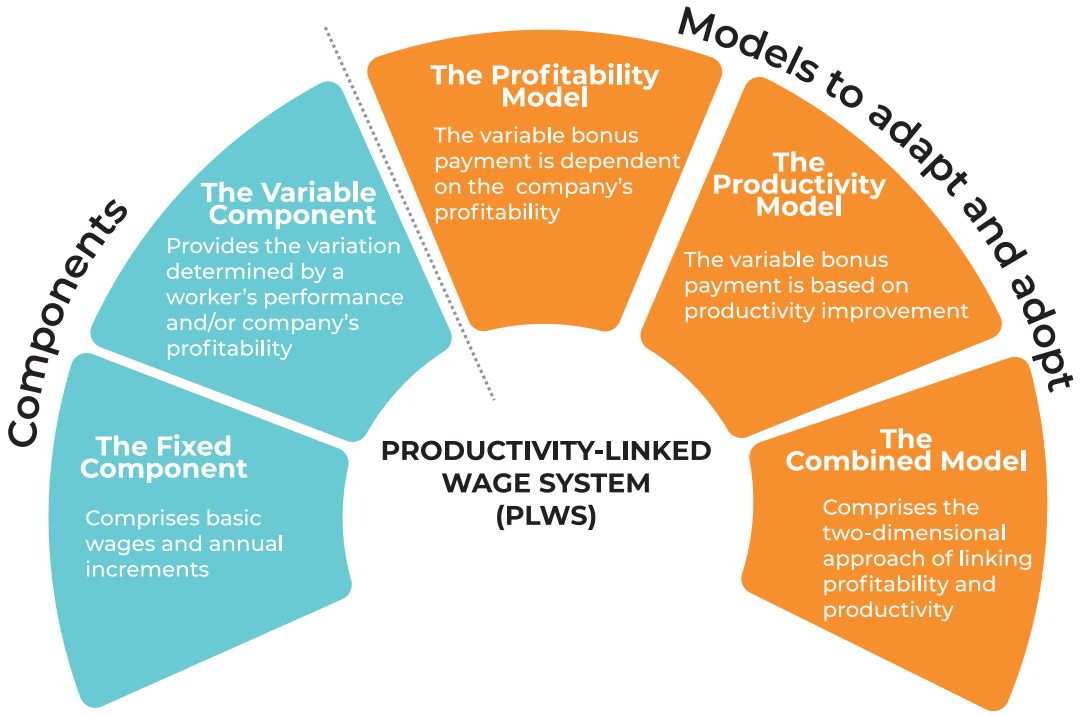
Note: Data on cost savings was gathered from APIC MPC 2015 Programme
Source: bond.mpc.gov.my

Productivity-Linked Wage System (PLWS)

The major concern of all firms is to ensure they remain competitive to meet the challenges of globalisation. The PLWS is a system that links wages to the productivity or performance of employees and/or companies. This system has been recognised as one possible measure to enhance competitiveness.

A flexible and competitive wage system will enable companies to make quick adjustments to wages, ensuring job stability and reducing the likelihood of retrenchment in the event of an economic slowdown. This is necessary if businesses are to respond quickly to changing business conditions due to globalisation and technological advances.

The PLWS benefits both employees and employers by making wages more flexible and competitive. In good times, employees may look forward to higher bonuses and better incentives. In more challenging times, companies may be able to manage costs and stay viable, by adjusting wages quickly without having to resort to retrenchment. A sustainable and competitive wage structure, requires productivity or performance elements such as productivity or performance improvement, profit-based bonuses, individual performance, target achievements, timeliness, discipline, skill-based performance as well as skill and service incentives.



PAK ALI FOOD INDUSTRIES SDN. BHD. A SYSTEMATIC WAGE DISTRIBUTION TO BOOST PROFIT & PRODUCTIVITY

Pak Ali Food Industries Sdn. Bhd. is one of Malaysia's local delicacy producers. Originally from Penang, it has since established itself in the local food industry.

The company introduced PLWS in 2013. By implementing PLWS, it was able to increase output and optimise its production. Since 2014, the entity has been paying wages in accordance to output performance, which is recorded daily in an ICT system. This has indirectly motivated its employees to perform better.

The company sets a monthly target output to be reached. Should employees exceed the target, the company pays an incentive of RM70; conversely, if group performance is below 80%, there will be no incentives paid out. This is to encourage teamwork among employees to achieve the output target. The company also introduced various bonuses and allowances to reduce the staff absenteeism rate. Employees with perfect work attendance are eligible to receive RM50 per month, while those who multi-task and facilitate others at work will be given additional allowances. It also sends its employees to perform Umrah on an annual basis.

The company gives out employee incentives based on merit. Employees will be rewarded with 2 months additional pay, should the company achieves its profit target. For example, those who obtain an assessment of 85% to 100% (A Grade) will be rewarded with double incentives should the company's profit exceed 80% of its target. However, they will receive only a 1.5 month incentive if company profit is lower than 80%. Employees scoring 59% and below receive an increment based on a standard scheme. Bonuses are also given to employees based on company profit and the merit score of individual employees. For example, if the company profits exceeds 80% of its target, employees who scores between 85% and 100% are not only entitled to a doubled annual increment, but also receive a 0.7 month bonus. Those who score 49% and below are given a 0.1 month bonus.

