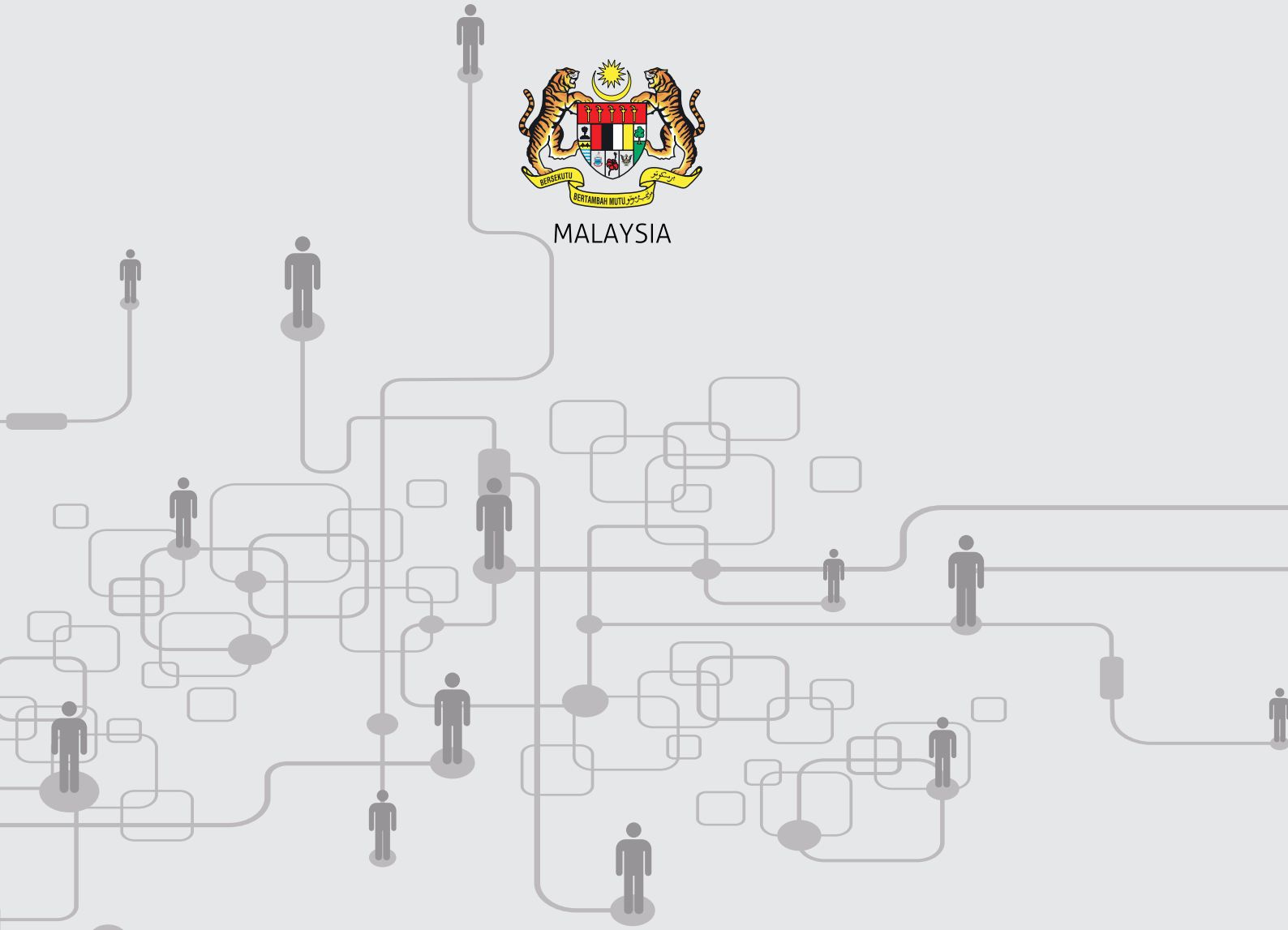
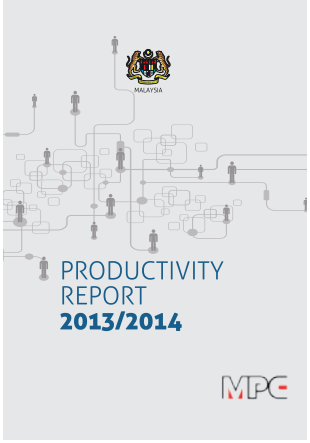


MALAYSIA

PRODUCTIVITY REPORT 2013/2014

MPC



"CONNECTING LIVES, CHANGING MINDSETS"

As the country enters its most transformative years of growth, it will be necessary to not only change its economic structure, but also the way its workforce thinks. Government agencies, private enterprises and society are intricately connected to each other. We must leverage the tools, infrastructure and networks we have at our disposal to positively change mindsets within families and organisations, and ultimately, the nation.

21st Productivity Report 2013/2014

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STATUTORY STATEMENT

This report is published for the Minister of International Trade and Industry in accordance with Section 7 of the Malaysia Productivity Council (Incorporation) (Amendment) Act 1991.

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MESSAGE FROM THE MINISTER

DESPITE the uncertain global economic climate, Malaysia achieved GDP growth of 4.7% in 2013, driven by domestic demand growth of 7.6%. In tandem with this, the economy recorded labour productivity growth of 2.3% to a productivity level of RM60,437. The growth in Malaysia's labour productivity can be attributed to the performance of key sectors of the economy, as well as technological progress, capital deepening and widening and the quality of labour.

Malaysia's productivity growth surpassed that of many advanced economies, including Australia (1.4%), Japan (1.3%), Singapore (1.6%), South Korea (1.7%) and the United States (0.9%). However, it is in the nation's interest to monitor the performances and best practices of emerging economies. China's labour productivity growth of 7.1% was slower than the country's previous performances this decade due to its transition from being an investment-led economy into one driven more by domestic consumption. Stronger domestic sectors also contributed to productivity growth in Vietnam (3.8%) and Indonesia (3.6%).

International reports have recognised Malaysia's steady progress as a competitive economy. Malaysia ranked 6th in the World Bank Doing Business Report 2014, a leap from last year's 12th position and 18th in 2011. Meanwhile, the most recent World Competitiveness Yearbook (WCY) 2014 of the International Institute for Management Development (IMD) ranked Malaysia 12th out of 60 countries. The WCY also noted Malaysia's encouraging improvements in sustaining top ten ranks in economic performance and business efficiency while maintaining its ranking in government efficiency and infrastructure.

While Malaysia's performance is encouraging, market challenges remain as the demands from the market become more sophisticated. It is critical for Malaysia to meet these market demands if we are to become a high-income nation by 2020. This is a national effort, in which both the *rakyat* and industry must "leap-frog" to a higher level of competitiveness by changing our collective mindset. We need to adopt new attitudes and ideas such as inculcating a culture of quality and attention to detail with the determination required to turn local industries into global players.

The Government will assist in driving this by the liberalisation of selected sectors in the economy, modernising labour laws, encouraging the participation of women in the workforce, and promoting high technology, information-intensive industries that will create skilled and high-income jobs. Malaysia will intensify its efforts for more effective public-private sector collaboration to drive the national transformation.

It is my hope that this Report will serve as a useful reference point for decision-makers in the public and private sector to form policies and plans that enable the nation to become more competitive.

Let us all move forward together to strengthen Malaysia's ongoing productivity growth and meet our national targets for 2020 and beyond.

DATO' SRI MUSTAPA MOHAMED
Minister of International Trade and Industry
Malaysia

CHAIRMAN'S STATEMENT

IN 2013, Malaysia Productivity Corporation (MPC) made good headway in its mission to help Malaysia transform into an innovation-driven, high income economy. Productivity Report 2013/2014 examines the performance of the key sectors in Malaysia's economy and highlights new opportunities to improve the country's productivity and competitiveness.

If Malaysia is to be a high-productivity nation, it must adapt to the rapidly evolving macroeconomic challenges of tomorrow. MPC has placed a strong focus on NKEA industries with high value add, including professional services, communications content and infrastructure, healthcare, ICT and computer services, electronic and optical products, and chemicals and chemical products. Moving forward, Government regulations must be strengthened in order to provide industries with a conducive business environment to boost the nation's productivity.

To this end, MPC is spearheading the adoption of Good Regulatory Practice (GRP) to promote good governance, minimise unnecessary compliance costs and help fulfil the expectations of the business community. Guidelines on Reducing Unnecessary Regulatory Burden (RURB) and tools such as Regulatory Impact Analysis (RIA) will improve the quality of existing and new regulations. MPC also recommends the use of RIA to ensure that benefits of the proposed regulations outweigh their costs. Regulators are also encouraged to refer to the guidelines on RURB to ensure that the regulations do not unnecessarily burden businesses.

With this new direction in boosting productivity, MPC is also spearheading the adoption of productivity programmes in close collaboration with industry players, business associations and chambers of commerce. MPC is actively promoting various productivity programmes successfully practised by world-renowned companies. These programmes include LEAN Management, Team Excellence and Business Excellence, all of which have positive spill-over effects across all key sectors.

MPC has continuously nurtured companies through the Enterprise Intervention Innovation Programme (EIIP) to build industry capacity and capability to increase their productivity by eliminating non-value add activities. MPC encourages companies to benchmark their performance against the companies highlighted in this report.

Malaysia's achievements continue to be measured against widely recognised international benchmarks through the efforts of our international networking partners, which include the Asian Productivity Organisation (APO), Organisation for Economic Cooperation and Development (OECD), The Conference Board (TCB), World Bank, World Economic Forum (WEF) and the International Institute for Management Development (IMD). MPC will continue to work closely with these partners to identify where Malaysia needs to close the gaps.

With the publication of this Report, I give my sincere thanks for the support and guidance provided by the Ministry of International Trade and Industry (MITI) and various government ministries and agencies. I am grateful for the contributions and insights of MPC's Board of Directors and Members of Consultative Panels and Taskforces. I also wish to thank the many hands that have contributed to this Productivity Report.

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CHAPTER

1

Malaysia's

Productivity Performance

In this chapter:

- Malaysia's productivity performance
- Global trends in labour productivity
- Enhancing labour productivity growth
- Sectoral productivity performance and outlook
- Outlook for 2014

MALAYSIA'S PRODUCTIVITY PERFORMANCE

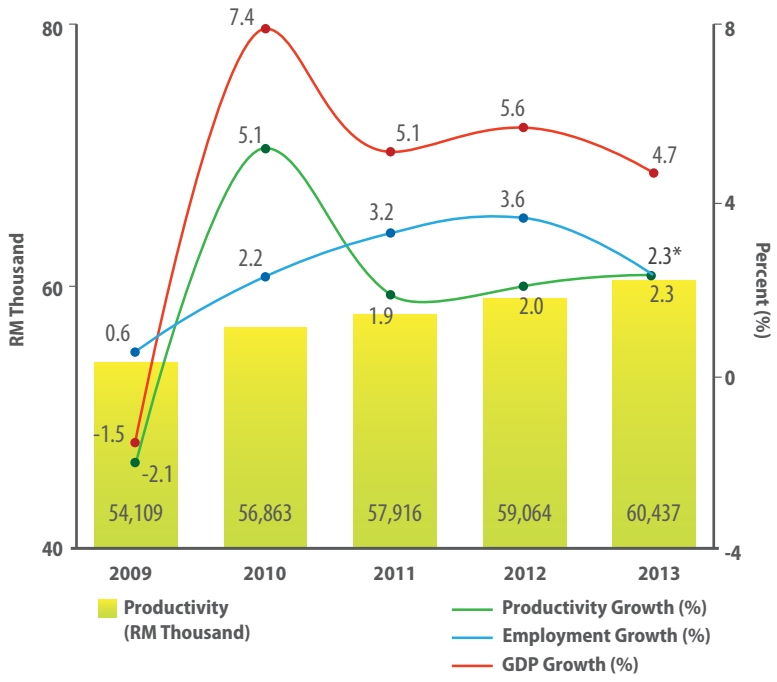
Malaysia's productivity performance in 2013 reflects the country's transition towards becoming an economy driven by innovation and efficiency. ▶▶▶

Malaysia's economy is driven by labour productivity, which increased 2.3% in 2013 (Figure 1.1) and helped to raise the country's productivity per person employed to RM60,437 from RM59,064 in 2012. This increase helped Malaysia's Gross Domestic Product (GDP) to expand 4.7% to RM786,696 million in 2013, supported by a growth in employment of 2.3%.

Labour productivity is driven by key sectors of the economy such as manufacturing, services, agriculture, mining and construction. The individual performance of these economic sectors has a tremendous impact on the country's overall productivity growth. Labour productivity growth is also affected by technological progress, capital deepening and widening as well as the quality of labour. Productivity growth trends are a key factor in determining the sustainability of Malaysia's economic expansion over the long term.

The growth of Malaysia's GDP in 2013 results directly from improvements in private investments and net exports as well as increases in private consumption and government expenditure. Private investments rose to RM132,782 million in 2013, while net exports stood

Figure 1.1: Malaysia Labour Productivity and GDP Growth, 2013



Computed from: (i) Department of Statistics, Malaysia;
(ii) Economic Report, Ministry of Finance
* Note: Employment Growth for January to June 2013

at RM49,404 million. Meanwhile, private consumption accelerated by 7.4% to RM408.2 billion and government expenditure grew by 6.3%. The country's total trade grew by 4.6% in 2013 to RM1.37 trillion, up from RM1.31 trillion in 2012.

The country's strengthening economic conditions are reflected in its growth in employment, which increased by 2.3% (294,000 jobs) to 13.0 million in 2013. As a result, the Labour Force Participation (LFP) rate increased to 66.2% in 2013 (13.4 million) from 13.1 million in 2012. Much of this increase was due to a higher participation of women in the workforce at 50.7% in 2013 compared to 49.5% the year before.

Improvements in labour quality in terms of knowledge, skills and more competitive mindsets have also helped improve labour efficiency within Malaysia, especially within high-technology, information-intensive industries such as telecommunications, computer services and advertising.

GLOBAL TRENDS IN LABOUR PRODUCTIVITY

Global economic growth remained modest in 2013, averaging 2.5% worldwide. Weaker demand from advanced countries, slowing investments and higher inflation rates all contributed to a continued deceleration in labour productivity growth for the third consecutive year. Global labour productivity declined from 3.9% in 2010 to 2.6% in 2011 to 1.8% in 2012. In 2013, global labour productivity stood at 1.7%.

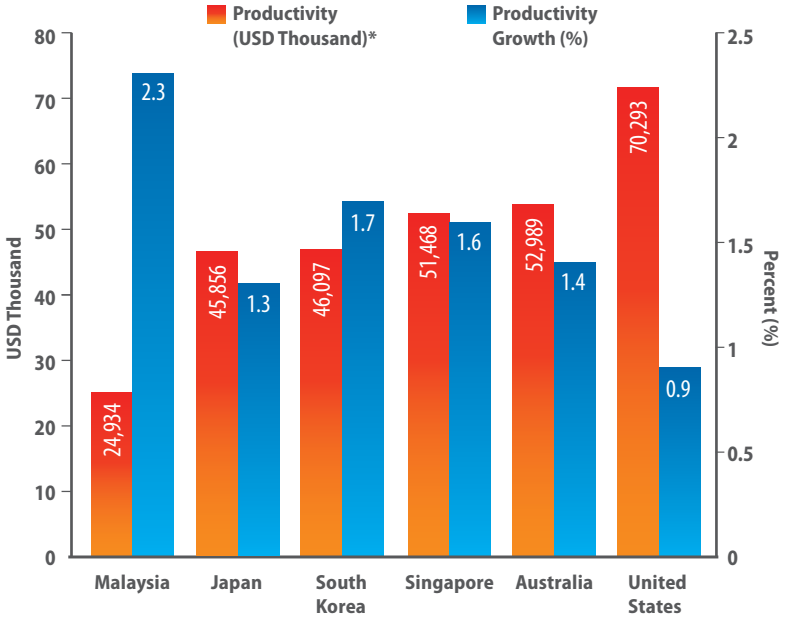
The average GDP for emerging and developing economies fell from 5.2% in 2012 to 4.7% in 2013 as labour productivity declined from 3.7% to 3.3%. The economic growth of advanced economies also declined to 1.3% in 2013 from 1.4% in 2012 as labour productivity growth stagnated at 0.9%.

Malaysia's investment environment and growth momentum allowed it to register a higher labour productivity growth rate of 2.3% in 2013 (USD24,934 per person). This was below the country's average productivity growth rate of 3% since the financial crisis of 2008-2009. However, the government has since made efforts to change the structure of investments into higher value-added industries and services. The investments made between 2010 and 2013 are expected to yield greater gains in productivity over the next few years.

Malaysia's labour productivity growth exceeded that of benchmark advanced economies

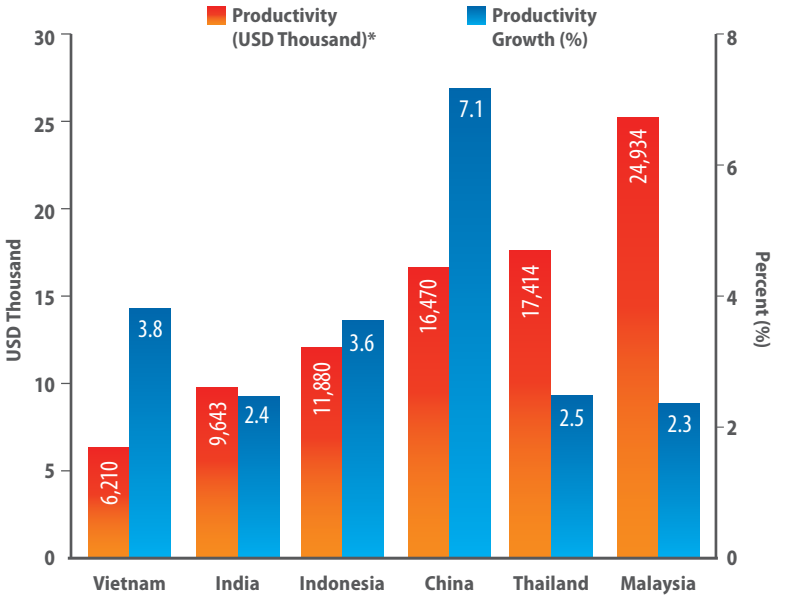
Malaysia's labour productivity growth exceeded that of the benchmark advanced economies selected for this report (Figure 1.2). In absolute

Figure 1.2: Labour Productivity - Malaysia and Selected Advanced Economies, 2013



Source: The Conference Board; Total Economy Database
*Note: Labour Productivity Per Person employed in 1990 US$ (converted at Geary Khamis PPPs)

Figure 1.3: Labour Productivity - Malaysia and Selected Emerging and Developing Economies, 2013



Source: The Conference Board; Total Economy Database
*Note: Labour Productivity Per Person employed in 1990 US$ (converted at Geary Khamis PPPs)

terms, Malaysia's productivity level at USD24,934 per person also remained very much ahead of the benchmark emerging and developing countries. However, labour productivity growth in these emerging countries is accelerating. Strong improvements in labour productivity were recorded in Vietnam and Indonesia, where labour productivity grew by 3.8% (USD6,210 per person) and 3.6% (USD11,880 per person) respectively (Figure 1.3). The strengthening domestic sectors of these economies have had positive effects on labour productivity, although they have been affected by a slowdown in global exports.

Malaysia's productivity level at USD24,934 per person also remained very much ahead of the benchmark emerging and developing countries

China is one of the fastest-growing economies in the world. Its labour productivity growth of 7.1% (USD16,470 per person) in 2013 is the slowest the country has experienced in the last decade, but this was still far faster than most other countries in the region. The uncharacteristic slowdown is largely due to slower GDP growth as the country transitions from an investment-led economy into one driven more by domestic consumption.

Labour productivity in India also slowed to 2.4% in 2013 from 3.1% in 2012 as employment growth declined to 1.7% and output growth slowed to 4.2%. India's economy is

going through a difficult time as it tackles major macroeconomic challenges, including high inflation, slowing exports, increasing current account and fiscal deficits and a falling exchange rate. The lack of reform is hampering India's labour market performance as well as the country's efforts to liberalise more sectors of its economy. Both these factors have an impact on labour productivity and India's ability to attract new foreign direct investment.

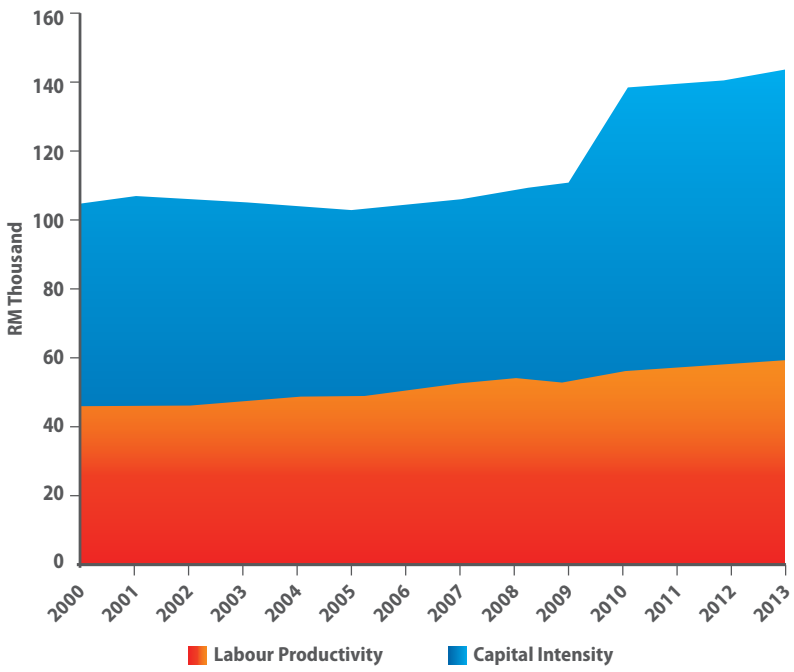
ENHANCING LABOUR PRODUCTIVITY GROWTH

Labour productivity is driven by two factors: total factor productivity (TFP) and capital intensity.

TFP is a measure of efficiency in the utilisation of inputs. To enhance TFP, Malaysia needs to increase the utilisation of its productive assets and increase the quality of its workforce. To enhance labour productivity, firms and individuals need to engage in increased entrepreneurship and be involved in more innovative activities. They should also leverage on innovation taking place elsewhere by accessing new ideas and new markets abroad. Malaysia's TFP performance between 2011 and 2013 has been 1.0%, contributing 19.7% to the country's GDP.

The quality of Malaysia's capital investments also influenced productivity growth in 2013, which saw increased investments in high value-added, high-technology, knowledge-intensive and skills-intensive industries. These are all in line with the government's objective of becoming a high-income nation by 2020 and are helping to increase capital intensity in the economy.