Source : bond.mpc.gov.my

APPENDICES

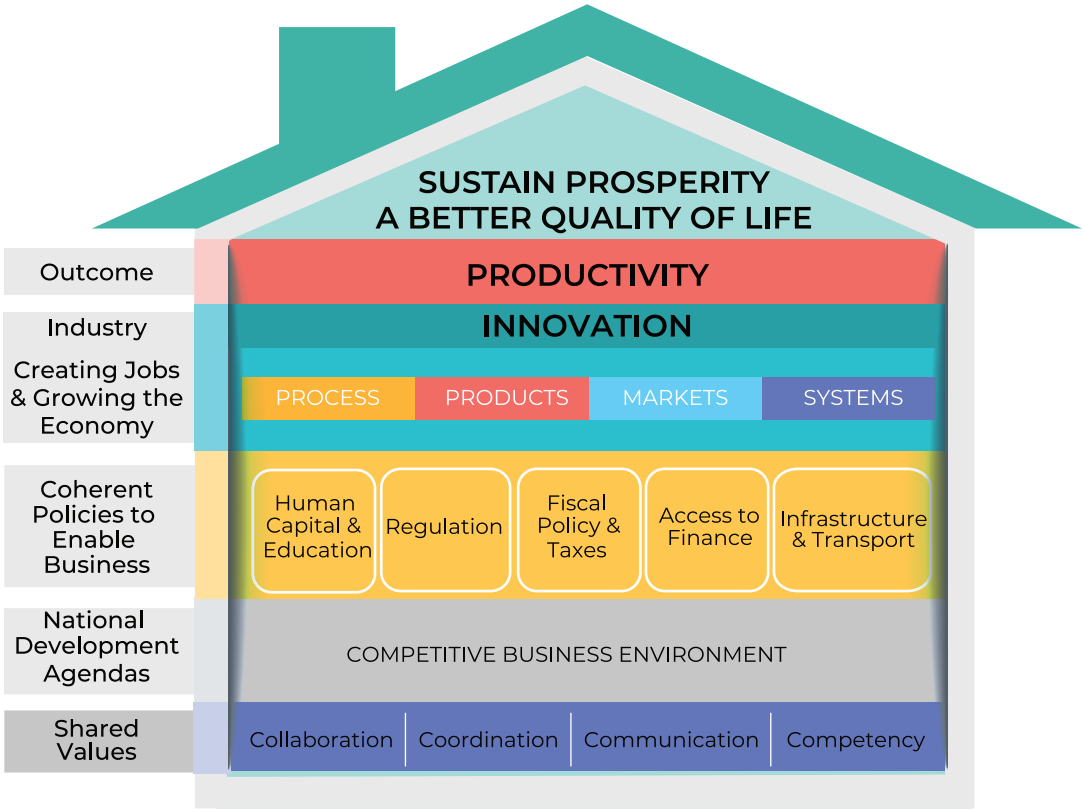
APPENDIX A.1: WHAT IS PRODUCTIVITY?

The Productivity Framework is based on shared Malaysian values that drive national development agendas such as the Economic Transformation Programme, the Government Transformation Plan and the Malaysia Plans. These initiatives form the policy and regulatory foundations of business in terms of human capital and education, regulation, fiscal policy, access to finance and infrastructure.

Policies and initiatives are required to strengthen the foundations of human capital and education, regulation, fiscal policy, access to finance and infrastructure to enhance the country's competitive business environment. This competitive environment is important to create more added value for enterprises, increase employment opportunities, attract investment and talent and create more revenue. It is crucial that the foundation itself encourage businesses to continuously improve their products, processes and systems as these will lead to greater markets through innovation.

Most innovation is incremental and involves a continuous process of applying new techniques, skills or technologies to the business and keeping what works. In this way, production costs are reduced incrementally over time, while product and service quality is improved in response to changing market needs. The innovation is then diffused throughout the industry as competitors copy the practices of these high productivity companies, thereby contributing to economy-wide improvements in productivity. The net result is a real gain in productivity growth.

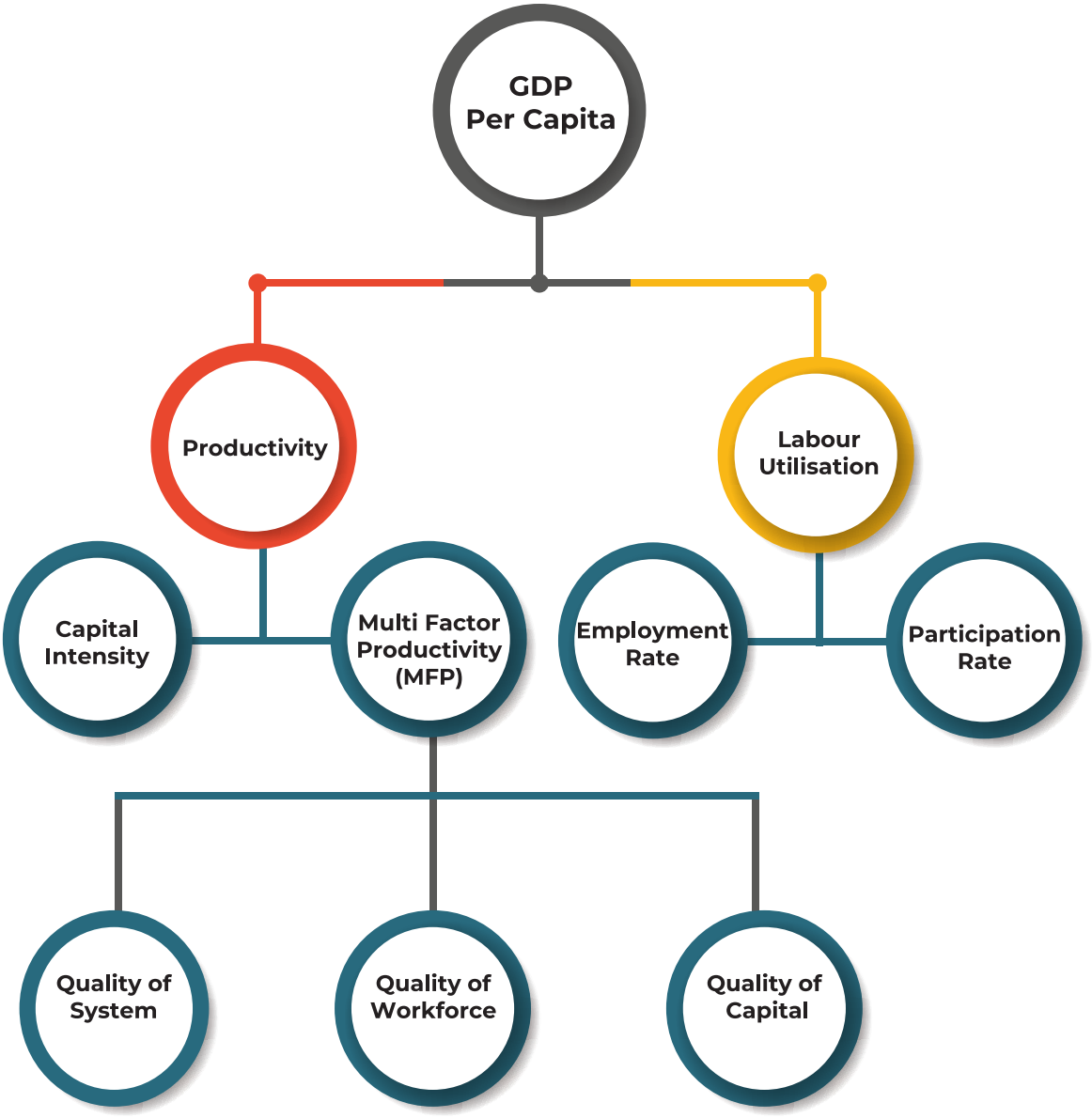
Innovation and its diffusion is therefore a fundamental aspect of accelerating productivity growth. Successful innovation depends upon the support of sound government policies and regulations as the foundation of productivity. With these elements in place and working in tandem with each other, Malaysia will be able to sustain its prosperity and provide a better quality of life for all its citizens.