Figure 1.4: Capital Intensity vs Labour Productivity, 2000-2013



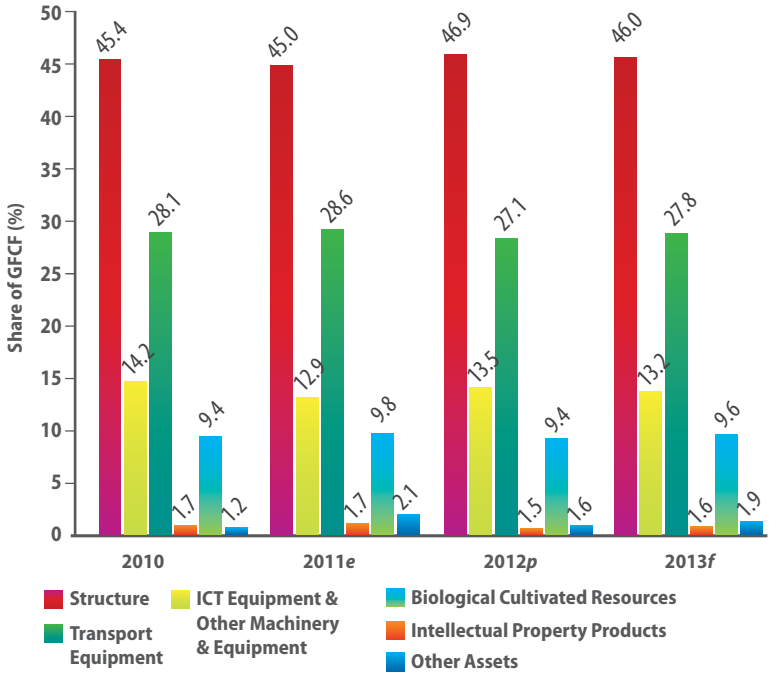
Computed from: Department of Statistics, Malaysia

Malaysia's TFP performance between 2011 and 2013 has been 1.0%, contributing 19.7% to the country's GDP.

Capital intensity reflects the change in the amount of capital available for each employee and is calculated in terms of the capital stock per employee ratio. This ratio grew 2.1% to RM146,611 in 2013, up from RM143,535 in 2012 (Figure 1.4). Capital investment acts as a diffuser of innovation because innovation is embedded in new investment. However, the increase in capital intensity is not yet reflected in higher levels of productivity but is expected to yield greater gains in the years ahead.

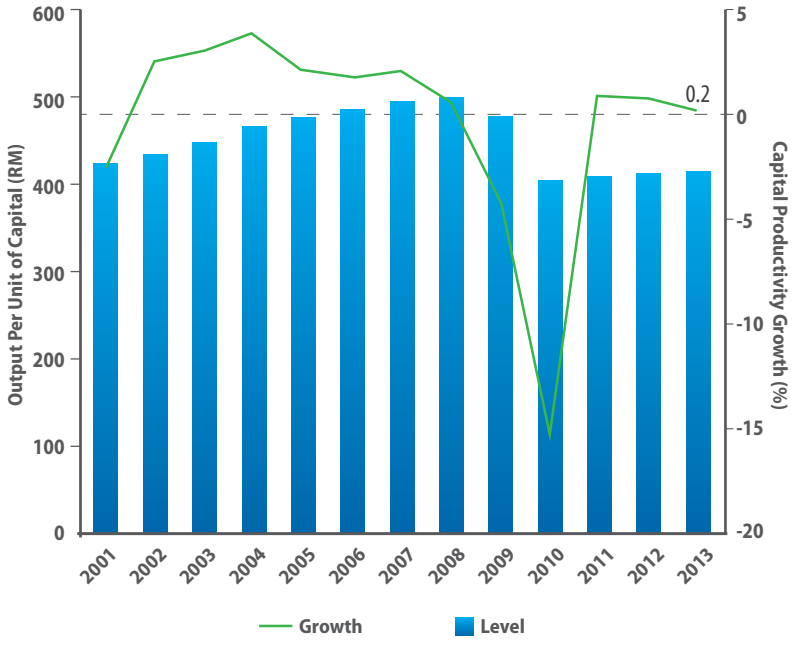
Capital intensity is influenced by gross fixed capital formation (GFCF), which represented around 35% of Malaysia's GDP in 2013. Between 2010 and 2013, GFCF by type of assets shows that 46% of the total has been in the form of structure investments, most of which do not contribute to increasing productivity. The pattern of investments in productive assets namely ICT, machinery and

Figure 1.5: Gross Fixed Capital Formation (GFCF) by Type of Assets, 2010-2013



Computed from: Department of Statistics, Malaysia

Figure 1.6: Capital Productivity, 2001-2013



Computed from: Department of Statistics, Malaysia

equipment (M&E), biological assets, intellectual property and transport remain unchanged. Investments in these productive assets are critical to boost the country's productive capacity, leading to growth and a higher standard of living without inflationary pressure (Figure 1.5). As at 2013, total investments approved in the economy amounted to RM218.2 billion compared with RM201.7 billion in 2012. The services sector accounted for the largest share of the investments approved in the economy (66.6%) followed by the manufacturing sector (24.1%) and the primary sector (9.1%).

The services sector accounted for the largest share of the investments approved in the economy (66.6%) followed by the manufacturing sector (24.1%) and the primary sector (9.1%).

Capital investment increased by 8.5% in 2013 while capital productivity slowed to 0.2% (Figure 1.6). The slower growth between 2011 and 2013 was a gestation period between earlier investments and the completion of projects as well as the utilisation of new capacity. The slower growth may also be attributed to the nature of investments being in capital structures rather than in productive assets, which may pose challenges to the businesses that made those investments in the years ahead. Reduced capital intensity and a high reliance on low-and medium-skilled employees have dampened labour productivity. About 25% of

total employment in 2013 was in highly-skilled jobs, with the rest in low-and medium-skilled areas of work.

SECTORAL PRODUCTIVITY PERFORMANCE AND OUTLOOK

Capital investments have begun to complement labour in many sectors of the economy. In 2013, this trend was reflected in rising labour productivity within the manufacturing sector, which registered the highest labour productivity growth rate in the economy at 5.4% (RM88,389 per person). The services (RM63,753 per person) and construction (RM23,975 per person) sectors also performed well, with labour productivity growing by 4.8% and 5.2% respectively. However, labour productivity in the agriculture sector declined by 3.5% (RM33,006 per person employed) (Table 1.1).

The **manufacturing** sector performed well in 2013 due to the continuous strengthening of domestic-oriented industries despite moderating exports. At 80%, capacity utilisation in the industry remains high as it transitions towards capital-intensive, high technology operations. In 2014, the sector is expected to register a labour productivity growth rate of 3.3% as manufacturing output increases by 5.4%. The main contributors to this growth will be the electrical and electronics (E&E), basic pharmaceuticals, chemicals, basic metals and palm oil products industries.

The **services** sector accounts for the largest share to the Malaysian economy and continued to drive the nation forward, as reflected in its performance in 2013. Labour productivity within this sector grew by 4.8% in 2013 (RM63,753) supported by strong labour productivity growth in the Information and Communication Technology (ICT) (23.3%), utilities (10.7%) and storage (9.7%) sub-sectors. Productivity growth in the ICT sub-sector was due to the continuous expansion of data and broadband services within the cellular market. The growth in the utilities sub-sector was due to higher electricity consumption within the industrial, commercial and mining segments as well as significant increases in the consumption of water and gas. In 2014, the services sector is expected to register a labour productivity growth rate of 3.4% as output grows by 5.8%. These improvements are expected to be driven by productivity gains within modern services such as finance, ICT and business services.

The **construction** sector is one of the most important sectors of Malaysia's economy, contributing 3.7% to GDP (RM29.4 billion). It has significant knock-on effects throughout the economy and can positively influence employment growth rates in other related economic activities. Labour productivity growth within

Table 1.1: Labour Productivity of Malaysia's Major Economic Sectors, 2013

Economic Activity	GDP		Employment		Productivity	
	(RM million)	Growth	('000)	Growth	(RM)	Growth
Agriculture	55,913	2.06%	1,694	5.76%	33,006	-3.50%
Mining	63,767	0.53%	82	1.24%	781,458	-0.70%
Manufacturing	193,006	3.35%	2,184	-1.99%	88,389	5.45%
Construction	29,422	10.90%	1,227	5.46%	23,975	5.16%
Services	368,995	5.45%	5,788	0.65%	63,753	4.77%
Malaysia	**786,696**	**4.69%**	**13,017**	**2.31%**	**60,437**	**2.33%**

Computed from: Department of Statistics, Malaysia

Table 1.2: Sectoral Comparison on Labour Productivity - Malaysia and Selected Advanced Economies (PPP), 2012

Country	Industry		Services		Agriculture	
	Ranking*	US$	Ranking*	US$	Ranking*	US$
US	7	120,178	2	105,441	4	84,104
South Korea	13	99,261	37	51,402	30	25,781
Finland	16	96,374	17	77,918	15	52,100
Singapore	20	84,942	5	99,016	-	-
Japan	22	81,690	26	65,970	32	24,906
Malaysia	**44**	**51,558**	**47**	**35,572**	**36**	**22,325**

Source: World Competitiveness Yearbook, 2013
Note: * Total 60 economies

this sector moderated to 5.2% in 2013 (RM23,975), indicating that the sector still requires high labour input and that opportunities remain to increase the adoption of mechanisation, automation and other advanced methods of construction. In 2014, construction activities are expected to sustain their momentum within the oil and gas (O&G), transportation and the utilities sub-sectors with a labour productivity growth rate of 5.4%.

The **agriculture** sector showed a positive sign of recovery with labour productivity improving from -11.1% in 2012 to -3.5% in 2013. Weaker labour productivity was due to slower external demand and lower commodity prices, especially for crude palm oil (CPO) and rubber. The price for rubber commodities in particular has declined significantly in recent years. Nonetheless, as demand for palm oil and rubber increases in 2014, labour productivity in the agriculture sector is expected grow by 2.7% as output expands by 3.0%.

The **mining** sector comprises the extractive industries of coal and lignite, crude petroleum and natural gas, metal ores and other mining and quarrying activities. The extraction of crude petroleum and natural gas contributes more than 90% to the added value of the mining sector.

The agriculture sector showed a positive sign of recovery with labour productivity improving from -11.1% in 2012 to -3.5% in 2013.

The rapid growth of O&G projects in Malaysia has made it difficult to mobilise labour in an efficient manner in the country. Productivity growth is affected by a number of factors including continuous technological improvement, skills enhancement as well as increases in the scale and character of capital inputs, specifically in the extraction process of oil. However, finding fully qualified workers to meet the growing demands of the oil industry is a challenge. As a result, labour productivity in the mining sector declined by 0.7% in 2013. In 2014, labour productivity in this sector is expected to grow by 1.9% as output grows by 3.1%. This improvement will be supported by the increased production of natural gas, crude oil and petroleum condensates.

OUTLOOK FOR 2014

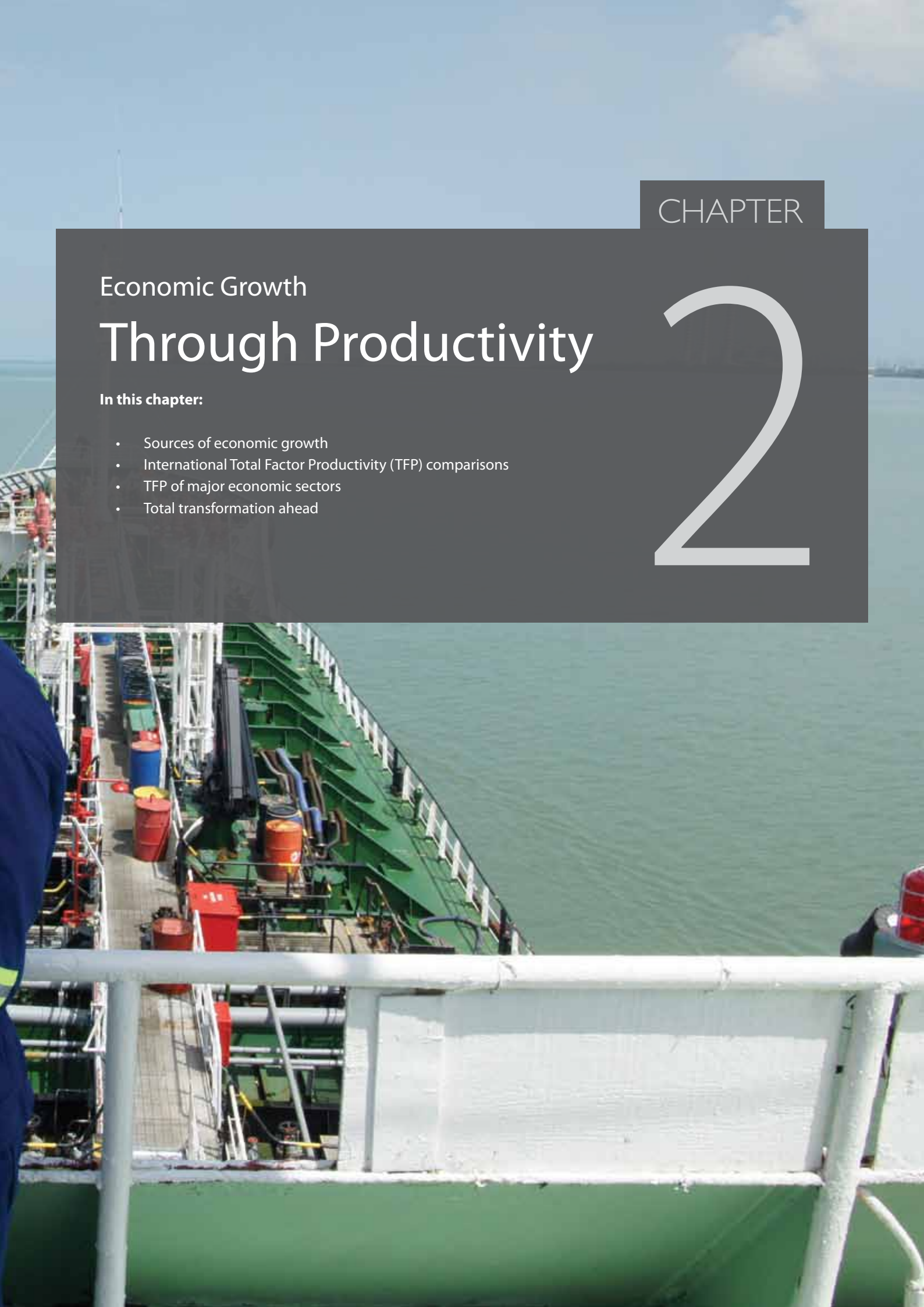
Labour productivity growth is important to an economy because it enables increased standards of living through economic growth, resulting in a higher level of *Kesejahteraan Rakyat*. It can in turn increase the choices available to individuals and society, providing the means

to boost social and economic infrastructure, environmental standards, crime prevention, and other aspects of nonmaterial well-being. Advanced economies usually have high levels of productivity which contributes to a higher per capita GDP and standard of living.

Labour productivity in Malaysia is expected to grow by 2.7% in 2014, although this growth is contingent upon continued improvements in private domestic demand as well as external trade.

Although Malaysia's overall productivity is affected by global economic conditions, the country's ability to increase its labour productivity growth rate depends mainly on whether or not it can derive greater efficiency from internal resources such as human capital, innovation and operational excellence. Based on the current forecasts and estimates available, labour productivity in Malaysia is expected to grow by 2.7% in 2014, although this growth is contingent upon continued improvements in private domestic demand as well as external trade. This estimate is in line with the average global labour productivity growth estimated at 2.3% for 2014 and is based on the premise that global output will increase from 2.9% in 2013 to 3.5% in 2014, a large part of which will depend on the economic performance of the US and other advanced economies. The recovery of the world's advanced economies will stimulate average demand globally and raise productivity overall.

Emerging and developing economies are also expected to see moderate improvements in labour productivity growth in 2014. China is making a necessary adjustment to the rapid growth it has experienced over the past decade. With slow demand and abundant labour supply, businesses in both China and India may find it more difficult to achieve labour productivity gains through investment and greater efficiency. Malaysia must increase its operational efficiency and labour productivity to ensure that it will remain competitive globally.



CHAPTER

2

Economic Growth

Through Productivity

In this chapter:

- Sources of economic growth
- International Total Factor Productivity (TFP) comparisons
- TFP of major economic sectors
- Total transformation ahead

ECONOMIC GROWTH THROUGH PRODUCTIVITY

Innovation, creativity and high value-added activities are crucial for Malaysia to make the leap to being a high-income economy. The driver of this transformation will be total factor productivity (TFP). ▶▶▶

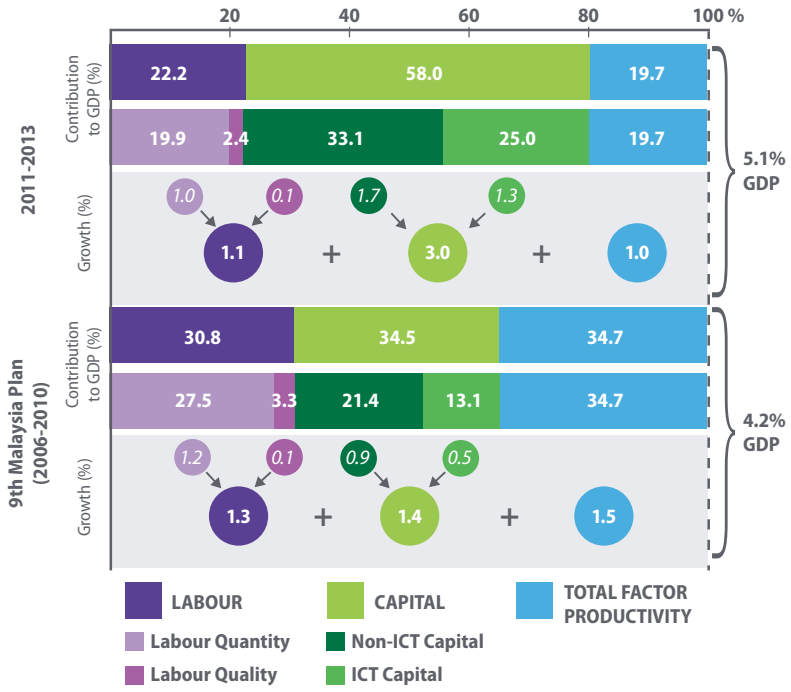
Over the periods of the Seventh (7MP) and Ninth (9MP) Malaysia Plans, the country made good progress in leveraging new technologies, skills and best practices to increase the contribution of total factor productivity (TFP) to the country's GDP. TFP's contribution to GDP rose nearly 40% between the 7MP (24.8%) and 9MP (34.7%), while the contribution of capital fell from 50.2% to 34.5% and the contribution of labour increased from 25% to 30.8% over the same period. This achievement was in line with the government's vision to have TFP lead economic growth by 2015, with a target contribution of 38.5% by 2015.

The first three years of the Tenth Malaysia Plan (10MP) show that the average contribution of TFP to the country's GDP was 19.7% while the contribution of capital input (58% vs. 37.5%) exceeded government targets during the period (Table 2.1). The increase in capital input is due to a remarkable increase in non-ICT and ICT investments that may be expected to yield productivity gains in the years ahead. Non-ICT capital investments in structure, transport and machinery equipment increased to 33.1% from 21.4% during 9MP, while ICT capital investments in the form of

computer software, hardware and telecommunications equipment rose to 25% from 13.1% over the same period.

While it is heartening to see that investments in ICT have almost doubled relative to the 9MP period (Figure 2.1), it is important to note that it will take several years before any productivity gains are realised from these investments. Investment expenditure is accounted for as capital input growth even though there is no or minimal associated output produced at the time of the investment and during the initial construction and development of the project. As such, figures for productivity tend to be lower in the early years before the investments become fully operational and begin to yield productivity gains in later years.

Figure 2.1: Sources of GDP, Growth and Contribution (%)



Sources: (i) Department of Statistics, Malaysia
(ii) Total Economy Database, The Conference Board

Table 2.1: Sources of GDP, Growth and Contribution (%)

		7th Malaysia Plan (1996-2000)		8th Malaysia Plan (2001-2005)		9th Malaysia Plan (2006-2010)		10th Malaysia Plan (2011-2015)	
		Growth	% of Contribution to GDP	Growth	% of Contribution to GDP	Growth	% of Contribution to GDP	Growth	% of Contribution to GDP
TARGET	Labour	0.6	19.3	1.4	32.6	1.7	28.1	1.4	24.0
	Capital	2.3	78.2	1.7	40.0	2.1	35.7	2.3	37.5
	TFP	0.1	2.5	1.1	27.4	2.2	36.2	2.3	38.5
	GDP	**3.0**	**100.0**	**4.2**	**100.0**	**6.0**	**100.0**	**6.0**	**100.0**

		7th Malaysia Plan (1996-2000)		8th Malaysia Plan (2001-2005)		9th Malaysia Plan (2006-2010)		2011-2013	
		Growth	% of Contribution to GDP	Growth	% of Contribution to GDP	Growth	% of Contribution to GDP	Growth	% of Contribution to GDP
ACHIEVED	Labour	1.2	25.0	1.5	33.2	1.3	30.8	1.1	22.2
	Capital	2.3	50.2	1.8	37.8	1.4	34.5	3.0	58.0
	TFP	1.2	24.8	1.4	29.0	1.5	34.7	1.0	19.7
	GDP	**4.7**	**100.0**	**4.7**	**100.0**	**4.2**	**100.0**	**5.1**	**100.0**

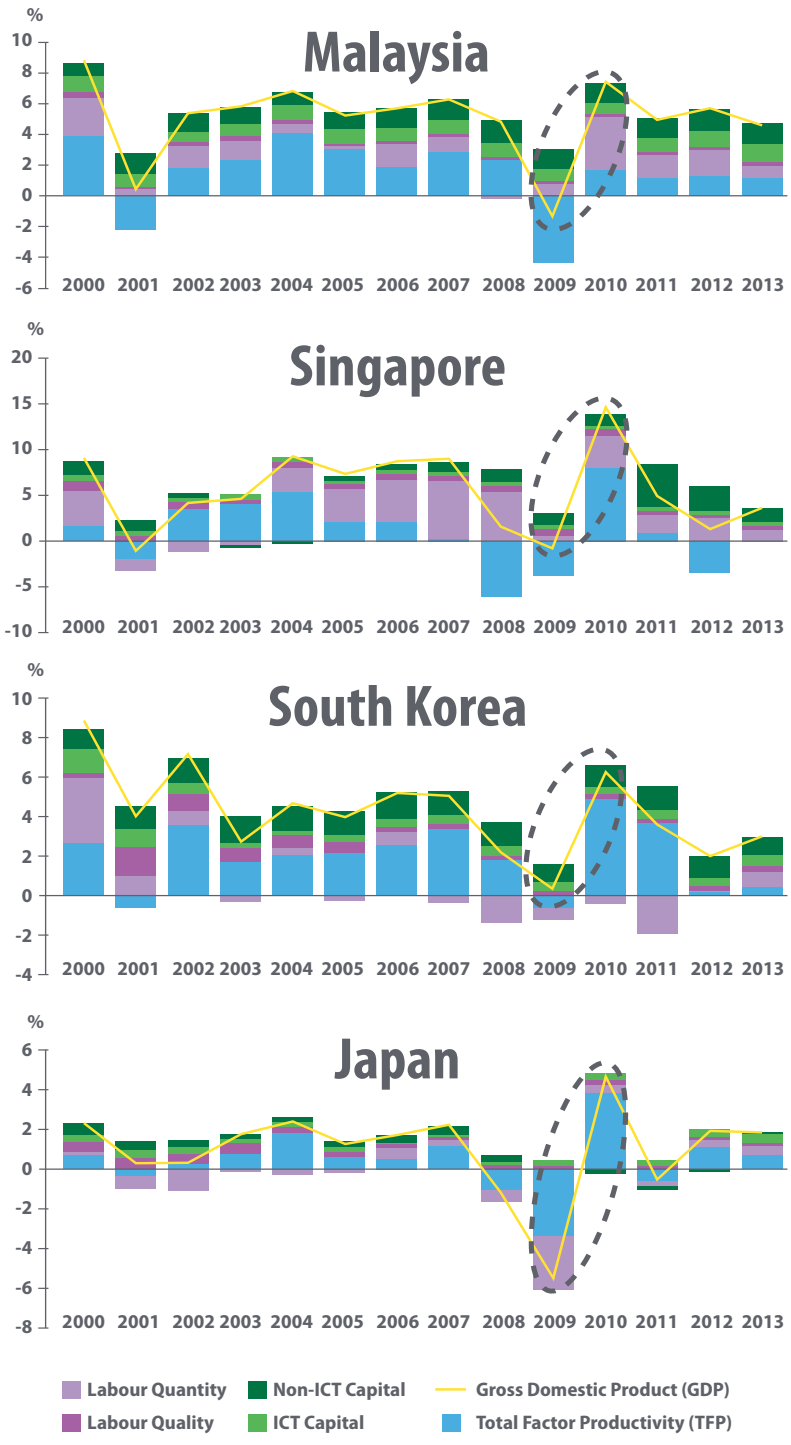
Sources: (i) Economic Planning Unit, Malaysia
(ii) Department of Statistics, Malaysia

Meanwhile, the contribution of labour input to GDP during the first three years of 10MP stands at 22.2%, which is slightly lower than the target of 24%. The ratio of contribution between labour quantity and labour quality also remained mostly unchanged (89:11), which indicates that the contribution of labour input to economic growth is still based on quantity rather than quality. There is a need to strengthen policies and offer firms the right incentives to create modern jobs that will justify higher wages and increase productivity through the application of technology.