HOW WILL HIGHER PRODUCTIVITY BENEFIT THE COUNTRY?				
Expands capital investment, upgrades technical capabilities of businesses and improves industry competitiveness	Enhances the country's competitiveness, expands its export base and attracts more foreign investments	Increases savings and lowers prices of goods and services	Ensures a higher standard of living by reducing the effects of inflation, creating more employment opportunities and eliminating social conflict as goods and services become more affordable	Develops personal skills and capabilities that leads to higher overall wages and salaries, improved working conditions, better job security and an improved well being

APPENDIX A.2: DRIVERS OF GROWTH

Quality of life, measured through GDP per capita growth, can be decomposed into changes in productivity and employment. The changes in employment, which is labour utilisation of labour force participation in the country, depends on the activity rate of the working-age population either by reducing unemployment or by bringing more people into the labour market.



Changes in productivity depends on several factors such as the quantitative expansion of physical capital per worker or capital intensity and changes in productivity within sectors or MFP. The growth in MFP is resulted from the utilisation of new machineries and innovative technology, quality of workforce and quality of system that allow more output with the same amount of input used.

The growth in productivity can also be attributed to structural changes due to reallocation of jobs across sectors. This can be seen when workers move from low to high productivity sectors such as in the case of employment shift from agriculture to either manufacturing or services sector.

APPENDIX A.3: Measuring Productivity

Terminology and Definition

Productivity is the relationship between the amount of output produced and the amount of input used to produce the output. Higher productivity means achieving more with the same or lesser amount of input resources. An increase in productivity will lead to benefits such as higher standard of living, enhanced competitiveness and better quality of life.

Methods to Measure Productivity

Productivity may be measured in two ways: the ratio of output to only one input, or the ratio of output to more than one input. The method involving only one input is called the partial factor productivity measure, while the method involving more than one factor input is called the multi-factor productivity measure or total factor productivity (MFP) measure. Both output and inputs are commonly expressed in monetary terms.

APPENDIX A.3.1: Partial Factor Productivity Measurement

The partial factor productivity measure is the ratio of output to one type of input. Measures of output include Gross Domestic Product (GDP), added value and monetary value of production, while measures of inputs include total employed persons, total man-hours worked, capital or fixed assets, labour cost, energy and bought-in materials and services. Examples of partial productivity measures are labour productivity (the ratio of output to labour input) and capital productivity (the ratio of output to capital input).

VARIABLES	DESCRIPTION
Added Value	Added value measures the wealth generated by the collective efforts of those who work in an enterprise (the employees) and the capital providers (investors and shareholders). Added value is different from sales revenue or value of production because it does not include the wealth created by the suppliers to the enterprise. There are two ways to calculate added value: **i) Addition Method** This is called the wealth distribution method. **Added Value =** **Labour Cost + Interest + Tax + Depreciation + Profit** It is called wealth distribution because the added value created is used to pay those who have contributed to its creation in terms of wages and salaries (labour cost) for the employees, interest for capital providers, taxes to the Government, depreciation for capital equipment usage and profits to the owners. **ii) Subtraction Method** This is called the wealth creation method. **Added Value =** **Total Output less Bought-In Materials and Services (BIMS)** In order to produce goods or services, a company has to purchase the necessary raw materials and other inputs. The difference between the total value of output and total cost of inputs i.e. all inputs and services bought from another company is called added value.

Variables	Description
Total Output	Ex-factory value (Sales - Opening Stocks: finished goods + Closing Stocks: finished goods - Carriage outwards - Commission to selling agents - Tax on products) + Income from industrial services rendered + Value of sales (from goods purchased for resale without further processing) + Value of other industrial work done + Income from other output + Professional fees received + Commission and brokerage earned + Capital expenditure for built / Self-produced + Closing Stocks: goods in process - Opening Stocks: goods in process + Closing Stocks: goods purchased for resale - Opening Stocks: goods purchased for resale
Bought-In Materials And Services (BIMS)	Cost of raw materials + Packing materials and containers + Materials used for repairs and maintenance + Factory requisites & Stationery and office supplies + Utility, fuels, lubricants & gas purchased + Cost of goods sold (purchased for resale without undergoing further processing) + Payments for processing work done by others on materials supplied by company & payments for current repairs and maintenance work done by others on company's fixed assets + Payments for non-industrial services
Employed Persons (Average for the period)	All categories of employees, including working directors/proprietors/ partners, unpaid family workers and part-time workers.
Labour Cost	Wages and salaries (including commissions, bonuses and benefits), remuneration paid to working directors/proprietors/partners, and EPF/ SOCSO paid by employers.
Fixed Assets (Average for the period)	All physical assets namely transport equipment, computers, machinery and equipment, and furniture and fittings.

APPENDIX A.3.2: Decomposition of Labour Productivity Growth

The Solow-Swan model (Solow 1956, Swan 1956) is the starting point for most theoretical analyses of economic growth. Its main conclusion is that the accumulation of physical capital and labour cannot drive sustained, long run growth in output per person, and that this is instead driven by the rate of technological change (productivity growth). The model assumes that the production function takes the form:

$$Y = f(A,K,L)$$

Where **A** represents technology, and **K** and **L** represent capital and labour, respectively. **A** is chosen as an input to the model, rather than being determined within it, and can be interpreted in terms of the stock of knowledge or innovation, disembodied education and skills, the strength of property rights, the quality of infrastructure and cultural attitudes to entrepreneurship and work. New growth theories build on the Solow-Swan concepts so that technological growth, human capital, and institutions are determined within the model (Solow 2005). Microeconomic theory has additional insights regarding a country's position on its production possibilities frontier, which represents the most efficient means of producing a range of goods and services. These concepts suggest ways by which a country can improve its economic growth.

Firstly, a country can move to a more optimal position on its domestic production possibilities frontier by changing the combination of products it produces for a given set of inputs. Secondly, a country can 'catch up' to the global production possibility frontier, by adopting more efficient processes and technologies that have been developed elsewhere. Finally, a country that is producing optimally on the global production possibilities frontier can push that frontier outward, through innovation.

MFP indicates the efficiency with which inputs are being used in the production process, and includes pure technological change, A, along with changes in returns to scale. Labour productivity (LP) measures the level of output per unit of labour input (such as employee and hours worked). The relationship between labour productivity growth and MFP growth is:

LP growth = MFP growth + a contribution from growth in capital deepening

In practice, measured productivity performance is influenced by all the factors that affect the level of production and the use of labour and capital. This includes competition, business cycles, trade, financial markets, regulation, technological change, weather, population growth and ageing, education, infrastructure, geography and structural change. Some of these factors are within the influence of government policy and reform to varying degrees, while others are not.

APPENDIX A.3.3: Multi Factor Productivity (MFP) Measurement

The MFP measure is the ratio of total output to the sum of all input factors. It measures the efficiency of the utilisation of all inputs to produce output. Formerly, the growth accounting technique was utilised to measure MFP, where inputs were limited to labour and capital. But the influence of knowledge-based economic factors in today's globalised economy has necessitated a new approach in measuring MFP known as KLEMS (Capital, Labour, Energy, Materials and Services).

The KLEMS methodology utilises more broadly defined input factors in which intermediate inputs such as energy and bought-in materials and services are included in the measurement. Both labour and capital input factors are now decomposed into more detailed segments to enable more detailed analysis in terms of labour quality and quantity for labour input, while capital input is now decomposed into ICT and non-ICT capital.

Model Specification in Deriving Sources of Long-Term Economic and Productivity Growth

The production functions are assumed to be separable in these inputs as the starting point:

$$Y_j = g_j(Y_{ij}) = f_j(K_j, L_j, X_j, T) \quad (1)$$

Where Y is output, K is an index of capital service flow, L is an index of labour service flows and X is an index of intermediate inputs, which consists of the intermediate inputs purchased from the other domestic industries and imported products. Under the assumptions of constant returns to scale and competitive markets, the value of output is equal to the value of all inputs as can be expressed as:

$$P_j^Y Y_j = P_j^K K_j + P_j^L L_j + P_j^X X_j \quad (2)$$

Where P_j^Y denotes the price of output, P_j^X denotes the price of intermediate inputs, P_j^K denotes the price of capital services and P_j^L denotes the price of labour services. Under the standard assumption of profit maximising behavior, competitive markets, such that factors are paid their marginal product, and constant returns to scale, we can define MFP growth (Δlnt_j) as follows:

$$\Delta \ln t_j = \Delta \ln Y_{jt} - \bar{v}_{jt}^X \Delta \ln X_{jt} - \bar{v}_{jt}^K \Delta \ln K_{jt} - \bar{v}_{jt}^L \Delta \ln L_{jt} \quad (3)$$

Growth of MFP is derived as the real growth of output minus a weighted growth of inputs where $\Delta X = X_t - X_{t-1}$ denotes the change between year t-1 and t, and $\bar{v}_{jt}$ with a bar denoting period averages and $\bar{v}$ is the two period average share of the input in the nominal value of output. The value share of each input is defined as follows:

$$v_{jt}^X = \frac{P_{jt}^X X_{jt}}{P_{jt}^Y Y_{jt}}; \quad v_{jt}^L = \frac{P_{jt}^L L_{jt}}{P_{jt}^Y Y_{jt}}; \quad v_{jt}^K = \frac{P_{jt}^K K_{jt}}{P_{jt}^Y Y_{jt}} \quad (4)$$

The assumption of constant returns to scale implies $v_{jt}^X + v_{jt}^L + v_{jt}^K = 1$ and allows the observed input shares to be used in the estimation of MFP growth in equation (3). Rearranging (4) yields the standard growth accounting decomposition of output growth into the contribution of each input and MFP (denoted by A^Y):

$$\Delta \ln Y_{jt} = \bar{v}_{jt}^X \Delta \ln X_{jt} + \bar{v}_{jt}^K \Delta \ln K_{jt} + \bar{v}_{jt}^L \Delta \ln L_{jt} + \Delta \ln A_{jt}^Y \quad (5)$$

where the contribution of each input is defined as the product of the input's growth rate and its two period average revenue share.

In order to decompose growth at higher levels of aggregation, a more restrictive industry value-added function was defined, which gives the quantity of value added as a function of only capital, labor and time as:

$$V_j = g_j(K_j, L_j, T) \quad (6)$$

where V_j is the quantity of industry value added. Value added consists of capital and labour inputs, and the nominal value is:

$$P_j^V V_j = P_j^K K_j + P_j^L L_j \quad (7)$$

Where P^v is the price of value added. Under the same assumptions as above, industry value added growth can be decomposed into the contribution of capital, labour and MFP (A^V).

$$\Delta \ln V_{jt} = \bar{w}_{jt}^K \Delta \ln K_{jt} + \bar{w}_{jt}^L \Delta \ln L_{jt} + \Delta \ln A_{jt}^V \quad (8)$$

Where $\bar{w}$ is the two period average share of the input in nominal value added. The value share of each input is defined as follows:

$$w_{jt}^{L} = (P_{jt}^{V} V_{jt})^{-1} P_{jt}^{L} L_{jt}; \;\; w_{jt}^{K} = (P_{jt}^{V} V_{jt})^{-1} P_{jt}^{K} L_{jt} \qquad (9)$$

$$\Delta \ln V_{jt} = \frac{1}{\bar{v}_{jt}^{V}} (\Delta \ln Y_{jt} - (1 - \bar{v}_{jt}^{V}) \Delta \ln X_{jt}) \qquad (10)$$

Output and Intermediate Input Accounts

This methodology was introduced by Jorgenson, Gollop and Fraumeni (1987). We define the quantity of output in industry *j* as an aggregate of *M* distinct outputs using the Tornqvist index as:

$$\Delta \ln Y_{jt} = \sum_{i=1}^{m} \bar{v}_{ijt}^{Y} \Delta \ln Y_{jt}$$

$\bar{v}_{jt}$ with a bar denoting period averages and is the two period average share of product i in the nominal value of output. The value share of each product is defined as follows:

$$v_{ijt}^{Y} = (\sum_{i} p_{ijt}^{Y} Y_{ijt})^{-1} p_{ijt}^{Y} Y_{ijt}$$

With P_{ij}^{Y} = the basic price received by industry j for selling commodity i.

The intermediate input quantity index for industry j is defined analogously by:

$$\Delta \ln X_{jt} = \sum_{i} \bar{v}_{ijt}^{X} \Delta \ln X_{jt}$$

where $v_{ijt}^{X} = (\sum_{i} p_{ijt}^{X} X_{ijt})^{-1} p_{ijt}^{X} X_{ijt}$ with p_{ij}^{X} = the price paid by industry j for using product i.

Labour Accounts

The aim of the labour accounts is to estimate total labour input so that it reflects the actual changes in the amount and quality of labour input over time. In short, in this method the labour force is subdivided into types based on various characteristics, in this case age, gender and educational attainment. It is further assumed that the flow of labour services for each labour type is proportional to hours worked, and workers are paid their marginal productivities. Hence the corresponding index of labour services input L is a translog quantity index of individual types, indexed by l, and given by:

$$\Delta \ln L_{t} = \sum_{l} \bar{v}_{l,t} \Delta \ln H_{l,t}$$

where weights are given by the average shares of each type in the value of labor compensation $\bar{v}_{l,t} = \frac{1}{2}[v_{l,t} + v_{l,t-1}]$ and $v_{l,t} = (\sum_{l} p_{l,t}^{L} H_{l,t})^{-1} p_{l,t}^{L} H_{l,t}$ with $p_{l,t}^{L}$ the price of one hour work of labor type l.