There is a need to strengthen policies and offer firms the right incentives to create modern jobs that will justify higher wages and increase productivity through the application of technology.

Theoretically, both labour quality and ICT capital contribute significantly to a country's economic growth. However, in comparing Malaysia's sources of economic growth with those of Singapore, South Korea, Japan and the USA, it may be observed that the catalyst for economic growth does not always directly depend on these qualitative inputs but instead relies upon the efficient utilisation of capital and labour. For example: labour quantity in Singapore contributed 63.7% to GDP during the 2011-2013 period followed by non-ICT capital (42.6%), while in the USA economic growth

Figure 2.2: Annual Change of TFP, Labour and Capital to GDP (%)



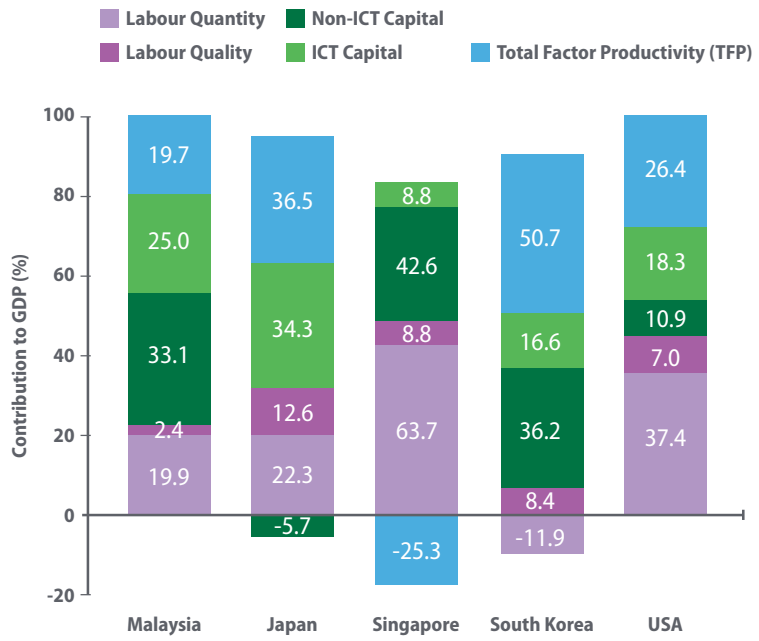
Sources: (i) Department of Statistics, Malaysia
(ii) Total Economy Database, The Conference Board

may be attributed to labour quantity (37.4%) and ICT capital (18.3%). Nonetheless, TFP has been the main source of economic growth in Japan and South Korea, with TFP contributions to GDP standing at 36.5% and 50.7% respectively. In Japan, ICT capital was the second largest contributor to GDP growth (34.3%), while in South Korea, non-ICT capital contributed 36.2% to GDP growth.

The global economic recession of 2009 affected most economies as evidenced by the drop in GDP across Malaysia, Singapore, South Korea and Japan. These countries also experienced a decline in TFP growth (Figure 2.2). However, it may be observed that TFP played an important role in accelerating economic recovery in Singapore, South Korea and Japan after 2009, while Malaysia adopted a labour-driven strategy to boost GDP growth over the same period. This labour-driven strategy may be vulnerable to global distortions, and it is vital that Malaysia apply TFP-driven strategies that have demonstrated the ability to sustain economic growth in the long-term.

TFP played an important role in accelerating economic recovery in Singapore, South Korea and Japan after 2009.

Figure 2.3: Contribution to Sources of Growth, Selected Countries, 2011-2013 (%)



Sources: (i) Department of Statistics, Malaysia
(ii) Total Economy Database, The Conference Board

TFP OF MAJOR ECONOMIC SECTORS

For Malaysia to become a globally competitive, high-income economy, the country must increase TFP growth across all economic sectors by adopting innovation-based economic drivers that yield maximum productivity gains. An analysis of major economic sectors indicates that the highest TFP growth during the 9MP period was in the services sector (4.1%), followed by construction (2.8%) and manufacturing (2.7%), while the agriculture and mining sectors recorded a decline in TFP at 0.3% and 12.7% respectively. However, the construction, services and manufacturing sectors recorded positive TFP growth rates of 6.3%, 2.8% and 0.1% respectively during the first three years of 10MP. GDP growth during this period would have been much higher if the agriculture and mining sectors had also recorded positive growth in TFP.

Capital has been the main source of growth in the agriculture sector as farms increase their investments into technology and machinery to modernise their operations and increase future productivity (Table 2.2). The adoption of better farm management systems such as Good Agriculture Practices (GAP) and large scale commercial farming will boost TFP within this sector in the years ahead.

Capital is also the major source of growth within the mining sector, which registered capital growth

Table 2.2: TFP Growth of Major Economic Sectors (%)

	Average Change (%)	
	9th Malaysia Plan (2006-2010)	2011-2013
Agriculture		
TFP	-0.26	-1.66
Capital	2.87	3.75
Labour	0.10	1.08
GDP	2.70	3.18
Mining		
TFP	-12.74	-12.06
Capital	10.82	10.79
Labour	0.26	0.66
GDP	-1.66	-0.61
Manufacturing		
TFP	2.74	0.10
Capital	0.19	3.88
Labour	-0.09	0.25
GDP	2.85	4.23
Construction		
TFP	2.78	6.31
Capital	1.78	1.04
Labour	1.42	3.77
GDP	5.98	11.12
Services		
TFP	4.05	2.82
Capital	1.99	1.79
Labour	1.13	1.74
GDP	7.18	6.35

Computed from: Department of Statistics, Malaysia.

of 10.8% in the 2011-2013 period. Mining is a capital-intensive business that depends on large investments for activities such as mineral exploration, mine development and extraction processing. These investments will eventually enhance the efficiency of the mining sector and lead to positive TFP growth.

Economic growth within the manufacturing sector was also dominated by capital in the 2011-2013 period with minimal TFP growth of 0.1%. The rise in capital input was due to increased investments within labour-intensive sub-sectors such as textiles, paper and paper products and wearing apparel. However, TFP is expected to lead the growth of the sector by the end of the 10MP period once initiatives to strengthen productivity begin to yield results.

TFP growth in the construction sector since the 9MP period has been commendable, with the adoption of more advanced building practices and systems such as the Green Building Index (GBI), Industrialised Building System (IBS) and Building Information Modelling (BIM). The sector has considerable linkages with many other industries, and it recorded a TFP growth of 6.3% in the 2011-2013 period compared to 2.8% during the 9MP period.

The momentum of TFP growth in the services sector moderated to 2.8% from 4.1% during the 9MP period. This growth was supported by more ICT-based operations in modern services such as professional services and finance that are information-intensive as well as companies' initiatives towards providing innovative, personalised and excellent service standards.

TOTAL TRANSFORMATION AHEAD

With only six years left for Malaysia to achieve its target of becoming a high-income nation, the country has a few strategies at its disposal to help it achieve a minimum of 6% GDP growth per annum. Generally, the economy is on the right track with productivity driving economic growth as is shown by the performance of TFP during the 9MP period, while capital-led growth during the first three years of 10MP will yield productivity gains in the years ahead. The country's economy has to become more productive, innovation-led and diversified to avoid the middle-income trap.

Malaysia must leverage on its strengths in modern industries within the services and manufacturing sectors and make a concerted effort to make TFP a main economic driver, particularly within industries such as business services, ICT and communication, finance, medical devices, pharmaceuticals and energy saving devices. Achieving higher TFP growth is associated with improvements in technology, R&D as well as investments in human capital. Strengthening modern industries will boost demand for skilled workers and enhance the contribution of labour quality to the country's economic growth.

There is an urgent need to transform complacent mindsets into competitive mindsets throughout Malaysia and at all levels of the *rakyat*.

There is an urgent need to transform complacent mindsets into competitive mindsets throughout Malaysia and at all levels of the *rakyat* – from CEOs to the grassroots. Competitive mindsets lead to greater productivity, enhanced value and higher incomes within all organisations. Cultivating this competitive mindset will require continuous learning, on-the-job training, knowledge, skills and expertise.

The private sector must be given sufficient support in shaping these programmes to meet the current demand of industries. Upskilling Malaysia's workforce will add value to the country's products and services and promote higher productivity and higher wages. These initiatives will involve the extensive use of ICT to collect, analyse and disseminate knowledge and information. Modern ICT solutions offer significant efficiency and productivity advantages to SMEs in particular, and at much more cost-effective prices than they used to be just a few years earlier. Equipping workers with the right tools and information will allow companies to foster more competitive, more adaptive and more creative mindsets within their organisations. Together with the right combination of ICT and non-ICT capital investments,

FROM TRADITIONAL TO MODERN

Jobs lie at the core of Malaysia's strategy to achieve its objective of becoming a high-income economy that benefits all Malaysians. For this to happen, the country needs to create more modern jobs and modernise its labour markets.

MODERN JOBS

- Job market consists mainly of **blue collar** and **white collar** jobs
- Generally comprises **higher-grade**, higher-status, and better-paid jobs, with employers who offer the best terms and conditions
- Workers try to prove themselves to their employers by portraying their **skills and educational credentials**
- Workers are unable to switch occupations easily because they require different skills and extensive investments in **training and qualifications**
- The labour market is commonly understood to denote people with secure jobs and **good work conditions** in the public sector, large corporations and highly-unionised industries
- Requires extensive on-the-job training in firm-specific skills, offers job security and **good promotion prospects**, a high span of discretion, and high material rewards

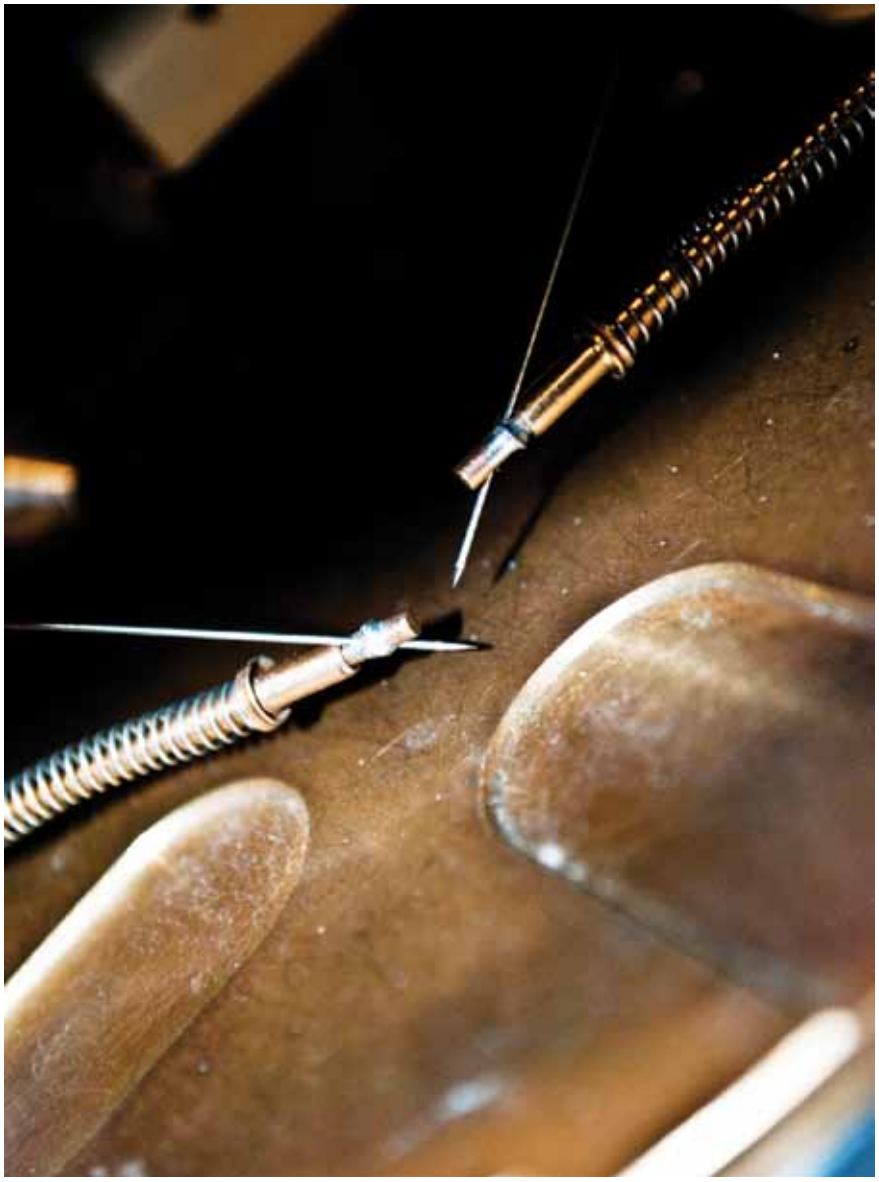
TRADITIONAL JOBS

- Many workers in these jobs either **leave** or are **replaced quickly**
- Mostly **low-skilled**, require relatively little training, and can be learned relatively quickly on the job
- There are few barriers to **job mobility** within the sector: there is little incentive to stay in unattractive jobs, and there are high levels of labour turnover
- **Wages are low**, and the terms and conditions of the job are poor
- The labour market covers small employers in non-unionised sectors of the economy, where jobs are **less secure** and conditions are generally poorest
- Low-skilled jobs, including casual and seasonal work, offer little **autonomy and responsibility** as well as low and unstable earnings
- Jobs offered are generally **low grade** with basic on-the-job training, job security and promotion prospects

a competitive mindset will allow Malaysia to accelerate its economic transformation.

Transforming Malaysia's economy will require it to restructure its industrial base into one that is characterised by creative, high-technology industries that offer high-value, high-productivity employment opportunities. Several manufacturing and services sub-sectors have been identified as having high productivity potential, including palm oil, E&E, chemical and chemical products, basic pharmaceutical products, basic metal, programming, architecture, engineering, primary education, warehousing and support activities and private healthcare. These sub-sectors could potentially offer higher wage jobs and allow businesses to leverage significant gains from TFP.

Another way to boost TFP contribution is to encourage the development of creative industries whose products are mostly goods and services created by knowledge-based property rights, research and development (R&D), Intellectual Property Rights (IPR) and cultural creativity. In creating extraordinary value and wealth, Malaysia should increase its productivity within creative industries such as advertising, design, film, videos, publications, arts and crafts. By leveraging its deep historical heritage and creative potential, the country can also enhance its productivity and value-add within other industries in which Malaysia has a comparative advantage such as textile and apparel, thus transforming conventional export items into higher-value creative goods.



In creating value and wealth, Malaysia should increase its productivity within creative industries such as advertising, design, film, videos, publications, arts and crafts.

Initiatives to promote enhanced productivity and competitiveness will require greater collaboration between businesses and industrial agencies, government agencies and NGOs. These industry stakeholders must work hand-in-hand to identify the investments and training they need to improve production efficiency and asset utilisation. Nurturing a competitive mindset among managers and employees will also require these industry stakeholders to change the way they manage their human capital.

THE KOREAN MIRACLE

Korea has established itself as a Knowledge Economy powerhouse in a very short period of time. What can Malaysia learn from the country's transition?

Back in the 1960s, half of the Korean population suffered from poverty. At the time, the country's major exports were wigs, clothing and plywood: all products that are easy to make, but which offer limited economic returns. By the early 1970s, however, the country's industrial base had diversified into the textiles, machinery, electrical appliances and other goods that offered the country greater export opportunities, especially with the US and Japan.

Korea's economic miracle had begun. Within ten years, the country's exports increased more than 1,000 fold, from USD175 million in 1965 to USD7.7 billion in 1976. Nonetheless, then-President Park Chung Hee recognised that the country's labour- and resource-intensive industries would only offer limited long-term economic growth. In response, he initiated the Saemaul Undong (SMU) New Community Movement programs to rapidly raise productivity by not only restructuring the country's economic base but also by transforming the mindset of the population.

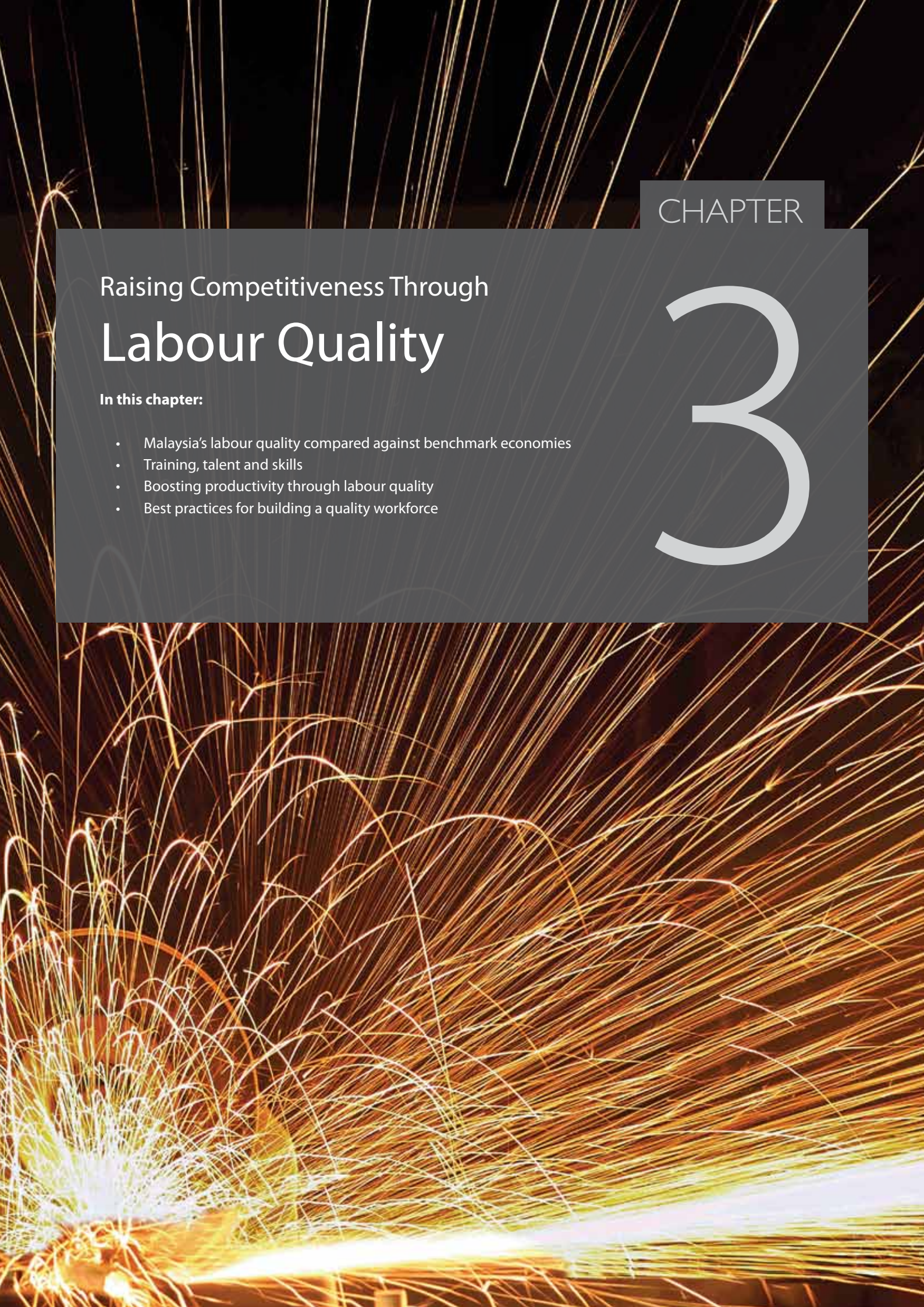
The SMU was extremely effective in cultivating a new generation of Koreans with a positive, competitive mindset that would later prize innovation and creativity above all other achievements. However, this did not happen overnight. Instead, SMU began as a rather conventional integrated community development program that aimed to improve the physical environment of villages, introduce new attitudes and skills and increase incomes through small-scale self-help projects introduced by government agents. The program paid particular attention to nurturing the mindsets of its youngest citizens: children. These children would later grow up to lead the country's exploits into high-value semiconductors and technology-based products, and by the turn of the century, Korea would be counted among the most innovative countries in the world.

Thanks to its mature agricultural base in the 1960s, Malaysia actually led Korea in terms of productivity during those tumultuous years. But by the 1990s, Korea's productivity levels had far outstripped Malaysia's. Today, there is a huge gap between Malaysia's and Korea's productivity performance. While Malaysia is still working at breaking out of the upper middle-income trap, Korea is already a high-income economy.