Capital Accounts

For the measurement of capital services we need capital stock estimates for detailed assets and the shares of capital remuneration in total output value.

The most commonly employed approach in capital stock measurement is the Perpetual Inventory Method (PIM). In the PIM, capital stock (A) is defined as a weighted sum of past investments with weights given by the relative efficiencies of capital goods at different ages according to (industry subscripts are suppressed for convenience).

$$A_{k,t} = \sum_{\tau=0}^{\infty} \theta_{k,\tau} I_{k,t-\tau}$$

with $A_{k,t}$ the capital stock for a particular asset type k at time t, $\theta k,\tau$, the efficiency of a capital good of age t relative to the efficiency of a new capital good and $Ik\,t-\tau$, the investment in period $t-\tau$. Hence with a given constant rate of depreciation δ , different for each asset type, $\theta t = (1-\delta)^{t}$ and it follows that the capital stock of a particular asset k at time t, Ak, t is given by:

$$A_{k,t} = \sum_{\tau=0}^{\infty} (1-\delta_k)^{\tau} I_{k,t-\tau} = (1-\delta_k) A_{k,t-1} + I_{k,t}$$

For the aggregation of capital services over the different asset types it is assumed that aggregate services are a translog function of the services of individual assets. It is further assumed that the flow of capital services for each asset type is proportional to its stock, independent of time. Hence the corresponding index of capital input K is a translog quantity index of individual assets in a particular industry given by:

$$\Delta \ln K_t = \sum_{k} \bar{v}_{k,t} \Delta \ln A_{k,t}$$

where weights are given by the average shares of each component in the value of capital compensation $\bar{v}_{k,t} = \frac{1}{2}[v_{k,t} + v_{k,t-1}]$ and with p_{kt}^{K} the price of capital services from asset type k.

In equilibrium, an investor is indifferent between two alternatives: buying a unit of capital at investment price p_{kt}, collecting a rental fee and then selling the depreciated asset for $(1-\delta k)pk,t+1$ in the next period, or earning a nominal rate of return, i, on a different investment opportunity. The equilibrium condition can be rearranged, yielding the familiar cost-of-capital equation:

$$p_{k,t}^{K} = p_{k,t-1}^{I} i_t + \delta_k p_{k,t}^{I} - [p_{k,t}^{I} - p_{k,t-1}^{I}] \quad \text{or} \quad p_{k,t}^{K} = r_{k,t} p_{k,t-1}^{I} + \delta_k p_{k,t}^{I}$$

The nominal rate of return can be estimated as follow:

$$i_{j,t} = \frac{p_{j,t}^{K} K_{j,t} + \sum_{k} [p_{k,j,t}^{I} - p_{k,j,t-1}^{I}] A_{k,j,t} - \sum_{k} p_{k,j,t}^{I} \delta_k A_{k,j,t}}{\sum_{k} p_{k,j,t-1}^{I} A_{k,j,t}}$$

Where the first term $p_{j,t}^{K} K_{j,t}$ is the capital compensation in industry j, which under constant returns to scale can be derived as value added minus the compensation of labour.

APPENDIX A.3.4: Productivity Indicators

Labour Productivity

Labour productivity is one way of gauging the productivity performance of an industry. The most commonly used indicator is Added Value per Employee.

Ratio	Unit	What it Tells
i) Added Value Per Employee $= \frac{\text{Added Value}}{\text{No. of Employees}}$	Ringgit Malaysia (RM)	Reflects the amount of wealth created by the company relative to the number of employees it has. It is influenced by: · Management efficiency · Work attitudes · Price effects · Demand for the company's products A high ratio indicates the favourable effects of labour factors in the wealth creation process. A low ratio means unfavourable effects working procedures such as: · High price of bought-in materials and services (BIMS) · Time and/or material wastage · Inadequate salary or wage rates
ii) Total Output Per Employee $= \frac{\text{Total Output}}{\text{No. of Employees}}$	Ringgit Malaysia (RM)	The size of output generated by each employee of the enterprise.
iii) Added Value Per Hour Work $= \frac{\text{Added Value}}{\text{Total Hours Work}}$	Ringgit Malaysia (RM)	Reflects the amount of wealth created by the company relative to the number of working hour according to types of employees: · Full time · Part time · Self Employed

APPENDIX B.1: Labour Productivity Performance of Services Sector, 2016 – 2017

	Added Value (RM Million)			Employment ('000)			Labour Productivity (RM)	
	2016	2017	Contribution (%), 2017	2016	2017	Contribution (%), 2017	2016	2017
Services	**602,261 (5.7)**	**639,568 (6.2)**	**100.0**	**8,661 (1.5)**	**8,758 (1.1)**	**100.0**	**69,534 (4.2)**	**73,030 (5.0)**
Electricity and gas	22,639 (5.0)	23,097 (2.0)	3.6	73 (-0.8)	71 (-2.4)	0.8	309,449 (5.9)	323,354 (4.5)
Water, sewerage and waste management	5,979 (6.7)	6,340 (6.0)	1.0	94 (3.4)	103 (10.4)	1.2	63,928 (3.3)	61,406 (-3.9)
Wholesale trade	75,204 (8.3)	80,095 (6.5)	12.5	546 (2.1)	570 (4.4)	6.5	137,803 (6.0)	140,630 (2.1)
Retail trade	70,529 (7.1)	77,147 (9.4)	12.1	1,571 (2.5)	1,593 (1.4)	18.2	44,902 (4.6)	48,443 (7.9)
Motor Vehicles	19,959 (-3.0)	20,196 (1.2)	3.2	338 (3.5)	354 (4.7)	4.0	59,079 (-6.3)	57,113 (-3.3)
Food and beverages	24,641 (7.8)	26,629 (8.1)	4.2	1,041 (2.1)	1,082 (4.0)	12.4	23,667 (5.6)	24,604 (4.0)
Accommodation	6,834 (4.5)	7,191 (5.2)	1.1	152 (0.7)	154 (1.2)	1.8	44,966 (3.8)	46,741 (3.9)
Transportation and storage	39,542 (5.7)	41,998 (6.2)	6.6	693 (6.6)	696 (0.5)	7.9	57,095 (-0.8)	60,331 (5.7)
Information and communication	65,578 (8.1)	71,109 (8.4)	11.1	222 (-1.8)	232 (4.7)	2.7	295,417 (10.1)	305,937 (3.6)
Financial and insurance	75,539 (2.6)	79,009 (4.6)	12.4	374 (0.6)	385 (2.9)	4.4	201,876 (2.0)	205,204 (1.6)
Real estate and business services	48,931 (6.9)	52,556 (7.4)	8.2	987 (1.2)	1,029 (4.3)	11.8	49,578 (5.7)	51,070 (3.0)
Other services	146,886 (4.9)	154,201 (5.0)	24.1	2,572 (-0.5)	2,488 (-3.2)	28.4	57,118 (5.5)	61,967 (8.5)