The difference between the journeys of Malaysia and Korea through the past fifty years lies in the mindset of its people. Korea has invested heavily into cultivating a creative and innovative work culture starting with the very young. The country's unequivocal support for homegrown *chaebol* brands such as LG, Samsung and Hyundai has helped turn them into world-beaters. Lately, the Korean film industry has also seen rapid development in terms of talent, quality and international appeal.

There are many lessons for Malaysia in Korea's innovative work culture, in its corporate governance and in its education policies. However, the most valuable lesson of all is in the way the country has nurtured and maintained a competitive mindset among its businesses and workforce that will sustain the country well into the future.

Malaysia already has many instutitions that have been established to help the rakyat think more competitively and globally such as FELDA, FELCRA, FAMA and KEMAS. government agencies such as SME Corp, SIRIM and MATRADE are also actively involved in encouraging more competitive business practices among Malaysian companies. By intensifying efforts to change mindsets at the grassroots, the country can accelerate its economic transformation and sustain its productivity growth over the long term.



CHAPTER

3

Raising Competitiveness Through

Labour Quality

In this chapter:

- Malaysia's labour quality compared against benchmark economies
- Training, talent and skills
- Boosting productivity through labour quality
- Best practices for building a quality workforce

RAISING COMPETITIVENESS THROUGH LABOUR QUALITY

Malaysia has come a long way in its international competitiveness performance, but it can go further by raising the quality of its human capital. A high quality labour force will enhance labour productivity, the employability of the workforce and overall economic growth. ▶▶▶

Malaysia's economic transformation efforts are enhanced through the quality and capacity of its workforce. A highly competitive nation requires an educated workforce which possesses the appropriate skills, knowledge and talents to meet the challenges faced by the economy. As the structure of the economy shifts towards high value-added manufacturing and services, labour markets must ensure that there is no mismatch between workers and jobs in order to meet market demands. A pool of skilled and talented human capital is imperative to enhance productivity, competitiveness and technological innovation.

To improve its labour market competitiveness, Malaysia must increase its investments into education, science and technology. Investing resources into the country's human capital will have positive impacts on the employability, productivity and competency of its workforce. Malaysia has made significant strides in international competitiveness rankings, coming in 12th out of 60 countries in the World Competitiveness Yearbook 2014 (WCY 2014). The country's position has hovered between 10th and 16th place since 2010. In the most recent report, Malaysia continued

to rank in the top 10 in terms of Business Efficiency and Economic Performance.

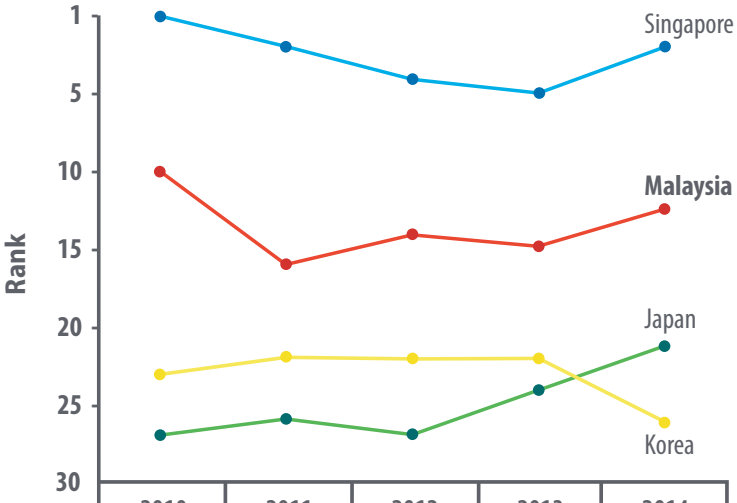
Meanwhile, the World Economic Forum's (WEF) Global Competitiveness Report 2013-2014 ranked Malaysia in 24th place out of 148 countries, placing it among the top 20% of the most competitive economies globally. The WEF has acknowledged that Malaysia benefits from the quality of its infrastructure, goods market efficiency, financial market sophistication, strong business sophistication and innovative potential.

The World Economic Forum's (WEF) Global Competitiveness Report 2013-2014 ranked Malaysia in 24th place out of 148 countries, placing it among the top 20% of the most competitive economies globally.

A QUESTION OF QUALITY

Malaysia has made good progress in developing its capacity to nurture a quality workforce. However, to meet the targets of the 10th Malaysia Plan (10MP), the country needs to increase the percentage of its tertiary-educated workforce from 25.6% in 2012 to 33% by 2015 and 50% by 2020. The country must also increase its efforts to transform workplaces by ensuring that the country's labour laws remain relevant to modern human resource management practices and systems, and that wages are linked to productivity. These initiatives will involve upgrading the skills and knowledge of the workforce while managing the country's dependency on low-cost local or foreign labour.

Figure 3.1: Malaysia's Performance vs Selected Benchmark Economies in the World Competitiveness Yearbook, 2010-2014



	2010	2011	2012	2013	2014
No. of Countries	58	59	59	60	60
Malaysia	**10**	**16**	**14**	**15**	**12**
Singapore	1	3	4	5	3
Korea	23	22	22	22	26
Japan	27	26	27	24	21

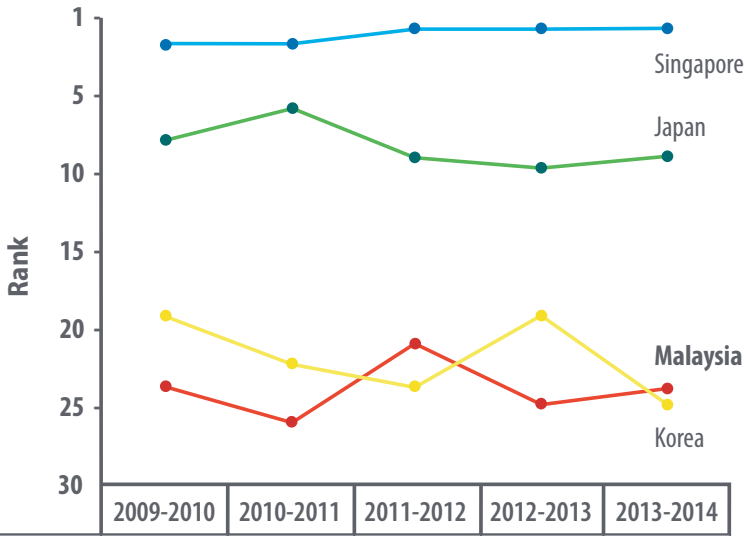
Source: World Competitiveness Yearbook, Various Years

The WCY 2014 uses four criteria to measure the competitiveness of a country's labour force: the availability of skilled labour, the ability to attract and retain talent, employee training and higher education achievement. This productivity report uses these criteria to compare Malaysia's competitiveness with that of Japan, Korea and Singapore. These countries have been chosen for this benchmark because of their relatively strong economic performance in recent years.

In terms of skilled labour, Malaysia appears to have a competitive advantage against the benchmark economies.

In terms of skilled labour, Malaysia appears to have a competitive advantage against the benchmark economies. The country was placed 6th for the availability of skilled labour compared to Japan (29th),

Figure 3.2: Malaysia's Performance vs Selected Benchmark Economies in the Global Competitiveness Report, 2009-2013



	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
No. of Countries	133	139	142	144	148
Malaysia	**24**	**26**	**21**	**25**	**24**
Singapore	3	3	2	2	2
Korea	19	22	24	19	25
Japan	8	6	9	10	9

Source: Global Competitiveness Report, Various Years

Korea (32nd) and Singapore (36th) (Table 3.1). Skilled labour helps to spearhead innovation, encourages the adoption of technology, is able to perform complex tasks and can easily adapt to changing environments and production systems. However, more needs to be done to address skill gaps that are critical for high skilled jobs within fields such as ICT, math-computational skills, English proficiency, problem solving skills and people skills.

In terms of the country's ability to attract and retain talent, Malaysia was ranked in 13th place behind Japan (7th) and Korea (12th) but ahead of Singapore (14th). Although the country is successful at retraining its workforce and creating a pool of highly skilled workers, it must guard against brain drain. The government has taken several steps to entice Malaysian talent home from abroad and to attract foreign talent to Malaysia to enhance the country's competitiveness. Malaysia also has to compete with other countries for Malaysians who are now employed outside the country in key economic areas such as oil and gas (O&G), finance, ICT and healthcare.

A similar pattern emerges in this comparison with benchmark countries in terms of employee training. Malaysia was ranked 4th just behind Japan (3rd) but ahead of Singapore (17th) and Korea (22nd). To standardise and ensure the quality of its skilled workers, the government introduced the Malaysian Skills Certification System covering 29 industries. In addition, 91,000 trainees have undergone training through the Human Resource Development Fund (HRDF) and Skill Development Fund Corp (SDFC) in 2012.

While Malaysia's performance within the areas of skills availability, attracting and retaining talent and training is commendable, it did not perform so well in terms of higher education. The country was ranked 32nd in WCY 2014 behind Singapore (1st), Korea (2nd) and Japan (4th). Malaysia needs to increase the percentage of its tertiary-educated population to provide investors a knowledgeable and competitive workforce that will support the country's journey towards becoming a high income nation. Only 30.9% of Malaysia's population aged between 25-34 years have had a tertiary education compared to Japan (59.0%), Korea (64.0%) and Singapore (72.0%).

In INSEAD's Global Talent Competitiveness Index 2013 (Table 3.2), Malaysia was ranked 37th out of 103 countries. The country scored a wide distribution of rankings across the six pillars in GTCI 2013 namely Enablers (23rd), Labour and Vocational (26th), Grow (31st), Retain (48th), Attract (50th) and Global Knowledge (56th). The Labour

Table 3.1: Indicators for the Quality of a Country's Workforce, Malaysia vs Selected Benchmark Economies

Indicators	Malaysia		Japan		Singapore		Korea	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Skilled labour *is readily available*	6	6.95	29	5.78	36	5.46	32	5.74
Attracting and retaining talents *is a priority in companies*	13	7.46	7	7.67	14	7.44	12	7.48
Employee training *is a high priority in companies*	4	7.71	3	7.78	17	6.30	22	6.00
Higher education achievement (%) Percentage of population that has attained at least tertiary education for persons 25-34 years	32	30.94	4	59.00	1	72.00	2	64.00

Source: World Competitiveness Yearbook, 2014
Note: Statements in italics indicate Survey Data

Table 3.2: Indicators for Talent Competitiveness, Malaysia vs Selected Benchmark Economies

Indicators	Malaysia		Japan		Singapore		Korea	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Tertiary educated workforce	51	37.4	17	68.1	5	86.8	7	80.4
Technical/Vocational enrolment	71	13.1	54	24.9	56	24.4	53	24.9
Extent of staff training	7	69.9	5	71.3	3	72.1	34	54.3

Source: Global Talent Competitiveness Index 2013

and Vocational, Global Knowledge and Grow pillars are associated with the quality of labour.

In comparison with the three countries selected for this benchmark, the composition of the tertiary educated workforces of Singapore (5th), Korea (7th) and Japan (17th) all ranked higher than Malaysia (51st) in GTCI 2013. Malaysia also lagged in terms of technical and vocational enrolment, coming in 71st place compared to Singapore (56th), Japan (54th) and Korea (53rd). When it comes to staff training, however, Malaysia was ranked a respectable 7th compared to Singapore (3rd), Japan (5th) and Korea (34th).

When it comes to staff training, Malaysia was ranked a respectable 7th compared to Singapore (3rd), Japan (5th) and Korea (34th).

The results of the international studies of WCY 2014 and GTCI 2013 both indicate that much needs to be done to bridge the gap between Malaysia and the benchmark economies. A higher-educated workforce is able to generate higher value-added economic activities and promotes a prosperous nation. A better-educated workforce also has a better grasp of critical and creative thinking skills and is able to adapt to changes in technology and innovation more quickly.

The quality of labour may also be enhanced by increasing enrolment in technical and vocational training. In 2013, the number of vocational students in Malaysia comprised only 10% of upper secondary students. This is a relatively low proportion compared to the OECD average of 44%. Thailand (40%) and Indonesia (50%) both have a much higher percentage of students enrolled in Technical Education and Vocational Training (TEVT) programmes. Increasing the emphasis of TEVT programmes in schools will provide the country with a much larger pool of skilled labour.

BUILDING A QUALITY WORKFORCE

Malaysia's performance in enhancing the quality of labour of its workforce is influenced by various factors including labour market flexibility, wage flexibility, skills, training and the capacity to retain talent. The Global Talent Competitiveness Index 2013 reveals several opportunities for improvement in these areas.

Labour Market Flexibility

Malaysia was placed 14th overall in terms of the ability of its labour market to respond to changes in market conditions, including changes in the demand for labour and the wage rate. Malaysia must sustain its efforts to allow market forces to determine wages and establish the conditions of hiring and firing with minimal government intervention.

Skills and Training

Better skills and training enable workers to exploit their talents and abilities and produces higher quality labour. Malaysia was ranked an impressive 7th overall for its efforts at ensuring that its workforce has access to suitable training and upskilling opportunities. The country must continue to nurture a new generation of well-educated workers who are able to perform complex tasks and adapt rapidly to changing environments.

Higher Skills and Competencies

A higher percentage of professionals and knowledge workers with tertiary education will lead to a higher skilled workforce and competencies. Malaysia ranked 57th for its proportion of educated workers, and must intensify its efforts to ensure that all Malaysians have access to quality education opportunities.

Capacity to Attract and Retain Talent

The availability of labour and vocational skills as well as global knowledge skills are crucial elements to do well in today's talent economy. Malaysia came in 18th place for its efforts to foster and develop locally available talent. The country must continue to make its labour markets more flexible and promote geographical mobility in order to attract and retain the talent it needs.

Wage Flexibility

A key element of labour market flexibility is the ability for wages to adjust to bring about equilibrium between demand and supply. This includes the relationship of pay to productivity, whereby more productive workers get higher wages. Malaysia's minimum wage order has not impaired the country's wage flexibility so far, and it was ranked 2nd overall for its ability to maintain a high coefficient between pay and productivity.

Lifelong Learning

Lifelong education has a positive impact on employees' job performance and competitive mindset. Malaysia was ranked 12th for its ability to promote and facilitate continued education opportunities. The country must sustain its drive towards cultivating a culture of lifelong learning among the rakyat so as to improve the country's overall competitiveness.

BOOSTING PRODUCTIVITY

To enhance competitiveness through the quality of its labour, Malaysia has established a workforce development system with institutionalised arrangements for funding, standards and delivery through a large network of public institutions and a vibrant private sector. However, the system must improve its effectiveness and efficiency by offering more comprehensive solutions to the challenges faced by the country and its business community. Funding must be rationalised for Continuing Vocational Education Training (CVET), and the system must be aligned with industry needs. Programmes should be evaluated in terms of output (the number of people trained) rather than input (the costs involved). It must also increase participants' access to a wider range of training options.

In comparing the best practices of enhancing labour quality among selected top performing countries such as Singapore, Hong Kong and Japan (Table 3.3), it may be noted that both Singapore and Hong Kong have numerous fiscal incentives in place to increase productivity and labour force participation. In Singapore, businesses are encouraged to make greater investments in productivity-enhancing technologies and intellectual property, while in Hong Kong, companies are encouraged to take advantage of the country's older and younger workforce as well as its disabled population. Malaysia should likewise consider increasing the availability of incentives for businesses to either invest in new technologies or to employ Malaysians instead of foreign labour.

In comparing Malaysia's initiatives with Singapore and Hong Kong, it may also be observed that Malaysia has comprehensive programmes in place to develop its human capital. Most of the programmes are focused on attracting quality talent back from abroad, such as the Brain Gain Malaysia programme, Residence Pass-Talent programme and Returning Expert Programme. When it comes to nurturing locally-available talent, the country's current placement efforts are centred on selected large enterprises and government-linked companies. In comparison, Singapore is concentrating its efforts on channelling its talent towards small and medium businesses (SMBs), while Hong Kong is concentrating on increasing the participation of under-utilised human capital in the workforce (the disabled, young or middle-aged).

Based on the analysis of Bank Negara and the World Bank, the introduction of Malaysia's Minimum Wage Order should yield productivity gains in the years ahead.

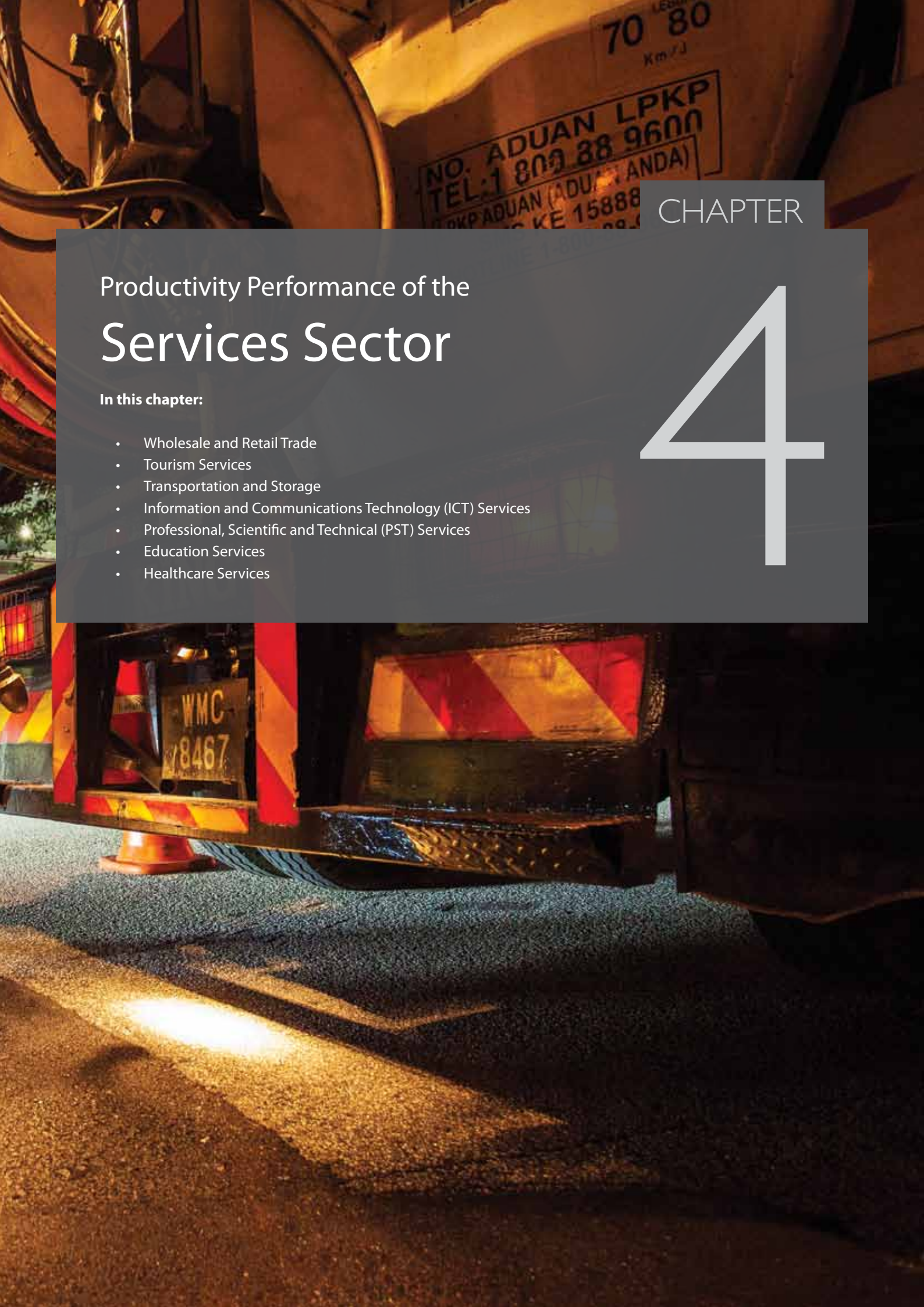
When it comes to wages, Malaysia's initiatives are in line with those of Hong Kong, where a Statutory Minimum Wage (SMW) was introduced in 2011. Based on the analysis of Bank Negara and the World Bank, the introduction of Malaysia's Minimum Wage Order in 2013 should yield productivity gains in the years ahead. Singapore has no minimum wage requirement.

Table 3.3: Productivity Initiatives, Malaysia vs Selected Benchmark Economies

	Malaysia	Singapore
Incentives	• The **1 Malaysia Training Scheme (SL1M)** provides soft-skills training and on-job-training to underprivileged graduates. • Eligible companies are entitled to a double tax deduction on training fees and a monthly allowance of not less than RM1,000 to underprivileged graduates. The total deduction is capped at RM5,000 per year of assessment.	• The **Productivity and Innovation Credit (PIC)** scheme entitles eligible firms to significant tax deductions for investments in a broad range of activities. • The **Partnerships for Capability Transformation (PACT) Scheme** and the **Intellectual Property (IP) Financing Scheme** aims to foster growth among knowledge-intensive, asset-light SMEs. • **3-Year Transition Support Package** to help domestic firms, particularly SMEs.
Human Capital	• Initiatives under **TalentCorp** such as the Residence Pass-Talent (RP-T) initiative, the Returning Expert Programme (REP) and the new Scholarship Talent Attraction and Retention (STAR) programme. • The **Brain Gain Malaysia (BGM)** programme is a collaboration among researchers, scientists, engineers and technologists with institutions of higher learning, research institutes and industries in Malaysia. The programme aims to fast-track Malaysia's transition to an innovation-led economy. • The **Human Capital Development (HCD) Strategic Reform Initiative (SRI)** is aimed at enhancing human capital capabilities to support the execution of all 12 National Key Economic Areas (NKEAs). HCD comprises a two-pronged transformation approach involving both workplace transformation and workforce transformation.	• The **SME Talent Programme** provides awards to encourage polytechnics and students of the Institute of Technical Education (ITE) to work in SMEs upon graduation. • The Singapore government has made a commitment to improve the accessibility of support schemes for SMEs.
Wages	• Malaysia's **Minimum Wage** policy sets a minimum salary of RM900 for workers in Peninsular Malaysia and RM800 for workers in Sabah and Sarawak. • The policy will have a positive impact on the Malaysian economy, and the impact on business costs will be mitigated by improvements in productivity.	• Singapore introduced the **Wage Credit Scheme (WCS)** in which the government will co-fund 40% of wage increases for low-income Singaporeans.