APPENDIX B.2: Labour Productivity Performance of Manufacturing Sector, 2016 – 2017

	Added Value (RM Million)			Employment ('000)			Labour Productivity (RM)	
	2016	2017	Contribution (%), 2017	2016	2017	Contribution (%), 2017	2016	2017
Manufacturing	**254,472 (4.4)**	**269,804 (6.0)**	**100.0**	**2,394 (0.8)**	**2,434 (1.7)**	**100.0**	**106,307 (3.6)**	**110,858 (4.3)**
Export Oriented Industries	164,809 (5.8)	174,494 (5.9)	64.8	1,460 (0.5)	1,478 (1.2)	60.7	112,854 (5.3)	118,089 (4.6)
Textiles, wearing apparel and leather products	4,380 (6.1)	4,729 (8.0)	1.7	220 (0.5)	224 (2.2)	9.2	19,932 (5.5)	21,066 (5.7)
Wood products, furniture, paper products and printing	15,095 (6.3)	15,795 (4.6)	5.9	291 (-2.3)	287 (-1.6)	11.8	51,791 (8.8)	55,071 (6.3)
Petroleum, chemical, rubber and plastic products	75,740 (4.5)	78,818 (4.1)	29.8	383 (1.8)	389 (1.5)	16.0	197,790 (2.6)	202,797 (2.5)
Electrical, electronic and optical products	69,594 (7.2)	75,152 (8.0)	27.3	566 (1.1)	578 (2.0)	23.7	122,906 (5.9)	130,089 (5.8)
Domestic Oriented Industries	89,663 (2.0)	95,309 (6.3)	35.2	933 (1.3)	956 (2.4)	39.3	96,063 (0.7)	99,682 (3.8)
Vegetable and animal oils & fats and food processing	21,907 (2.0)	24,115 (10.1)	8.6	388 (6.5)	398 (2.6)	16.4	56,453 (-4.2)	60,590 (7.3)
Beverages and tobacco products	8,986 (6.6)	9,545 (6.2)	3.5	17 (2.2)	18 (4.4)	0.7	518,015 (4.3)	526,966 (1.7)
Non-metallic mineral products, basic metal and fabricated metal products	31,962 (4.7)	33,444 (4.6)	12.6	337 (1.4)	355 (5.5)	14.6	94,884 (3.2)	94,144 (-0.8)
Transport equipment, other manufacturing and repair	26,808 (-2.5)	28,205 (5.2)	10.5	191 (-8.2)	185 (-3.3)	7.6	140,267 (6.1)	152,645 (8.8)

APPENDIX B.3: Labour Productivity Performance of Agriculture, Mining and Quarrying & Construction Sectors, 2016 – 2017

	Added Value (RM Million)			Employment ('000)			Labour Productivity (RM)	
	2016	2017	Contribution (%), 2017	2016	2017	Contribution (%), 2017	2016	2017
Agriculture	**89,509 (-5.2)**	**95,968 (7.2)**	**100.0**	**1,745 (-0.3)**	**1,846 (5.8)**	**100.0**	**51,289 (-4.9)**	**51,988 (1.4)**
Crops and livestock	72,823 (-6.3)	80,508 (10.6)	81.4	1,552 (-2.3)	1,643 (5.9)	89.0	46,934 (-4.1)	48,991 (4.4)
Forestry and logging	6,433 (-3.0)	5,421 (-15.7)	7.2	53 (49.9)	55 (3.7)	3.0	122,298 (-35.2)	99,405 (-18.7)
Fishing	10,253 (2.2)	10,040 (-2.1)	11.5	141 (10.9)	148 (5.0)	8.0	72,714 (-7.9)	67,788 (-6.8)

	Added Value (RM Million)			Employment ('000)			Labour Productivity (RM)	
	2016	2017	Contribution (%), 2017	2016	2017	Contribution (%), 2017	2016	2017
Mining and Quarrying	**97,468 (2.1)**	**98,436 (1.0)**	**100.0**	**86 (-11.3)**	**81 (-5.5)**	**100.0**	**1,133,372 (15.1)**	**1,210,832 (6.8)**

	Added Value (RM Million)			Employment ('000)			Labour Productivity (RM)	
	2016	2017	Contribution (%), 2017	2016	2017	Contribution (%), 2017	2016	2017
Construction	**50,197 (7.4)**	**53,574 (6.7)**	**100.0**	**1,277 (-2.3)**	**1,331 (4.2)**	**100.0**	**39,298 (10.0)**	**40,242 (2.4)**

APPENDIX C.1: Key Initiatives and Activities of the Retail and Food & Beverage Productivity Nexus 2017/2018

1.	**Provide support to high potential SMEs for digitilisation of business operations and build e-Commerce capabilities**	
	a.	Developing eHeatmap for qualitative productivity assessment at enterprise level
	b.	Promotion of eHeatmap, productivity toolkit and e-Benchmark to Retail and F&B industry
	c.	Adoption of e-PGM to Retail and F&B firms participate in flagship programmes
	d.	Retail Software Solution
	e.	Flagship programme : Retail Digitalization Program for Market Growth
	f.	Flagship programme : Data Technology for Retail and F&B
	g.	Accelerating e-Procurement Adoption Among Retail and F&B Players
2.	**Promote opportunities for sharing economy**	
	a.	Industry profile and value chain of Retail and F&B
	b.	Best practices (BP) cases of Retail and F&B Industry
	c.	Sharing Session on Professional Competencies Recognition Program
	e.	Sharing Session on 020 Growth Venture Program by Fave
	f.	"Upclose with Iron Chef" collaboration programme with F&B Connects
	g.	Succeeding in international Market Briefing by Matrade
	h.	Briefing on Laporan Pencapaian Keterampilan Terdahulu (LPKT) by JPK to RPEL Trainers (PPL).
3.	**Strengthen Retail and F&B competencies**	
	a.	MIM Certificate for Retail Frontlines collaboration programme with HRDF
	b.	SIMSales Retail collaboration programme with HRDF
	c.	Certification of retail workforce based on the prior skills & experience (RPEL) collaboration programme with HRDF and JPK
	d.	Operations and Process Mapping – Franchise and Export collaboration programme with HRDF
	e.	Development of Industry Productivity Specialist (IPS)
4.	**Provide assistance to Retail and F&B players to grow internationally**	
	a.	Food & Beverage Connects Export Programme (FBCX)
	b.	Technology, Ecosystem & Culture Immersion Programme For Retail and F&B Enterprises (Changing Mindset Programme: TEC Immersion)