Hong Kong	Japan
• Allowance payable to employers under the **Youth Preemployment Training Programme (YPTP)**, the **Youth Work Experience and Training Scheme (YWETS)**, the **Employment Programme for the Middle-aged (EPM)** and the **Work Orientation and Placement Scheme (WOPS)**.	Establishing a **Special Zone for Asian Headquarters** to attract foreign companies to Tokyo, with the aim to make Tokyo the preferred site for regional headquarters and R&D centres in the Asian region.
• The **Employees Retraining Board (ERB)** provides training and retraining services to promote the employability of local employees and to maintain the economic competitiveness of Hong Kong. • The Hong Kong government is securing a long-term financial arrangement for ERB as a long-term commitment to enhance the productivity of the local workforce.	Four Basic Plans for **Human Resources Development**: enhancing the labour market infrastructure, supporting sustainable career development throughout workers' lives, promoting Human Resources Development and improving "on-field excellence" and skills inheritance.
• The **Statutory Minimum Wage (SMW)** was revised from HK$28 per hour to HK$30 per hour. • The monetary cap on the requirement of employers keeping records of the total number of hours worked by employees was also revised from HK$11,500 per month to HK$12,300 per month.	• The **Seniority Wage System** offers workers a strong incentive to remain with their first employer. • **Regional Minimum Hourly Wages**. In Japan, the minimum wage depends on the industry and the region.


Tower



CHAPTER

4

Productivity Performance of the Services Sector

In this chapter:

- Wholesale and Retail Trade
- Tourism Services
- Transportation and Storage
- Information and Communications Technology (ICT) Services
- Professional, Scientific and Technical (PST) Services
- Education Services
- Healthcare Services

PRODUCTIVITY PERFORMANCE OF THE SERVICES SECTOR

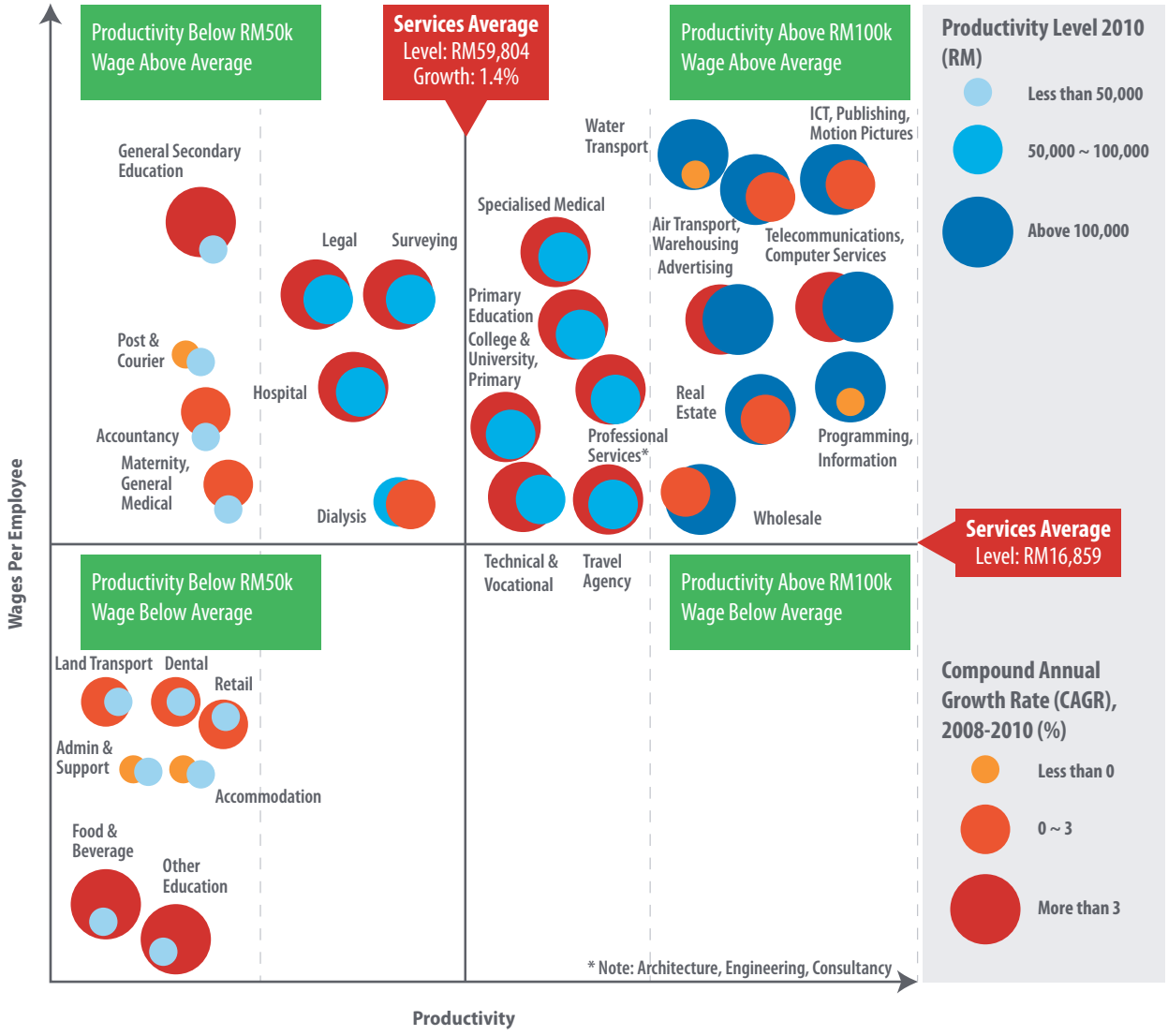
The services sector registered healthy growth in productivity in 2013 thanks to double-digit performances by the utilities and ICT sub-sectors. Nonetheless, the sector's contribution to economic growth appears to have stagnated. More needs to be done to address the sector's weaknesses in key areas such as talent and competitiveness. ▶▶▶

Productivity in the services sector improved significantly in 2013, rising 4.8% compared to 1.8% in 2012. Most sub-sectors recorded higher productivity growth except for accommodation and food services.

The services sector remains the main economic growth driver of the country, contributing 46.9% to GDP in 2013 (excluding government services) and employing 44.5% of the country's total workforce. However, most services sub-sectors have the potential to further accelerate economic growth, especially through domestic economic activities. Under the Economic Transformation Programme (ETP), seven sub-sectors have been identified as NKEAs (financial services, wholesale and retail trade, tourism, business services, communications content and infrastructure, education and healthcare).

Besides NKEAs, analyses on productivity against wage rates indicate that several focus industries have the potential to further improve their productivity performance (Figure 4.1). There is room for improvement in both accommodation services and administrative support services, while the

Figure 4.1: Services Productivity and Wage Performance by Level and Growth



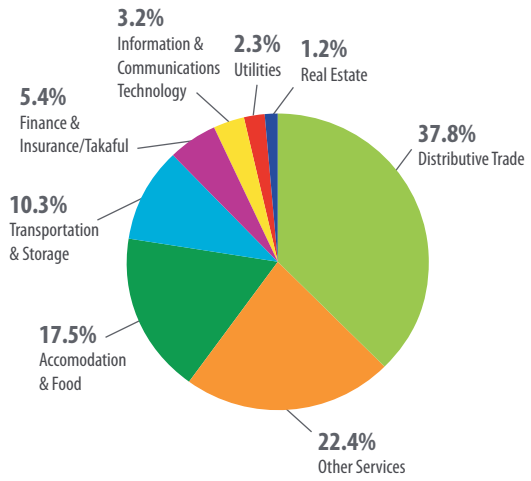
Computed from: Department of Statistics, Malaysia

telecommunications, computer services and advertising sub-sectors all recorded high growth in wages and productivity. Most of the education sub-sector experienced good productivity growth. However, the general secondary education and other education industries still lag in terms of productivity levels. The post and courier, accountancy, maternity and general medical industries also hold potential for further growth.

Overall, the services sector employed 5.8 million people in 2013, making it Malaysia's largest employer. However, most employees are still in traditional service industries associated with low wages and low productivity such as distributive trade (2.2 million employees) and accommodation and food services (one million employees) (Figure 4.2).

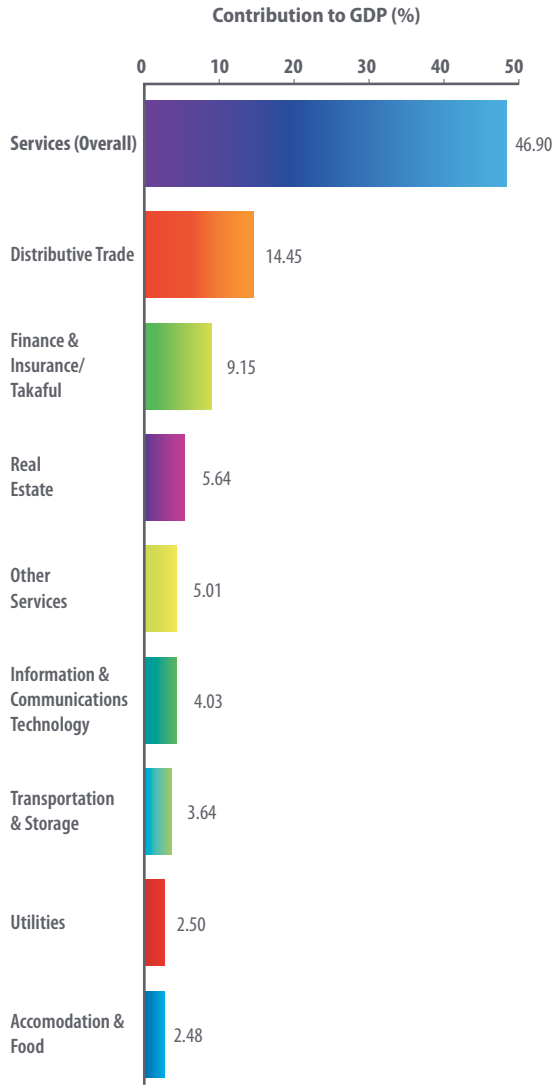
The services sector accounted for 46.9% of the country's GDP in 2013, making it Malaysia's most dominant economic sector. However, the sector's contribution to GDP has hovered around the 46% mark for the past five years, indicating that more needs to be done to

Figure 4.2: Distribution of Employment Within the Services Sector, 2013



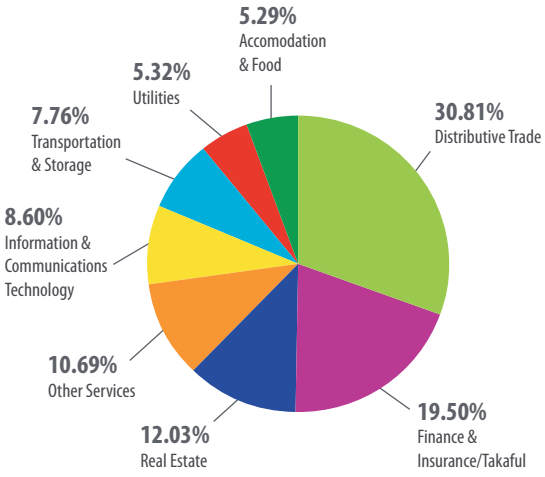
Source: Department of Statistics, Malaysia

Figure 4.3: Contribution of the Services Sector to GDP, 2013



Source: Department of Statistics, Malaysia

Figure 4.4: Output Contribution of Sub-Sectors to the Services Sector, 2013



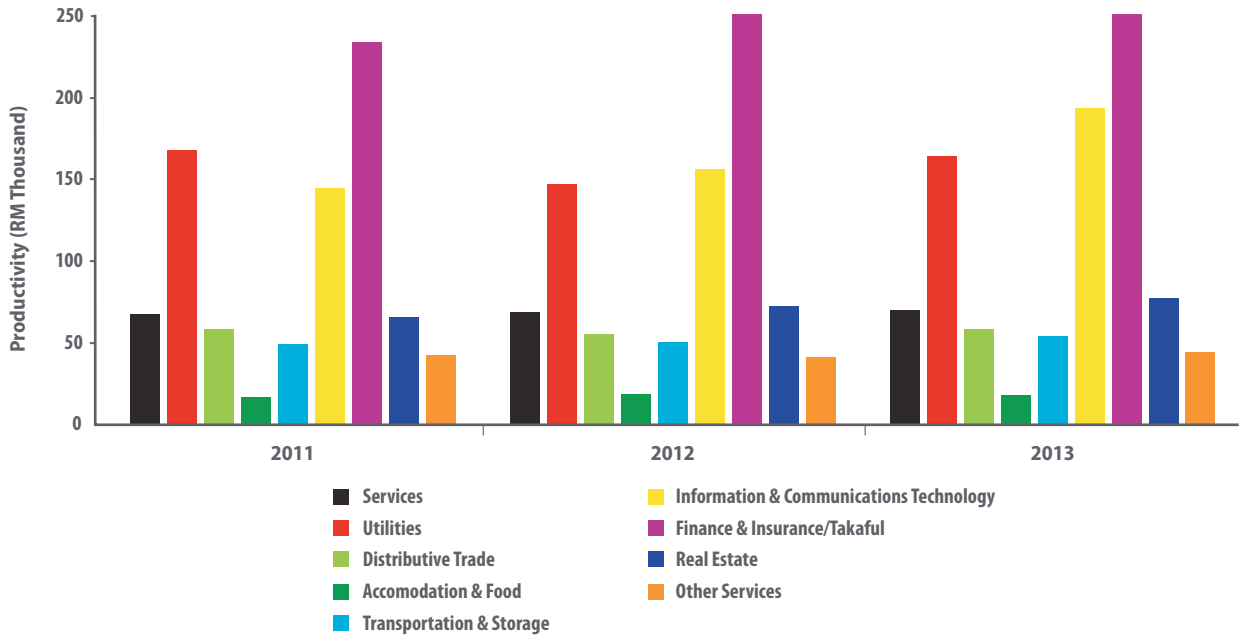
Source: Department of Statistics, Malaysia

push the sector towards the 70% mark that is the norm among high-income economies. Distributive trade is the largest contributing sub-sector (14.5% to GDP) followed by finance and insurance (9.2%) and real estate (5.6%) (Figure 4.3).

In terms of output contribution, distributive trade accounted for the largest share of the sector's output at 30.8%. Finance and insurance remained the second largest contributor (19.5%) followed by real estate (12%) (Figure 4.4).

Output in the services sector grew by a moderate 5.5% compared to 5.9% in 2012. The highest growth was recorded in the information and communications sub-sector (10%) followed by real estate (7.4%), distributive trade (6.4%) and accommodation and food services (5.7%) (Table 4.1).

Figure 4.5: Productivity Level of the Services Sector, 2011-2013



Computed from: Department of Statistics, Malaysia

The high output growth in the information and communications sub-sector was largely due to the increased consumption of data and broadband services within the cellular market segment. Growth in the real estate sub-sector was supported by the high-end property market, while strong household spending and more active domestic tourism activities contributed to growth in distributive trade, accommodation and food services.

Productivity Performance

Productivity within the services sector improved significantly in 2013, growing by 4.8% to RM63,753 per person employed compared with RM60,848 per person in 2012 (Figure 4.5 and Table 4.2). All sub-sectors registered higher productivity levels in 2013 except for accommodation and food services.

Productivity growth within the various sub-sectors ranged from -0.05% to 23.3% in 2013. The information and communications technology (ICT) and utilities sub-sectors both recorded double digit productivity growth, with the ICT sub-sector registering a rise in productivity of 23.3% to RM169,904 per person employed and the utilities sector registering an increase of 10.7% to RM146,530 per person. The ICT sub-sector registered the highest productivity growth largely due to the

Table 4.1: Output Growth of the Services Sector 2010-2012

Sub-Sectors of Services	2012 (%)	2013 (%)
Services	5.94	5.45
Utility	4.31	4.09
Distributive Trade	4.75	6.40
Accommodation & Food Services	5.44	5.73
Transportation & Storage	4.93	4.64
Information and Communications Technology (ICT)	9.15	10.01
Finance & Insurance/Takaful	7.84	1.79
Real Estate	7.18	7.42
Other Services	3.91	5.14

Computed from: Department of Statistics, Malaysia

continuous expansion of cellular data and broadband services within the telecommunications industry. Growth in the utilities sub-sector was driven by higher electricity consumption within the industrial, commercial and mining segments. Industrial consumption of water and gas utilities also increased significantly in 2013. The transportation and storage sub-sector also experienced significant growth in productivity (9.67% to RM48,077 per person) thanks to a surge in demand for land transport services due to increased domestic economic activity.

The Way Forward

Among the high-income economies in the Organization for Economic Cooperation and Development (OECD), the services sector typically accounts for about 70% of the GDP of member nations. In the USA, the sector accounts for about 75% of GDP. Clearly, Malaysia must work harder at increasing the contribution of its services sector to the economy to be at par with the world's high-income nations.

Besides implementing the New Economic Model (NEM), government Transformation Programme (GTP) and National Key Economic Areas (NKEAs), there is an urgent need to leverage Malaysia's strengths in internationally-tradable services that will be subject to greater competition intensity. This will encourage firms to be more efficient and cost-effective in order to protect and increase their market shares in a competitive operating environment. For example: India has become the world's leading exporter of information and communications technology-business process outsourcing (ICT-BPO) services by concentrating on a few internationally-tradable services such as software programming and customer help services rather than the services sector as a whole. Malaysia should capitalise on its own strengths and focus on creating niche tradable services with halal appeal within the financial services, tourism, healthcare and education sub-sectors.

Transforming Malaysia into a high-income economy will mean transforming the services sector. It must move away from investing too much time and energy into traditional services such as distributive trade and accommodation and focus instead on modern, high-growth services such as finance, information and communications technology and business services that offer higher productivity potential and which generate higher wages. It should also move away from personal services to more information-intensive services that have the potential to grow rapidly and successfully.

Table 4.2: Productivity Growth of the Services Sector, 2011-2013

Sub-Sector	2011 (%)	2012 (%)	2013 (%)
Services	-0.21	1.76	4.77
Utilities	3.20	-10.41	10.69
Distributive Trade	1.09	-1.01	2.93
Accommodation & Food Service	-3.60	3.81	-0.05
Transportion & Storage	-3.41	1.77	9.67
Information and Communications Technology (ICT)	-7.27	8.32	23.27
Finance & Insurance/ Takaful	8.77	6.07	5.69
Real Estate	-0.68	7.96	7.37
Other Services	2.92	-2.60	7.26

Computed from: Department of Statistics, Malaysia

The following sections analyse the productivity performance of the sub-sectors of wholesale and retail trade services, tourism services, transportation and storage services, ICT services, professional, scientific and technical (PST) services, private education services and healthcare services.

WHOLESALE AND RETAIL TRADE SERVICES

Productivity in the wholesale and retail trade sub-sector expanded by 3% to RM76,474 per person employed in 2013. The sub-sector contributed 14.4% to the Malaysia's GDP and employed 1.4 million people, or about 16.8% of the country's total workforce.

The wholesale and retail industry has been identified as one of the National Key Economic Areas (NKEAs). In terms of economic contribution, the added value of the

wholesale industry is higher than the retail industry. In addition, the wholesale industry is large and equipped with efficient management tools and modern ICT systems that allow it to maximise productivity. The retail industry has also invested heavily in technology and has adopted ICT in their business operations. These investments may be observed in large supermarkets, superstores, hypermarkets, department stores and larger speciality stores.

Industry Snapshot

- Wholesale and retail trade establishments increased at a rate of 4.9% and 3.1% respectively in 2013. The liberalisation of the sub-sector has attracted greater foreign competition. There are now 189 foreign hypermarkets, superstores and departmental stores in Malaysia.

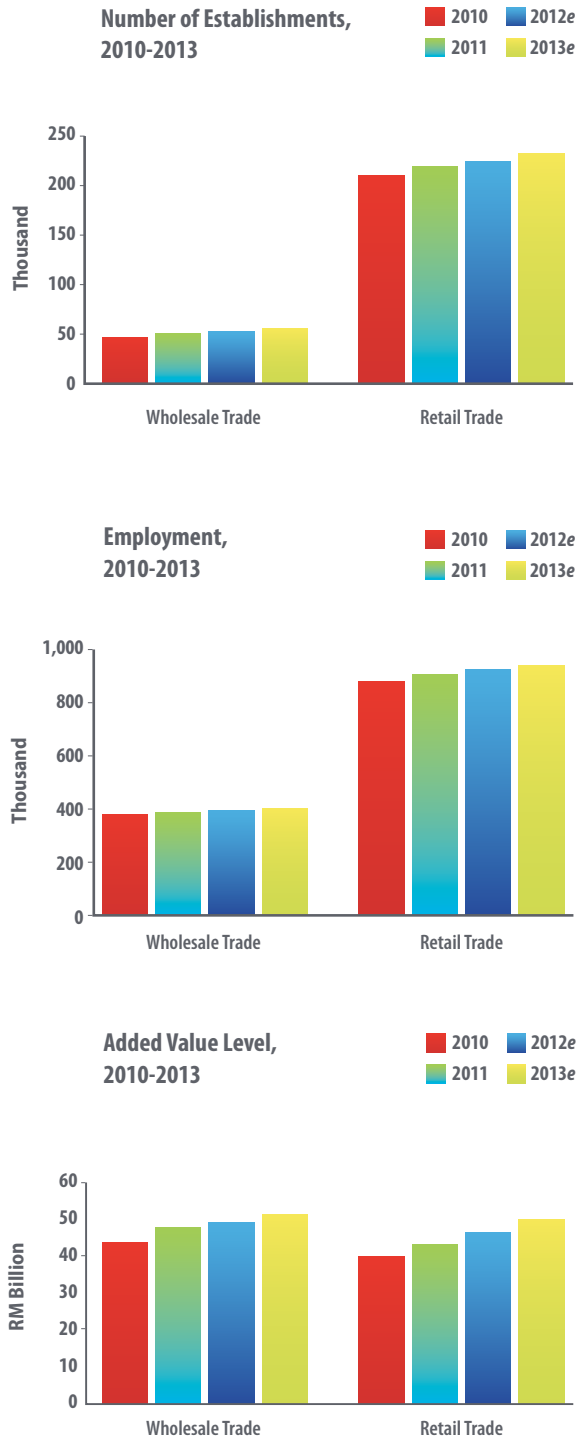
- Retail trade establishments have benefited from the Small Retailer Transformation Programme (TUKAR) which modernises traditional retail shops and increases their level of competitiveness. Retail trade is a key driver of domestic consumption, which will spur economic growth.

- Wholesale and retail trade employed 1.4 million workers in 2013. Employment in wholesale trade grew at 2.1%, only slightly lower than the rate of employment growth in retail trade at 2.7%.

- A larger number of employees are attracted to retail trade due to the nature of the work, particularly in superstores. Departmental stores and supermarkets still depend very much on labour input as labour-saving technology is still not yet widely used.

- In 2013, the added value of wholesale and retail trade was RM52.3 billion and RM51.2 billion respectively. In terms of added value growth, retail trade registered higher growth at 7.7% compared to 3.9% by wholesale trade.

Figure 4.6: Snapshot of the Wholesale and Retail Trade Sub-Sector, 2010-2013



Computed from: i) Census of Distributive Trade, Various Years, Department of Statistics, Malaysia
ii) Quarterly Distributive Trade Statistics, Department of Statistics, Malaysia
Note: *e* - Estimate

- The strong growth in added value may be attributed to strong household spending and also the establishment of several Rural Transformation Centres (RTCs) and Urban Transformation Centres (UTCs) that create demand for domestic products and increase consumption benefitting small retailers in both urban and rural areas.