APPENDIX C.2: Key Initiatives and Activities of Tourism Productivity Nexus 2017/2018

1.	**Strengthen collaboration efforts between industry and academia to match industry needs**	
	a.	Academia-Industry Partnership to Develop Tourism Industry-based Internship Programme
	b.	Develop market platform for tourism graduates
2.	**Establish a certification / accreditation programme for tourist sites to boost tourist volume and improve service delivery**	
	a.	Tourism Enterprise Innovation Improvement Programme (EIIP)
3.	**Product owners to review pricing system of sites**	
	a.	Baseline study on pricing system on selected tourism sites
4.	**Align marketing strategy on targeted tourist segments**	
	a.	Showcasing Tourism Products (STP) in 5 States – Negeri Sembilan, Pahang, Terengganu, Sabah & Sarawak
5.	**Review industry standards and regulations with industry's input**	
	a.	Reducing Unnecessary Regulatory Burden (RURB) on Tourism: Develop Regulatory Framework for Home Sharing Economy
	b.	Reducing Unnecessary Regulatory Burden (RURB) on Transport Services Sector: Develop Regulatory Framework for Tourism Transportation
6.	**Promote Opportunities for Sharing Economy**	
	a.	Best practices (BP) Cases of Tourism
	b.	Outreach Programme (3 series for 2018)

APPENDIX C.3: Key Initiatives and Activities of Information and Communication Productivity Nexus 2017/2018

1.	**Strengthen collaboration between industry and academia to reduce mismatch of supply and demand of workforce**	
	a.	Identify 'Future ICT Workforce'
	b.	Enhance collaboration of the 'Triple Helix Model' of ICT Productivity Nexus among Industry – Government – Academia
	c.	Development Industry Productivity Specialist (IPS)
2.	**Improving the access to Internet and identify pricing framework for providers**	
3.	**Centralised and coordinate efforts between relevant agencies to ensure proper utilisation of initiatives and programmes**	
	a.	Create 'Market Focused Accelerator Programme' for ICT services' entrepreneurs
	b.	Review the effectiveness of the Government 'Open Data' implementation (www.data.gov.my)
	c.	Develop outcome-based KPIs for tracking the ICT services industry Performance
	d.	Best practices (BP) of ICT industry
4.	**Raise awareness of available incentives to ensure proper utilization and adoption of ICT**	
	a.	Develop productivity-linked incentives, rewards which include the brand promotion for ICT Services industry

APPENDIX C.4: Key Initiatives and Activities of Professional Services Productivity Nexus 2017/2018

1.	**Provide input to colleges and universities to ensure curriculum and training are industry-relevant**	
	a.	MPB Nexus conversation & professional talk on industry needs
	b.	Towards higher productivity in AEC industry : reducing the gap between architectural curriculum and industry expectations in Malaysia (Phase 1)
2.	**Encourage adoption of technology solutions, such as to track progress digitally rather than on paper**	
	a.	Launching of e-advertising consortium of Malaysian Premium Publishers Marketplace (MPPM) Association
3.	**Form cross-country professional services consortiums to increase capability to compete abroad**	
	a.	Sourcing Market Intelligence on Legal framework for Cambodia, Myanmar, Laos, Vietnam & Philippines
4.	**Encourage adoption of operational metrics and performance-linked KPIs by professional services firms**	
	a.	Survey & training on OM & KPIs for engineering, accountancy & architecture subsectors (2019)
5.	**Address regulatory inconsistency and constraints to enable the set up of alternative business models that are in line with global trends**	
	a.	Productivity dialogue with Engineering Fraternity
	b.	Seminar on Enhancing the Engineering Professional Services
	c.	Research on Improving productivity and Growth of Malaysian Engineering Consultancy Firms
	d.	Productivity dialogue with Architectural Fraternity
	e.	Productivity dialogue with Legal Fraternity

APPENDIX C.5: Key Initiatives and Activities of Electricals and Electronic Productivity Nexus 2017/2018

1.	**Enhance Higher Value-Added Activities**	
	a.	Increase utilisation of shared labs and capabilities by conducting a study of current labs and capabilities
	b.	Increase the number of associates in 'IC' Design and Development Provision for EDA Tools by MIC/MIMOS
	c.	Increase number of Associates in 'System' Design and Development Provision for M-CAD Tools by MIC/MIMOS
2.	**Nurture talent pool/talent development**	
	a.	Increase existing workforce competency by proving advanced engineering upskilling & MSc programs
	b.	Industrial upskilling for yet-to-be-employed engineering graduates for the industry
	c.	Strategic professional training and development programs - Industrial 4.0 and SME business development
	d.	In-house technicians development for current workforce enhancement Funded by HRDF via respective companies
3.	**Accelerate Industry 4.0 Adoption**	
	a.	Create Awareness: Promote and organize Industry 4.0 events, seminars and workshops
	b.	Showcasing Adoption: Highlight companies that have successfully implemented of Industry 4.0
	c.	Promoting Adoption: Encourage companies to sign-up for Industry 4.0
4.	**Strengthen SME Development**	
	a.	MNC/LLC to identify and develop local SMEs based on selected MIDA's flagship companies
	b.	Support SMEs on business matching with new MNCs, during exhibitions or business matching events
	c.	Establish an E&E SME directory complete with their Competencies and Capabilities for 'business matching' purposes
	d.	Training and coaching on business development and ethics for SME owners
Others EEPN's Initiatives		
	a.	Study on the impact and contribution of E&E industry in Malaysia and study on the state of E&E industry in Malaysia
	b.	Digital video showcase on Productivity Improvement in E&E subsector and Industry 4.0
	c.	MPB manufacturing roadshow collaboration with Chemical and M&E Nexus
	d.	EEPN storyboard
	e.	Productivity Seminar for Electrical and Electronics Sector

APPENDIX C.6: Key Initiatives and Activities of Chemicals and Chemical Products Productivity Nexus 2017/2018

1.	**Establish chemicals Centre of Excellence built on clear strategies for chemicals and chemical products subsector**	
	a.	Launching of responsible care programs for SMEs in the chemical industry
2.	**Deepen collaboration between industry players and educational institutions offering chemical related courses**	
	a.	To develop new innovative and value added products for the following clusters: 1) Plastic subsector cluster 2) Biochemical subsector cluster
3.	**Provide technical, digital and management support to enhance SME capabilities**	
	a.	To move towards Industry 4.0
	b.	To move towards Malaysia Greentech initiatives
4.	**Enable SMEs to move towards high value add components in the chemical value chain**	
	a.	Productivity dialogue with Engineering Fraternity
	b.	To implement Lean Manufacturing Transformation Program
5.	**Provide support to high potential SMEs to expand internationally**	
	a.	Potential SMEs to expand their export market