Productivity Performance

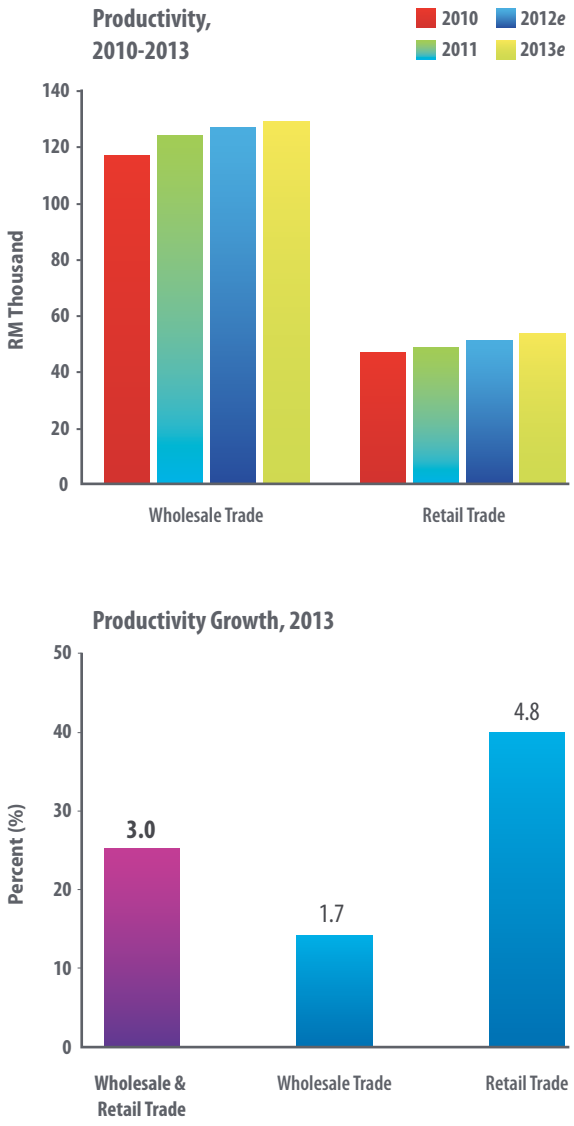
In 2013, productivity growth was slower in the wholesale and retail trade sub-sector at 3% (RM76,474 per person employed) compared to 4.1% in 2012. Productivity in the wholesale trade industry stood at RM128,721 per person, which was higher than retail trade at RM54,053 per person (Figure 4.7). However, productivity growth was lower in the wholesale trade industry at 1.7% compared to 4.8% in the retail trade industry.

The high productivity growth experienced by the retail trade industry was due to the ability of small local retailers to adjust their business models to offer different business formats to serve their respective target markets. These efforts raised customer satisfaction and helped improve productivity. In addition, the continuous initiatives of the government to boost consumer spending such as the BR1M scheme and book vouchers helped boost sales in bookstores nationwide. The salary hike for civil servants also increased disposable incomes among Malaysians.

However, the sub-sector nonetheless experienced an unfavourable decline in labour cost competitiveness in 2013 as wage rates grew by 4.9% and unit labour costs grew by 1.3% in 2013 (Figure 4.8). The increase in wage rates and unit labour costs diminished any gains made by the sub-sector's productivity growth rate of 3%.

Unit labour costs rose in both the wholesale and retail trade industries by 0.6% and 1.3% respectively in 2013. As with all labour-intensive industries, the employment of low-skilled workers has seriously undermined the labour cost competitiveness of these industries.

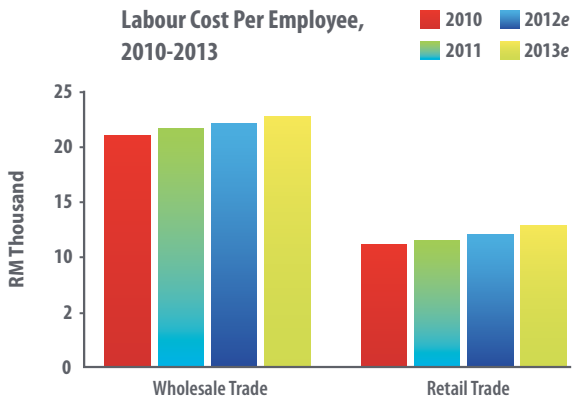
Figure 4.7: Productivity Within the Wholesale and Retail Trade Sub-Sector, 2010-2013

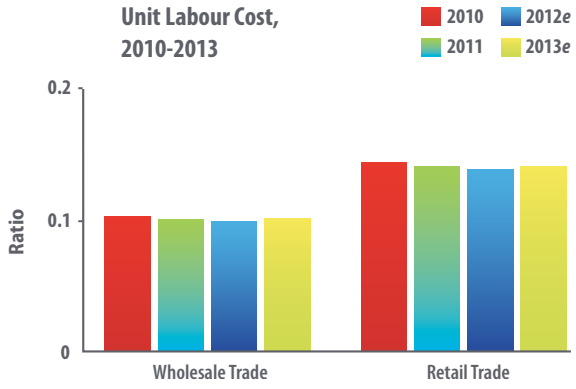


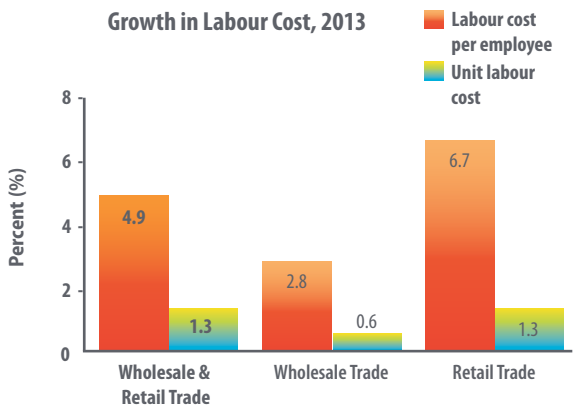
Computed from: i) Census of Distributive Trade, Various Years, Department of Statistics, Malaysia
ii) Quarterly Distributive Trade Statistics, Department of Statistics, Malaysia
Note: *e* - Estimate

Capital productivity grew 1.9% in this sub-sector in 2013, with both retail trade and wholesale trade recording increases in capital productivity of 2.6% and 1.2% respectively. The modernisation and focus on high-end market segments within retail trade resulted in added value increasing by 7.7% (Figure 4.9).

Figure 4.8: Labour Cost Competitiveness, 2010-2013

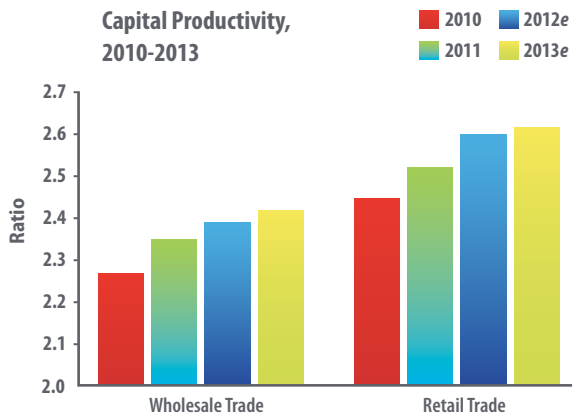


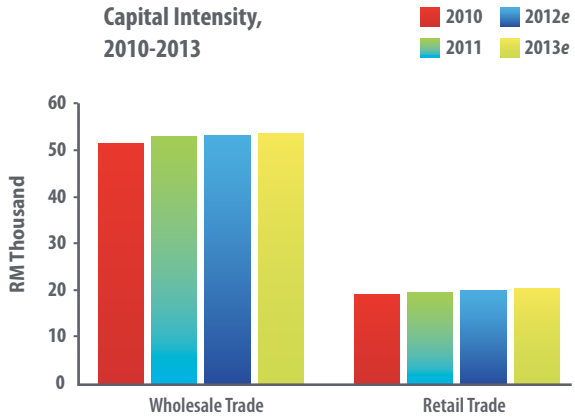


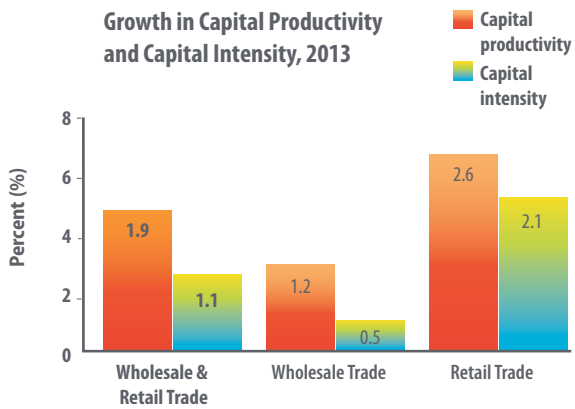


Computed from: i) Census of Distributive Trade, Various Years, Department of Statistics, Malaysia
ii) Quarterly Distributive Trade Statistics, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 4.9: Capital Productivity and Capital Intensity, 2010-2013







Computed from: i) Census of Distributive Trade, Various Years, Department of Statistics, Malaysia
ii) Quarterly Distributive Trade Statistics, Department of Statistics, Malaysia
Note: *e* - Estimate

Investments in fixed assets within both the wholesale and retail industries have slowed since 2010. Both industries experienced lower growth in capital intensity of 0.5% and 2.1% respectively in 2013. Industry players also tend to focus their investments on making structural improvements to their businesses by refurbishing existing stores and introducing new products and services rather than investing into labour-saving or productivity-enhancing tools or systems.

Issues and Challenges

Malaysia's wholesale and retail trade sub-sector is focused on the domestic market and its performance relies on the disposable incomes and purchasing power of Malaysians. The main challenges faced by this sub-sector are the rising costs of living and higher borrowing costs for Malaysians, both of which reduce consumer spending. Many retailers are forced to offer attractive discounts in order to lure shoppers into their stores, which can adversely affect profit margins.

This sub-sector comprises of foreign players such as Tesco, Giant and AEON BIG as well as local players such as Mydin and Econsave. In order to remain competitive, both local and foreign players are trying to accelerate the production of their own brands and target specific market segments within their respective business models.

In order to remain competitive, both local and foreign players are trying to accelerate the production of their own brands and target specific market segments within their respective business models.

In comparison to other service industries in Malaysia, the wholesale and retail trade sub-sector is currently very labour intensive. It should leverage on labour-saving information and communications technology systems and seek more efficient logistics solutions that can reduce costs and boost profit margins. For example: the retail industry could provide online grocery delivery services as an easy, quick and convenient service for the elderly

and disabled as well as busy urbanites. This is a popular practice and has been successfully implemented in many developed countries. Another example is best illustrated by Tesco's virtual supermarket in subway stations in Seoul, South Korea. The virtual mart allows customers to scan a product with their smartphone and have it delivered to their door right after they get home. The virtual store helped increase Tesco's online sales in South Korea by 130%.

TOURISM SERVICES

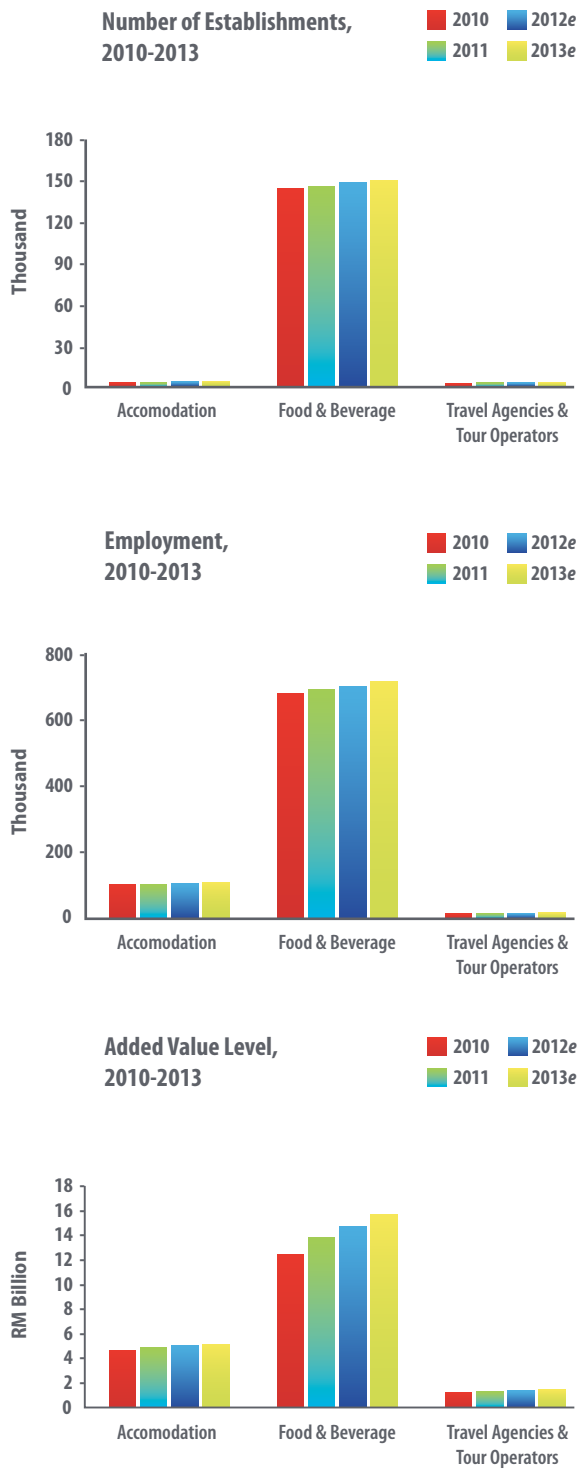
Productivity in the tourism services sub-sector rose by 3.3% in 2013. The Travel and Tourism Competitiveness Report 2013 published by the World Economic Forum (WEF) ranked Malaysia 34th out of 140 countries overall, citing that the country benefits from its rich natural and cultural resources. In terms of costs, Malaysia emerged as the fifth most competitive country in the report with comparatively low fuel prices, low ticket taxes and airport charges, competitive hotel prices and a favourable tax regime.

A total of 25.7 million tourists visited Malaysia in 2013, bringing in RM65.4 billion in tourist revenues. Most tourists came from Singapore (13.2 million) followed by Indonesia (2.6 million), Brunei (1.3 million), Thailand (1.2 million) and the Philippines (0.6 million). There were also 29.9 million Malaysian tourists in 2013 compared to 27.7 million in 2012. This sub-sector employed more than 800,000 workers in 2013.

Industry Snapshot

- The number of establishments in the tourism services sub-sector increased by 1.3% to 157,121 in 2013 from 155,088 in 2012.
- The accommodation industry experienced the highest growth of 3.1%, followed by travel agencies and tour operators (2.7%) and food and beverage service providers (1.3%).
- Continuous increases in tourist arrivals as well as domestic tourism activities have spurred demand for accommodation.
- Employment in the tourism services sub-sector grew by 2.3% to 855,158 in 2013. The highest growth came from food and beverages (2.4%) followed by travel agencies and tour operators (2.1%) and accommodation (1.7%).
- The marginal increase in employment growth reflects the subdued interest to participate in this industry among local and hospitality graduates due to long working hours and low wages.
- Tourism services registered added value growth of 5.7% to RM22.6 billion in 2013 from RM21.4 billion in 2012.
- The highest added value growth was recorded by the food and beverages industry at 6.6% followed by travel agencies and tour operators (4.1%) and accommodation services (3.3%).

Figure 4.10: Snapshot of the Tourism Services Sub-Sector, 2010-2013



Computed from: i) Economic Census 2011, Accommodation Services, Department of Statistics, Malaysia;
ii) Economic Census 2011, Food and Beverage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

- Malaysia's population is in the middle-to-high income group with a growing purchasing power. Changing lifestyles and growing disposable incomes means that many Malaysian's prefer to dine out when possible.

Productivity Performance

The productivity of the tourism services sub-sector increased by 3.3% to RM26,405 per person employed in 2013 from RM25,564 per person in 2012. Productivity was highest in the travel agencies and tour operators industry (RM72,165 per person) followed by accommodation (RM46,530 per person) and food and beverages (RM21,863 per person) (Figure 4.11).

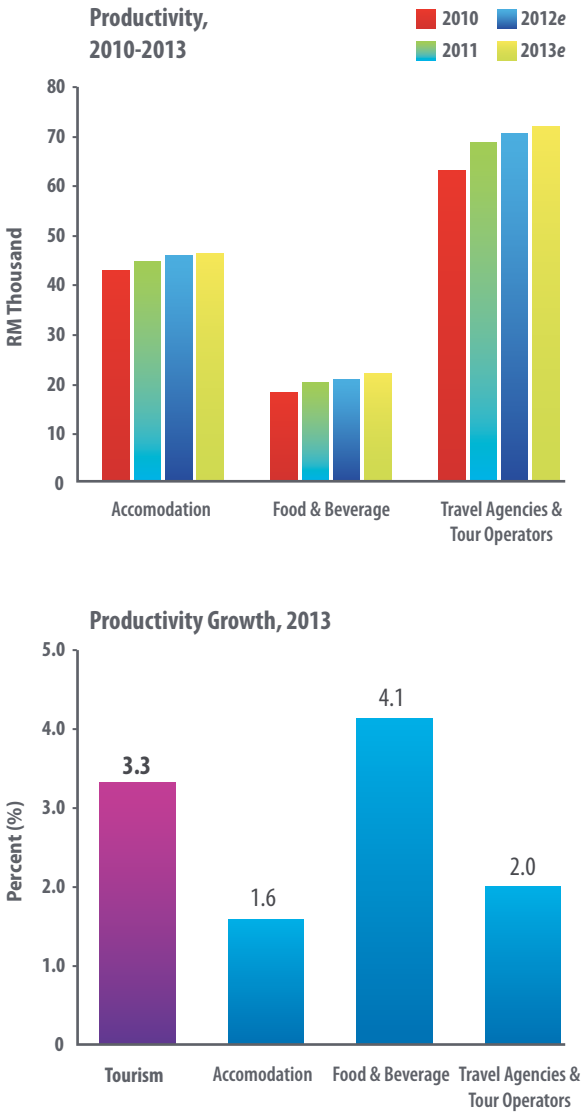
The high productivity level achieved by travel agencies and tour operators may be attributed to the industry's improved ability to offer better service standards and its continued adoption of ICT in daily operations. Increased leisure time among Malaysians, improvements in local transportation systems and growing disposable incomes have also made it more feasible for Malaysians to travel more frequently.

In terms of productivity growth, the food and beverages industry recorded the biggest improvement (4.1%) followed by travel agencies and tour operators (2%) and the accommodation industry (1.6%). The high growth in productivity within the food and beverages industry was due the rising popularity of franchise operators. Strong domestic consumption patterns during festive and holiday seasons as well as increased tourism activities also helped contribute to the growth in productivity within this industry.

The sub-sector remains quite competitive as its 3.3% productivity growth exceeded its growth in labour costs per employee of 2.6%. Unit labour costs have also declined by 1.6% (Figure 4.12) due to improvements in service delivery coupled with enhancements in technology utilisation.

On average, employees among travel agencies and tour operators received the highest remuneration packages

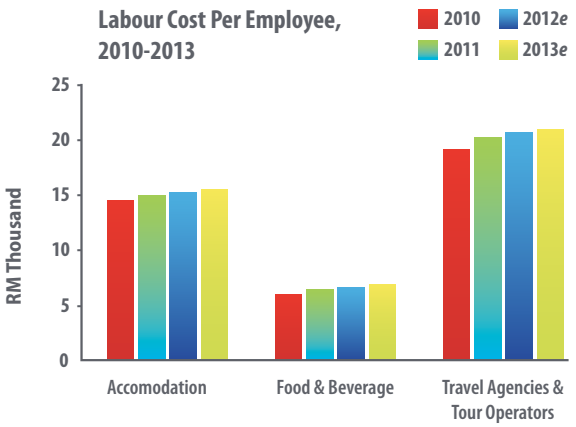
Figure 4.11: Productivity Within the Tourism Services Sub-Sector, 2010-2013

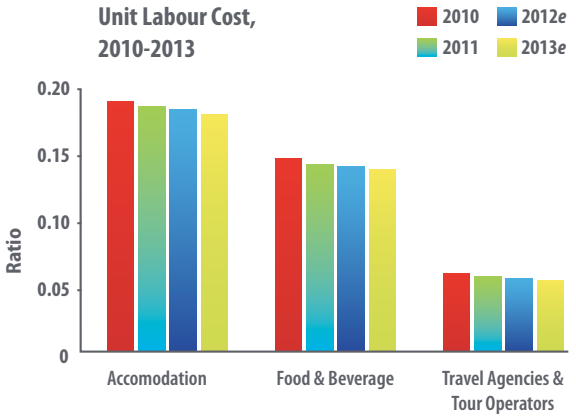


Computed from: i) Economic Census 2011, Accommodation Services, Department of Statistics, Malaysia;
ii) Economic Census 2011, Food and Beverage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

in this sub-sector (RM1,748 per month) followed by accommodation (RM1,284 per month) and food and beverage (RM572 per month). The recruitment of more skilled and experienced workers by travel agencies and tour operators make it the best-paying industry in this sub-sector.