ACRONYMS AND ABBREVIATIONS

11MP	Eleventh Malaysia Plan
AEC	ASEAN Economic Community
AI	Artificial Intelligence
APO	Asian Productivity Organisation
BDA	Big Data Analytics
BP	Best Practices
CI	Capital intensity
CPO	Crude Palm Oil
CURE	Cutting Red Tape
D&D	Design & Development
DBKU	Dewan Bandaraya Kuching Utara
DFTZ	Digital Free Trade Zone
DMO	Delivery Management Office
DVT	Dual Vocational Training
DOSM	Department of Statistics Malaysia
EDA	Electronic Design Automation
EGDI	e-Government Development Index
EPI	e-Participation Index
E&E	Electrical & Electronics
EPU	Economic Planning Unit
ESWL	Extracorporeal Shock Wave Lithotripsy
F&B	Food and Beverage
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GII	Global Innovation Index
GNI	Gross National Income
GRP	Good Regulatory Practice
GVC	Global Value Change
HSNZ	Hospital Sultanah Nur Zaharah
HUSM	Hospital Universiti Sains Malaysia
IBO	Innovation Business Opportunities
ICC	Innovative and Creative Circle
IC	Integrated Circuit
ICT	Information and Communication Technology
ICU	Implementation Coordination Unit
IGS	Industrial Research and Development Grant Scheme
IHLs	Institutes for Higher Learning
IMD	International Institute for Management Development

IoT	Internet of Things
I 4.0	Fourth Industrial Revolution
IP	Intellectual Property
IT	Information Technology
IPS	Industry Productivity Specialist
JCI	Joint Commission International
KKTMPJ	Kolej Kemahiran Tinggi mara Petaling Jaya
KLEMS	Capital, Labour, Energy, Materials and Services
KPI	Key Performance Indicators
LFPR	Labour Force Participation Rate
M&E	Machinery and Equipment
MPK	Majlis Perbandaran Klang
MARDI	Malaysia Agricultural Research and Development Institute
MATRADE	Malaysia External Trade Development Corporation
MBEF	Malaysia Business Excellence Framework
MBL	Modernising Business Licensing
MFP	Multi Factor Productivity
MGS	MSC Development Grant Scheme
MNC	Multinational Company

MOHR	Ministry of Human Resource
MPC	Malaysia Productivity Corporation
MPB	Malaysia Productivity Blueprint
NAP3	Third National Agriculture Policy
NDT	None-Destructive Testing
NGO	Non-Government Organisation
NKEA	National Key Economic Areas
O&G	Oil & Gas
OECD	Organisation for Economic Co-operation and Development
OOH	Out-of-home
NPDIR	National Policy on the Development and Implementation of Regulations
PBT	Local Government Authority
PGM	Productivity Gain Measurement
PKPj	Pejabat Kesihatan Wilayah Persekutuan Putrajaya
PLWS	Productivity-Linked Wage System
PPP	Purchasing Power Parity
P&Q	Productivity & Quality
QSR	Quick Service Restaurant
R&D	Research and Development

RIA	Regulatory Impact Analysis
RIS	Regulatory Impact Statement
RM	Ringgit Malaysia
RN	Regulatory Notification
RNF	Regulatory Notification Form
RURB	Reducing Unnecessary Regulatory Burden
SIRIM	Standard and Industrial Research Institute of Malaysia
SME	Small Medium Enterprise
TVET	Technical and Vocational Education and Training
TCB	The Conference Board
UN	United Nations
UPM	Universiti Pertanian Malaysia
USD	United States Dollar
WCY	World Competitiveness Yearbook

HEADQUARTERS

Malaysia Productivity Corporation
Lorong Produktiviti, Jalan Sultan
46200 Petaling Jaya
Selangor Darul Ehsan, Malaysia
Tel: 603-7955 7266/7955 7050/7955 7085
Fax: 603-7957 8068/7955 1824/7958 1697
Website: www.mpc.gov.my
Email: marketing@mpc.gov.my

MPC REGIONAL OFFICES

Malaysia Productivity Corporation (Petaling Jaya Office)
A-06-01, Level 6, Block A, PJ 8,
No. 23, Jalan Barat Section 8,
46050 Petaling Jaya,
Selangor, Malaysia
Tel: 603-7960 0173/7960 0176/7960 0178/7960 0191
Fax: 603-7960 0211
Email: marketing@mpc.gov.my

Malaysia Productivity Corporation (Northern Region Office)
Locked Bag 206, Jalan Tun Hamdan Sheikh Tahir
13200 Kepala Batas,
Pulau Pinang, Malaysia
Tel: 604-575 4709
Fax: 604-575 4410
Email: nro@mpc.gov.my

Malaysia Productivity Corporation (Southern Region Office)
No. 8, Jalan Padi Mahsuri,
Bandar Baru UDA
81200 Johor Bahru,
Johor, Malaysia
Tel: 607-237 7422/237 7644
Fax: 607-238 0798
Email: sro@mpc.gov.my

Malaysia Productivity Corporation (East Coast Region Office)
Level 7, Wisma TNB, Jln. Gambut
25000 Kuantan,
Pahang, Malaysia
Tel: 609-513 1788/513 1789
Fax: 609-513 8903
Email: mpcwpt@mpc.gov.my

Malaysia Productivity Corporation (Kelantan Office)
Level 3, Wisma PERKESO,
Jalan Kota Darulnaim
15538 Kota Bharu,
Kelantan, Malaysia
Tel: 609-741 6260/741 6262
Fax: 609-741 6263
Email: mpckel@mpc.gov.my

Malaysia Productivity Corporation (Terengganu Office)
No. 23-03 KT Business Centre,
Jalan Sultan Mohamad
Padang Hiliran,
21100 Kuala Terengganu,
Terengganu, Malaysia
Tel: 609-622 8215
Fax: 609-631 6010
Email: mpctrg@mpc.gov.my

Malaysia Productivity Corporation (Sabah Region Office)
Level 2, MAA Tower,
No. 6, Lorong Api-Api 1
88000 Kota Kinabalu,
Sabah, Malaysia
Tel: 6088-233 245/456/498
Fax: 6088-242 815
Email: mpcwsb@mpc.gov.my

Malaysia Productivity Corporation (Sarawak Region Office)
Lot 894, Lorong Demak Laut 3A
Demak Laut Industrial Park
93050 Kuching,
Sarawak, Malaysia
Tel: 6082-439959/960
Fax: 6082-439969
Email: sko@mpc.gov.my