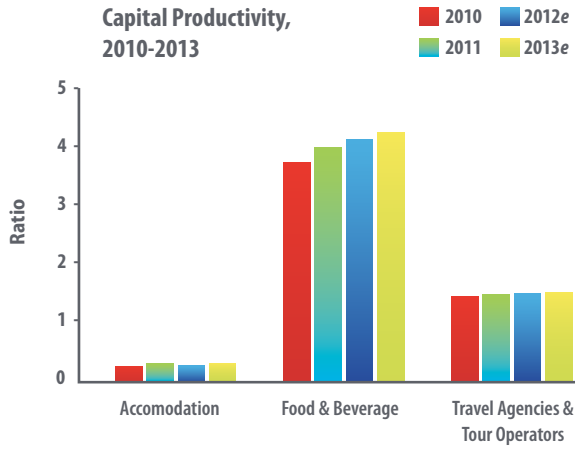
Figure 4.12: Labour Cost Competitiveness, 2010-2013

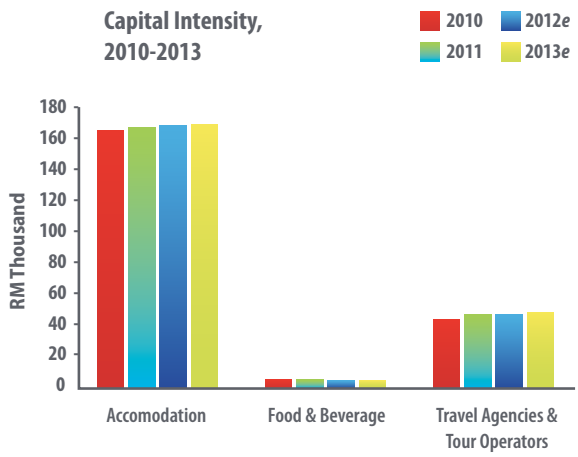


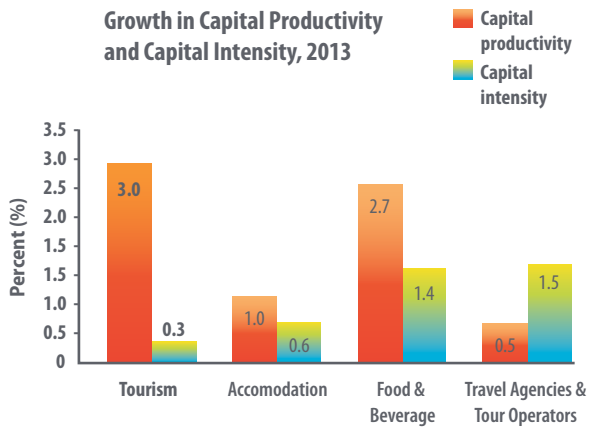


Computed from: i) Economic Census 2011, Accommodation Services, Department of Statistics, Malaysia;
ii) Economic Census 2011, Food and Beverage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 4.13: Capital Productivity and Capital Intensity, 2010-2013







Computed from: i) Economic Census 2011, Accommodation Services, Department of Statistics, Malaysia;
ii) Economic Census 2011, Food and Beverage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Capital productivity in the tourism services sub-sector increased by 3% in 2013 while capital intensity grew by 0.3%. Capital productivity growth was highest in the food and beverages industry (2.7%) due to the increase in the number of new establishments, followed by accommodation (1%) and travel agencies and tour operators (0.5%). The marginal growth in capital intensity of 0.3% indicates that this sub-sector is still very much dependent on labour (Figure 4.13).

Issues and Challenges

Malaysia should embark on a journey towards service excellence at a national level in order to develop a customer-oriented culture. This is important to ensure that Malaysia stays among the world's top tourist destinations.

The country should also focus on improving yield-per-tourist rather than rely on increasing the number of tourist arrivals. It should concentrate its efforts on organising international Meeting, Incentive, Conference and Exhibition (MICE) activities as these tend to attract high-yield tourists. Attracting high-yield tourists also requires that the industry be able to create "wow factors" that delight customers and patrons, thereby enhancing Malaysia's reputation as a host for international events.

Malaysia should also control the participation of foreign workers in the tourism industry as these employees are unable to demonstrate Malaysian hospitality and culture. These are important factors in attracting repeat tourists and should be left to Malaysians.

In addition, although courses in tourism and hospitality are available at vocational and higher education institutions, the tourism industry nonetheless faces a lack of trained and skilled workers. Graduates are reluctant to join the industry when they discover that it involves longer working hours and lower pay when compared to other service industries. Non-executives working in the hospitality industry earned RM1,019 (service and catering staff) in 2013, while non-executives in the retail industry earned RM1,723 (sales representatives) as surveyed by Malaysia Employer Federation 2013.

The quality of service provided by Malaysian taxis also remains a major challenge despite numerous incentives given by the government such as group insurance coverage, tyre vouchers and the introduction of the "Best Taxi Driver" award. The industry must find a way to improve service standards in order to provide foreign tourists a better experience of Malaysia.

TRANSPORTATION AND STORAGE SERVICES

Productivity within the transportation and storage services sub-sector grew by 3.9% in 2013. Value added increased by 5.2% while employment remained stable at about 323,731 employees. This sub-sector contributed 3.6% to Malaysia's GDP in 2013 and is an important component of the country's infrastructure.

Transportation and storage services comprise land transportation, water transportation, warehousing and

Table 4.3: Trading Across Borders In 2013

Indicator	Malaysia	Singapore	Hong Kong
Documents to export (number)	4	3	3
Time to export (days)	11	6	6
Cost to export (US$ per container)	450	460	590
Documents to import (number)	4	3	3
Time to import (days)	8	4	5
Cost to import (US$ per container)	485	440	565

Source: Doing Business, 2014, World Bank

Table 4.4: Malaysia Infrastructure Ranking, 2013

Indicator	Ranking
Roads	34th
Railroads	46th
Air Transportation	20th
Water Transportation	21st

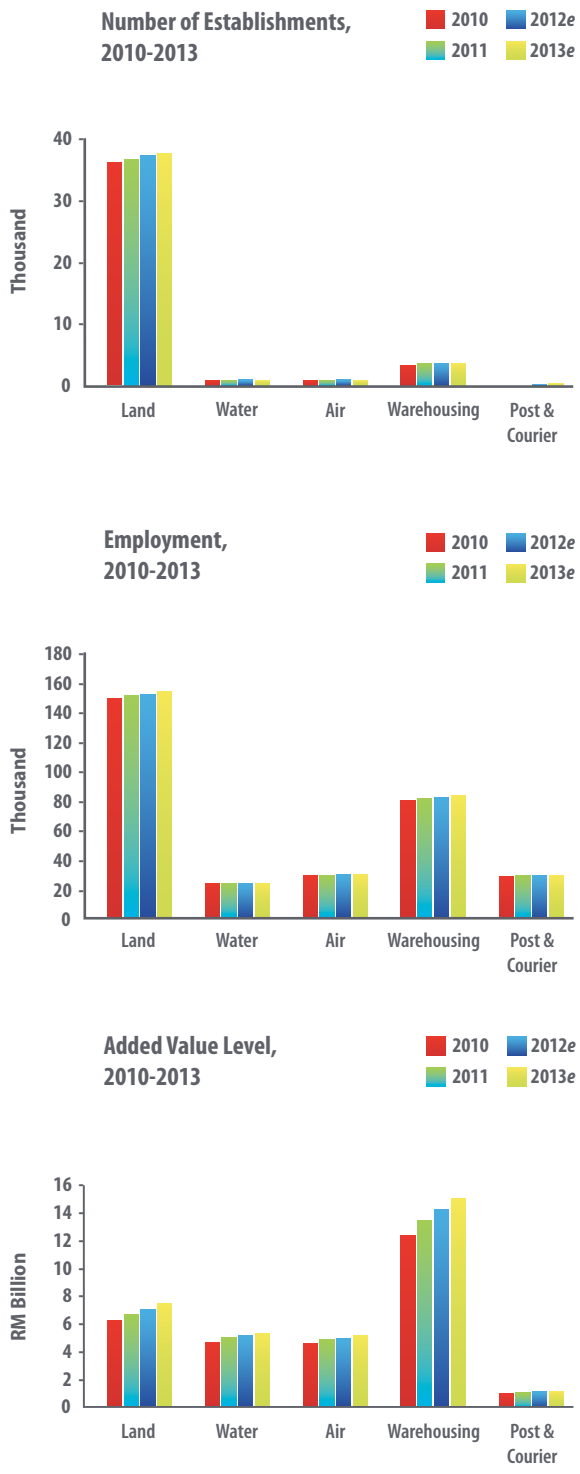
Source: World Competitiveness Yearbook, 2013
Note: Road, Railroad and Air Transportation Ranking For 2011

support services, and post and courier services. In World Bank's Doing Business Report 2014, Malaysia was ranked fifth out of 189 economies in terms of its transportation and storage services, while Singapore and Hong Kong came in at first and second place respectively. However, Malaysia performed better than both countries in terms of costs to export – the cost to export out of Malaysia was measured at US$450 per container compared to Singapore (US$460) and Hong Kong (US$590) (Table 4.3). IMD's World Competitiveness Yearbook 2013 (WCY 2013) ranks Malaysia 12th out of 60 economies in terms of its infrastructure (Table 4.4).

Industry Snapshot

- The year 2013 witnessed the continued expansion of the transportation and storage services sub-sector as the number of establishments rose to 42,583 from 42,111 in 2012.
- The land transport industry represents 88.9% of the sub-sector. This industry consists of two main segments: Passenger and freight services.
- Employment growth in the transportation and storage services sub-sector remained stable in 2013, rising by 1.2%.
- Air transportation registered the highest employment growth at 1.5% in 2013, employing 29,649 thousand workers. The growth was to facilitate the continued expansion of airline connectivity routes.
- Added value in the transportation and storage services sub-sector increased by 5.2% in 2013.
- The warehousing industry contributed 43.7% to the total added value of the transportation and storage services sub-sector.
- The highest added value growth was observed in the land transport industry (6.1%) followed by air transport (5.8%).

Figure 4.14: Snapshot of the Transportation and Storage Services Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Transportation and Storage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

- The high added value of the land transport industry was due to the popularity of special additional services such as cross-docking and personalised services.

Productivity Performance

In 2013, productivity in the transportation and storage services sub-sector rose by 3.9% to RM105,905 per person employed compared to RM101,967 per person in 2012 (Figure 4.15). This growth was driven by a resilient domestic economic environment as well as strong intra-Asia trade that benefited the sub-sector, especially within logistics services such as the freight forwarding, air freight and ocean freight-related shipping industries.

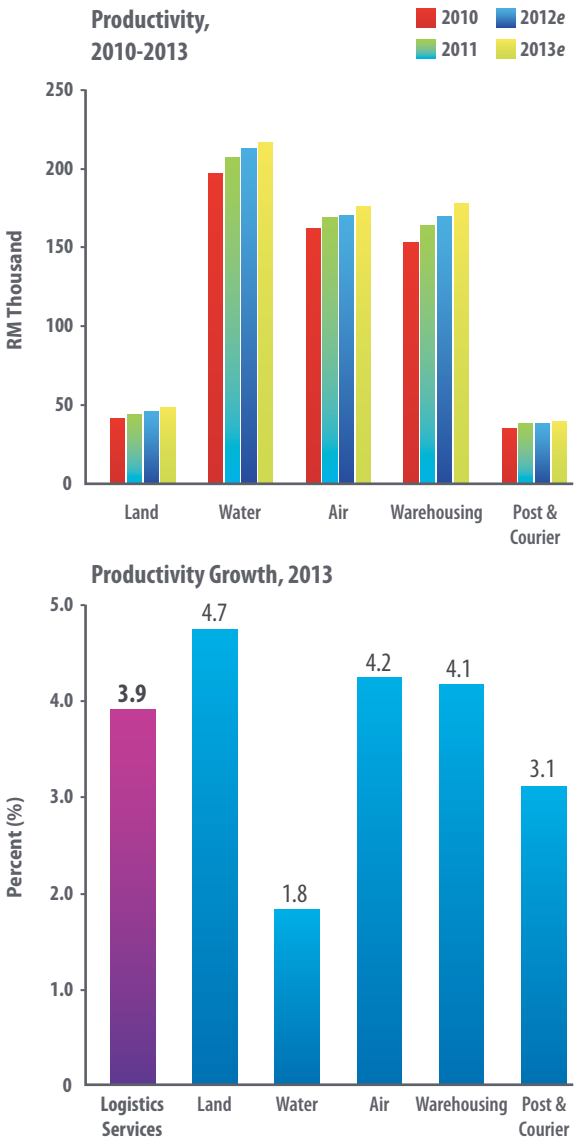
Productivity growth was highest within the land transport industry at 4.7%.

Productivity growth was highest within the land transport industry at 4.7%. This was due to the industry's adoption of productivity initiatives such as facilities sharing, centralised management systems and IT solutions that allow industry players to form smart partnerships that add value to their individual services. Productivity growth was also boosted by government initiatives to upgrade public transportation services under NKRA-Urban Public Transport (UPT) programmes such as park-and-ride facilities, enhanced bus routes and integrated ticketing and automated fare collection.

In 2013, this sub-sector maintained its labour cost competitiveness as productivity growth (3.9%) stayed ahead of rising labour costs per employee (3.0%). Unit labour costs also declined by 0.7% (Figure 4.16). This indicates that this sub-sector's efforts to enhance productivity through smart collaborations have helped reduce costs and increase labour efficiency.

Capital productivity in this sub-sector grew by 3.2% in 2013. Land transport recorded the highest capital productivity growth (3.7%) followed closely by warehousing and support activities (3.6%) (Figure 4.17). However, in absolute terms, capital productivity was highest in the post and courier services industry.

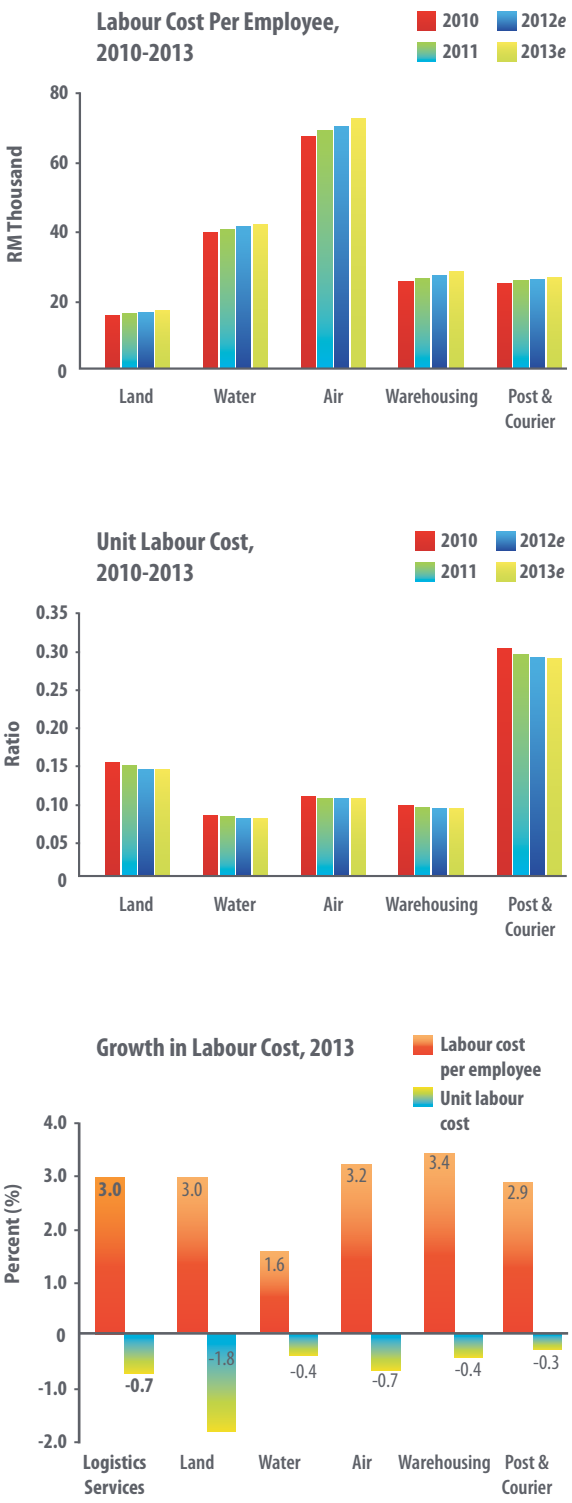
Figure 4.15: Productivity Within the Transportation and Storage Services Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Transportation and Storage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

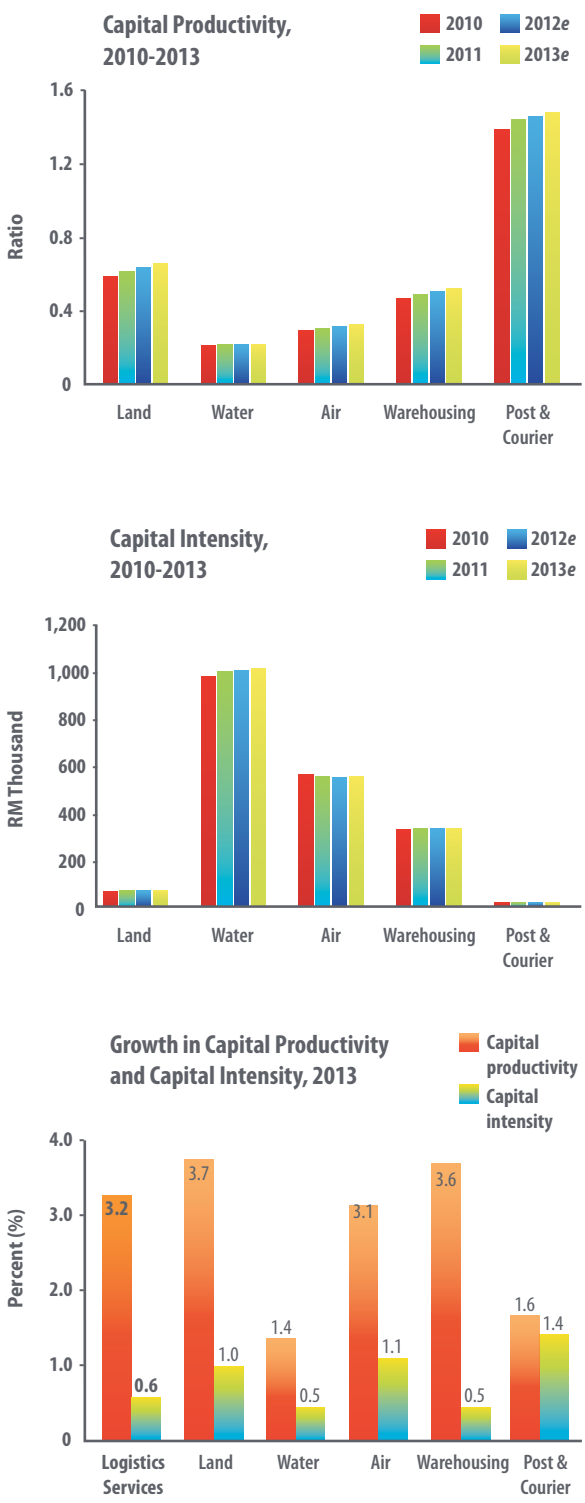
In terms of capital intensity, the post and courier services industry recorded the highest growth in 2013 at 1.4%. This was due to an increase in capital investments in vehicles and equipment for courier services resulting from the proliferation of domestic online businesses. These businesses require efficient courier services to deliver products to customers.

Figure 4.16: Labour Cost Competitiveness, 2010-2013



Computed from: Economic Census 2011, Transportation and Storage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 4.17: Capital Productivity and Capital Intensity, 2010-2013



Computed from: Economic Census 2011, Transportation and Storage Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Table 4.5: Logistics Performance Index, 2012

Indicator	Malaysia	Singapore	Hong Kong
Overall ranking	**29**	**1**	**2**
Customs clearance and competency	29	1	3
Infrastructure	27	2	7
International shipments	26	2	1
Logistics quality and competency	30	6	5
Tracking and tracing	28	6	5
Timeliness	28	1	4

Source: World Bank, 2012

Issues and Challenges

In view of the strategic importance of the transportation and storage services sub-sector to the country, the government will formulate a Logistics Sector Master Plan as announced in its recent budget. This will help enhance the efficiency of the sub-sector and the country's overall supply chain. It will also review current regulations and provide the sub-sector more strategic direction in terms of infrastructure and policies.

The World Bank Logistics Performance Index Report 2012 ranks Malaysia 29th out of 155 countries, while Singapore and Hong Kong come in at first and second place respectively (Table 4.5). Malaysia was ranked fourth in the upper-middle income category ahead of Thailand, Brazil and Chile. However, Malaysia is aspiring to become a high income economy, in which the success of the manufacturing and services sectors will rely very much on the efficiency of the transportation and storage services sub-sector. To support the country's economic transformation, this sub-sector must expand its distribution channels, improve delivery times, overcome infrastructure bottlenecks, organise better trucking operations and adopt information technology to facilitate the development of other sectors in the economy.

Logistics Service Providers (LSPs) need to extend their services by providing personalised services such as helping customers find solutions to reduce costs and to troubleshoot their shipping problems. LSPs could also offer related services such as handling insurance claims on behalf of clients and providing performance reports as value-add services.

It is also essential for LSPs to venture into new service areas such as offshore supply chains and explore the possibility of providing vertical and green logistics solutions, which are becoming increasingly popular in other parts of the world. Opportunities also abound in specialised logistics serving niche industries like marine goods, pharmaceuticals, chemicals and perishable foods. Currently, EPPs under the Communication, Content and Infrastructure NKEA are focused on improving tracking and tracing in the logistics services. These capabilities are important to ensure the industry's continued sustainability in the face of increasing competition from abroad.

INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) SERVICES

The information and communications technology (ICT) services sub-sector comprises of the multimedia, communications and information industries. These include motion picture, video and television programme production; publishing; programming and broadcasting; computer programming, consultancy and related computer services; telecommunications and other various information services.

The use of ICT in businesses including the internet can lead to higher productivity in all aspects of the value chain.

The use of ICT in businesses including the internet can lead to higher productivity in all aspects of the value chain. According to Malaysia's Economic Report 2013/2014, studies indicates that SMEs can boost their productivity by 11% by using the web. In 2013, there were 1,971 establishments offering ICT services in Malaysia, employing a total of 116,011 employees. The sub-sector's productivity rose by 23.1% during the year, helped by an increase in added value to RM51.9 billion. The World Competitiveness Yearbook 2013 ranks Malaysia

Table 4.6: Malaysia's Ranking In Terms of ICT Indicators

Indicator	2012	2011	2010
Computers in use	23	22	21
Computers per capita	38	38	34
Internet users	34	34	32
Fixed broadband	23	22	20
Broadband subscribers	49	49	50
Internet bandwidth	52	53	43
Total economies	**60**	**59**	**58**

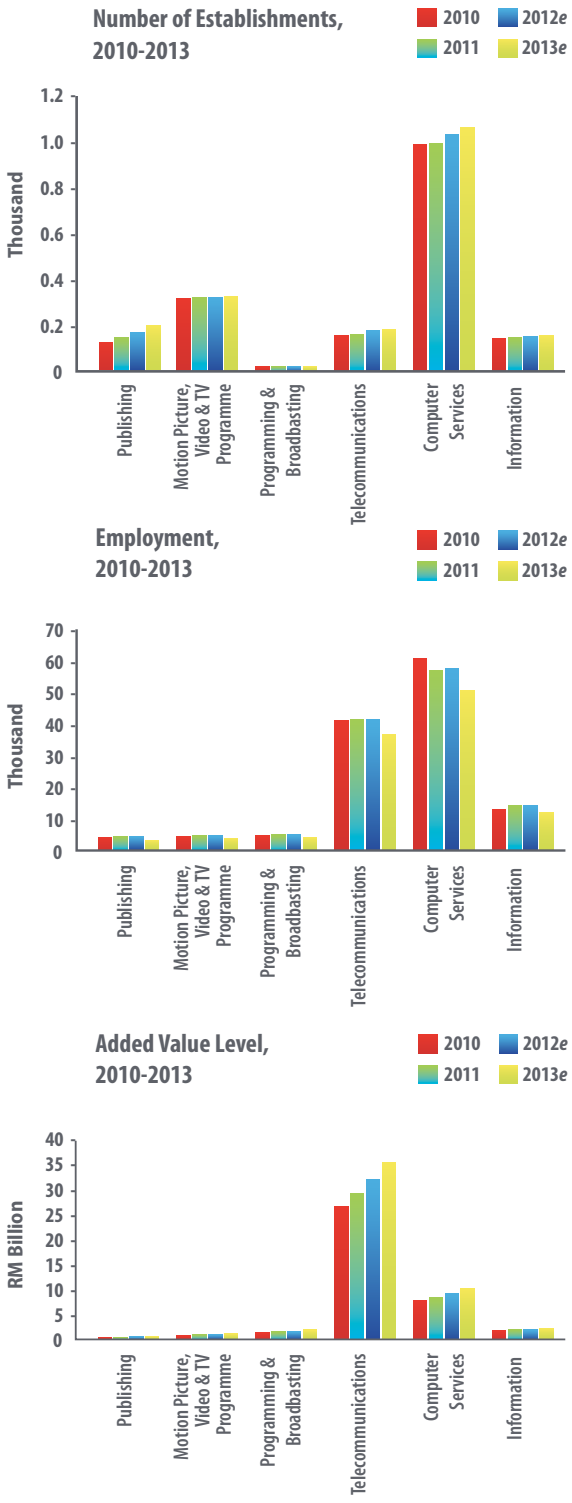
Source: World Competitiveness Yearbook, 2013

in 13th place in terms of its technological infrastructure. The ICT indicators used in the study and Malaysia's ranking for each indicator are summarised in Table 4.6.

Industry Snapshot

- The number of establishments in the ICT sub-sector grew by 4.1% to 1,971 from 1,894 establishments in 2012.
- There were 1,077 establishments in the computer services industry alone in 2013, making it the dominant industry of this sub-sector in 2013 (55%). This may be attributed to a rising demand for more usage data analysis and cloud computing services as well as mobile and tablet apps, all of which were fuelled by the proliferation of mobile devices, the bring-your-own-device (BYOD) movement and social networking.
- The publishing industry saw the biggest increase in new players in 2013, with the number of establishments rising by 14.9% during the year. This may be attributed to the expanding growth of new media such as e-books, e-comics and e-magazines with local players contributing both content and technology.
- The sub-sector employed a total of 116,011 workers in 2013. The computer services industry was the largest employer with 51,718 employees

Figure 4.18: Snapshot of ICT Services Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Information and Communications Services, Department of Statistics, Malaysia
Note: *e* - Estimate

followed by telecommunication services with 37,679 employees.

- The sub-sector's added value rose by 10% to RM51.9 billion in 2013 from RM47.2 billion in 2012.
- Most industry players in this sub-sector are able to contribute significant added value in their product and services, with telecommunication services registering the highest added value level at RM35.4 billion with a growth of 9.7%.
- The high added-value within this sub-sector is due to intense competition among industry players that encourages them to innovate.

Productivity Performance

Productivity within the ICT services sub-sector grew by 23.1% to RM447,470 per person employed in 2013, with the publishing industry recording the highest productivity growth (26.9%) followed by computer services (25.7%) and telecommunication services (23%). The high productivity growth within the publishing industry was due to added value creation in the form of print, electronic and audio publishing products. It also benefited from the continued expansion of internet connectivity and multimedia distribution channels such as CD-ROMs, e-books and reference books.

The telecommunications services industry has matured and is able to generate higher added value through product and service innovation.

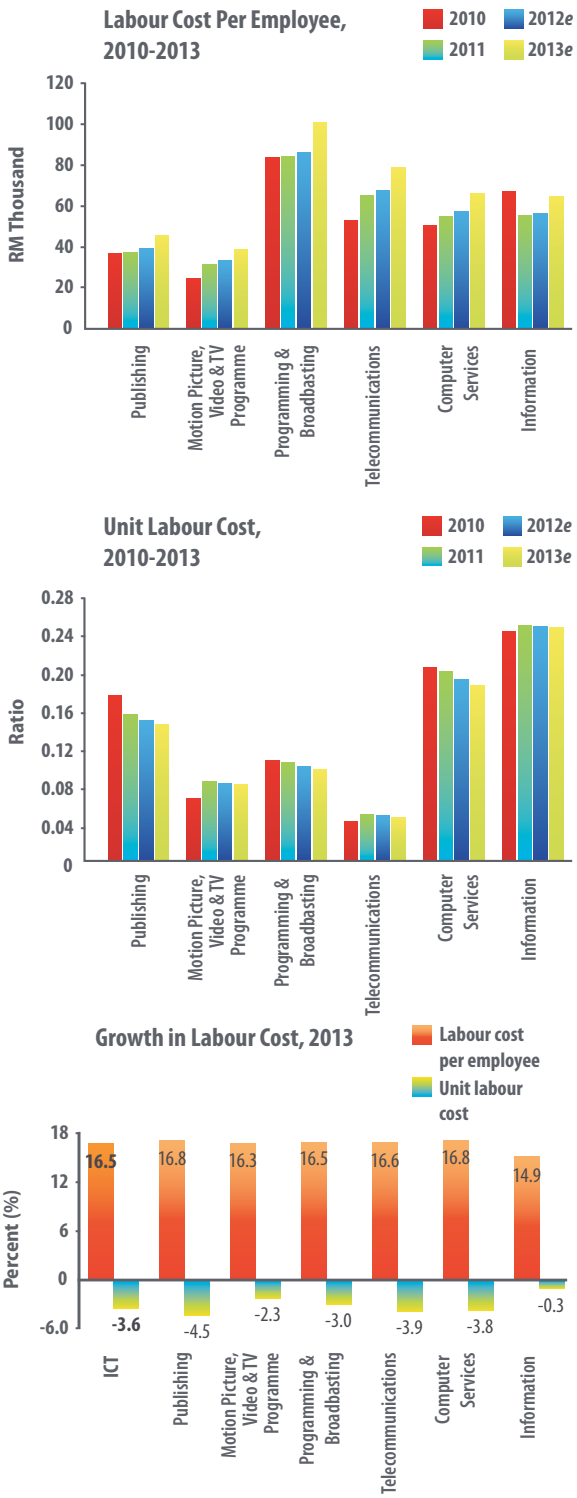
Figure 4.19: Productivity Within the ICT Services Sub-Sector, 2010-2013

Computed from: Economic Census 2011, Information and Communications Services, Department of Statistics, Malaysia
Note: *e* - Estimate

The telecommunication services industry had the highest productivity level (RM940,735 per person employed) followed by programming and broadcasting (RM404,896) and motion pictures, video and television programme production (RM253,239) and computer services (RM201,585) (Figure 4.19). The telecommunications services industry has matured and is able to generate higher added value through product and service innovation. It is also able to adapt quickly to rapid changes in technology and attract high-skilled employees to the industry.

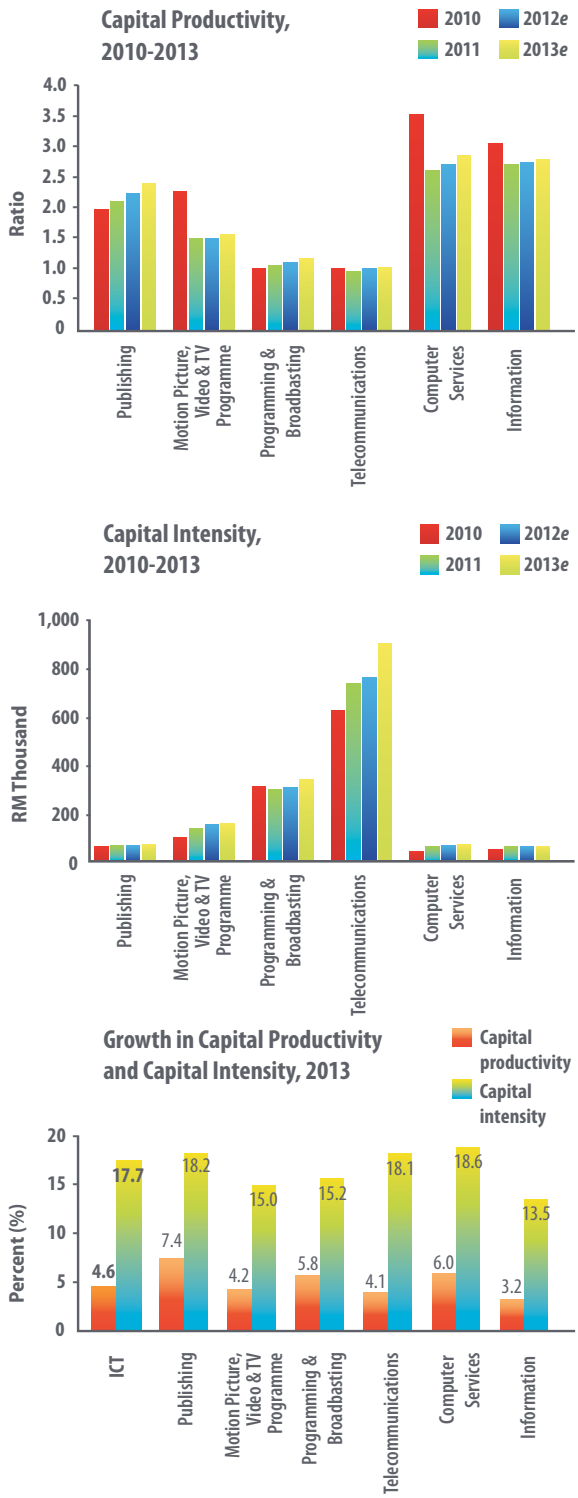
The ICT sub-sector was able to sustain its labour cost competitiveness as productivity growth (23.1%) exceeded the growth of labour costs per employee (16.5%) while unit labour costs declined by 3.6% (Figure 4.20). Most

Figure 4.20: Labour Cost Competitiveness, 2010-2013



Computed from: Economic Census 2011, Information and Communications Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 4.21: Capital Productivity and Capital Intensity, 2010-2013



Computed from: Economic Census 2011, Information and Communications Services, Department of Statistics, Malaysia
Note: *e* - Estimate

workers in this industry are highly skilled and industry players are able to differentiate their products and services through creative marketing strategies and by targeting niche markets. On average, employees in the ICT sub-sector receive an annual remuneration package of about RM69,326. Employees in the programming and broadcasting industry were the best compensated in 2013 (RM100,257 per annum) followed by the telecommunications industry (RM78,524 per annum).

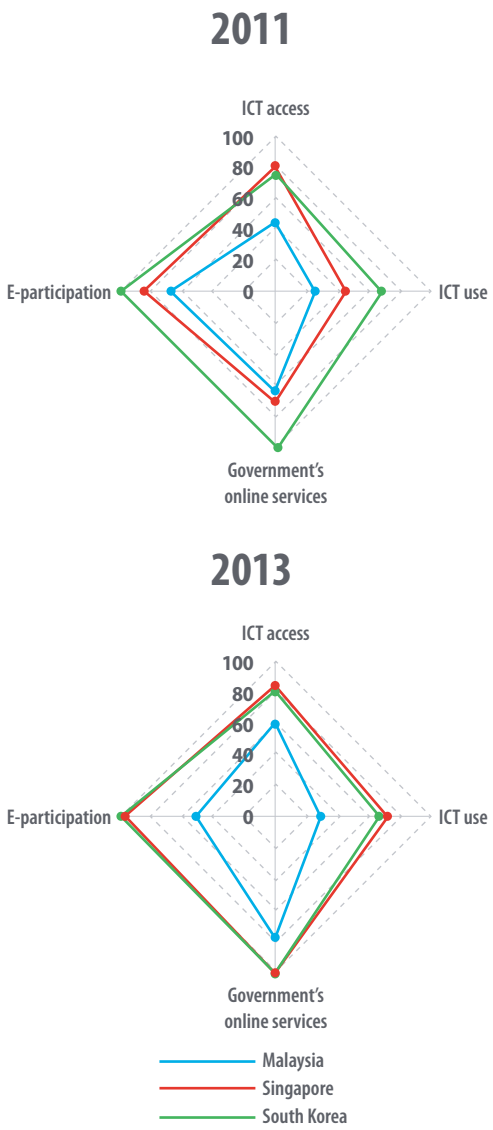
Capital productivity in the ICT services sub-sector rose by 4.6% in 2013, with capital intensity increasing by 17.7%. Capital productivity increased most within the publishing services industry (7.4%) followed by computer services (6%) and programming and broadcasting services (5.8%) (Figure 4.21). The computer services industry continues to enjoy high capital productivity rates, indicating that it is able to efficiently utilise its fixed assets throughout its activities in computer programming, consultancy, providing information technologies such as testing and supporting software, designing computer systems, data processing facilities and providing infrastructure for hosting.

Capital intensity in the ICT sub-sector rose by 17.7% to RM355,624 in 2013. Capital intensity was highest in the telecommunication industry (RM907,645), with the programming and broadcasting industry coming in a distant second at RM345,021.

Issues and Challenges

While the overall growth of the ICT services sub-sector has been positive, it nonetheless faces several challenges that need to be addressed. According to the Global Innovation Index 2013 published by INSEAD and the World Intellectual Property office (WIPO), Malaysia is ranked 34th out of 142 countries in information and communications technologies, far behind benchmark countries such as Korea (1st) and Singapore (2nd). To accelerate its journey towards becoming an innovative nation, Malaysia should learn lessons from Korea and Singapore in terms of ICT access and usage, online government services and E-participation policies (Figure 4.22).

Figure 4.22: Malaysia's Performance in ICT, Global Innovation Index 2013



Global Innovation Index (Score 0-100)	Malaysia		Singapore		South Korea	
	2011	2013	2011	2013	2011	2013
ICT access	43.8	58.5	80.2	83.8	76	83
ICT use	24.3	29.8	58.1	70.7	66.9	66.2
Government's online service	63.2	79.1	68.6	100	100	100
E-participation	65.7	50	68.6	94.7	100	100

Source: The Global Innovation Index 2013, INSEAD

In addition, although ICT spending has increased overall, the adoption of ICT among small and medium businesses (SMBs) is still dismally low. This is due to limited financial resources, a lack of technological knowledge and the high cost of technical expertise and software. The MSC Malaysia Cloud Computing Initiative (MMCCI) will help reduce start-up costs for SMBs and enhance the adoption of ICT within the economy.

There also remains the challenge of a mismatch between demand for and supply of ICT talent. Students tend to favour ICT management programmes rather than applied ICT programmes. In addition, the quality, competency and employability of ICT graduates in meeting the industry's demands continues to be a critical issue. The industry is plagued by low remuneration packages, rampant job-hopping and a declining interest in the business. The sub-sector must step-up its initiatives to retain, develop and retrain local talent by organising industrial job campaigns and encouraging apprenticeships. In addition, the sub-sector must increase its efforts to attract foreign talent to boost its overall development.

Malaysia must also increase global awareness of its shared services and outsourcing industry (SSO). The country is ranked as the third best SSO destination in the world behind India and China, with more than 130 SSO companies and 250 call centres registered with MSC Malaysia. The country's competent English-speaking workforce and competitive pay rates make it an ideal global data centre hub.

The ICT sub-sector also lacks a strong culture for research, development and commercialisation (R&D&C). Both public and private universities and industries have failed to create globally-recognised ICT products and services. Despite the long established presence of some multinationals, the country's links to the global R&D and innovation network remain very weak.

Homegrown ICT innovation is a key development strategy to grow the ICT services sub-sector and may help address the poor R&D&C culture. The new framework on Intellectual Property (IP) Valuation will allow Malaysian innovators and technopreneurs to leverage their IP assets in securing financing. To encourage the development of an R&D&C culture, however, Malaysia must increase the number of researchers within the industry and encourage greater collaboration between industry and academia so as to develop more IP opportunities.

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Another challenge for the ICT sector is penetrating emerging markets with innovative ICT solutions whilst facing very stiff competition. The industry has established a comprehensive mentoring-and-partnership model known as "stacking" to address this challenge, whereby a consortium of companies with a set of noncompetitive, complementary and interoperable solutions cooperate to penetrate target markets. This approach increases market exposure for new players and helps develop MSC Malaysia-status companies to match market demand and expectations.

PROFESSIONAL, SCIENTIFIC AND TECHNICAL (PST) SERVICES

Productivity in the professional, scientific and technical (PST) services sub-sector grew by 6.9% to RM82,418 per person employed in 2013. It also employed 175,461 workers and remained the largest industry within the business services sub-sector, with added value growing by 9.2%. It comprises legal, accounting, architectural, engineering, land and quantity surveying activities, advertising, veterinary, management consulting and market research and other professional, scientific and technical services.

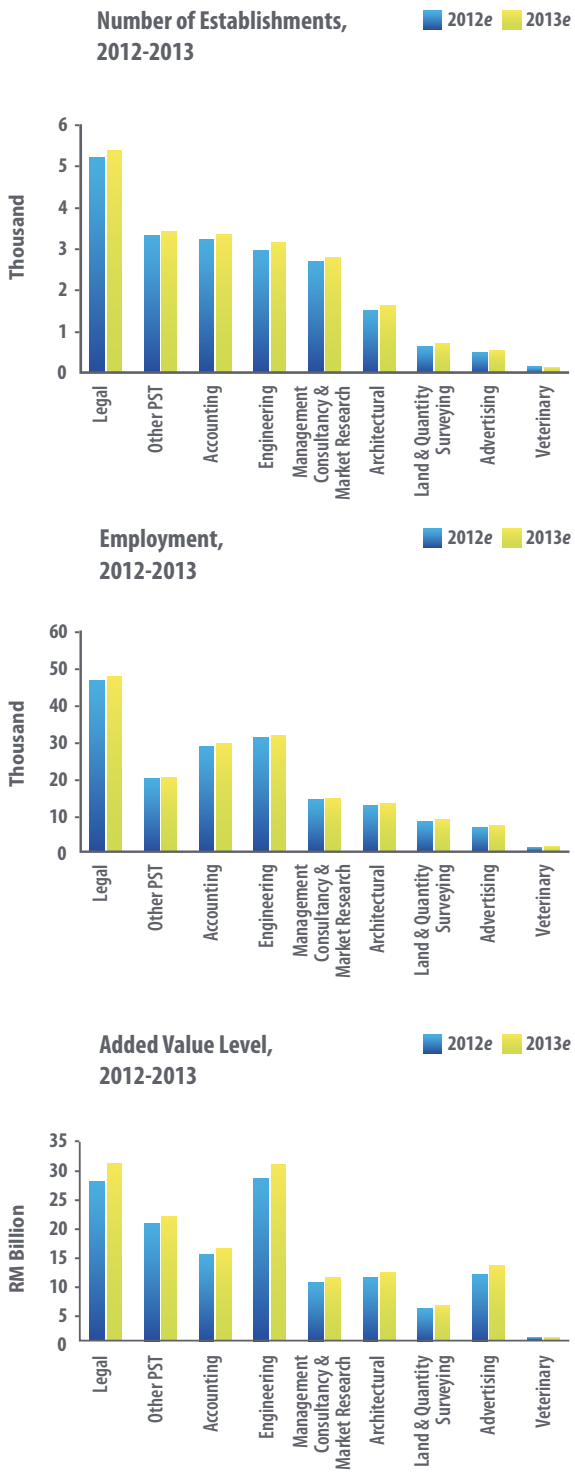
PST services are highly differentiated and offer high value skills and services which are both knowledge and information intensive. This allows companies within the industry to charge a premium which translates into

higher wages and profit margins. This industry provides significant multiplier effects on a wider scale to other sectors of the economy.

Industry Snapshot

- The number of establishments in this industry increased by 3.5% to 21,291 in 2013 from 20,565 in 2012.
- Legal services had the largest number of establishments, comprising 25.4% of the total number of establishments in the industry.
- The legal services industry employed the highest number of workers in 2013 (27.2%) followed by engineering services (15.7%) and accounting and support services (14.9%).
- The number of employees in all specialisations increased by between 2% to 2.5% in 2013 due to the impact of several EPPs which have created new job opportunities in this industry.
- The industry's added value grew 9.2% to RM14.5 billion in 2013 compared to RM13.3 billion in 2012.
- Added value contribution was highest within the legal services industry (21.6%), where added value amounted to RM3.1 billion.
- The high added-value contribution observed in the legal services industry was due to the wide range of services offered such bankruptcy advocacy, litigation, foreclosure, intellectual property and employment law.
- Changes in client expectations have caused legal firms to strive to deliver greater value in terms of better communication, preventive law counselling and more in-depth knowledge of clients' businesses and industry needs.

Figure 4.23: Snapshot of the PST Sub-Sector, 2012-2013



Computed from: Economic Census 2011, Business Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Productivity Performance

Productivity growth within PST services slowed to 6.9% in 2013 to RM82,418 per person employed compared to 8.5% in 2012 (Figure 4.24). Various EPPs concentrating on highly-niche services such as green technology, pure-play engineering services and aerospace allowed industry specialists to charge a premium for their services, resulting in higher profits, wages and added value.

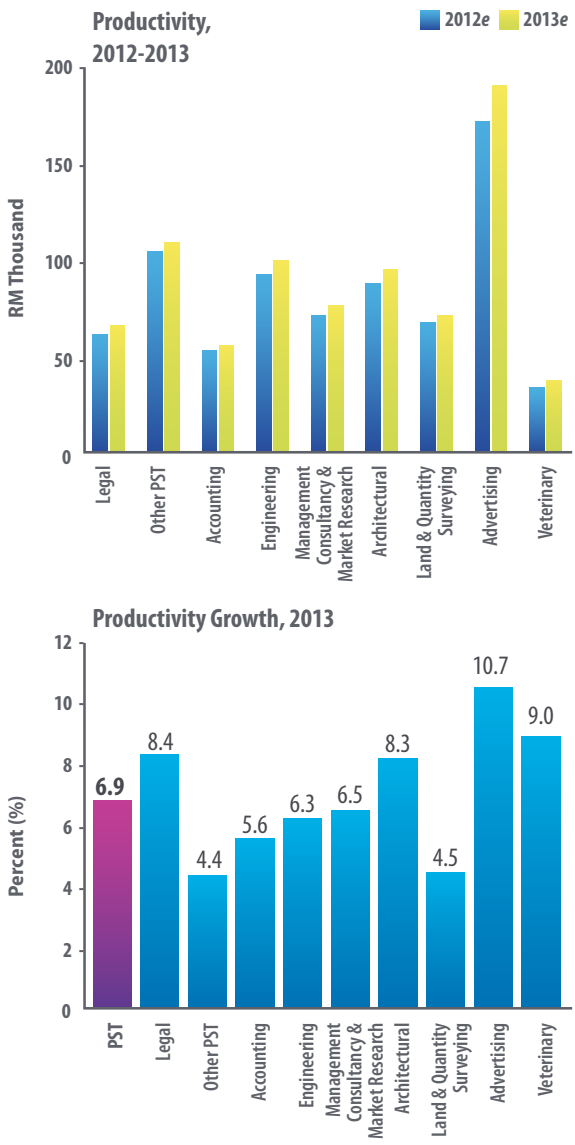
Among the industry specialisations, the advertising, legal and veterinary industries posted high productivity growth rates, indicating that they have the potential to grow further. The advertising services industry has consistently outperformed other industries within this sub-sector as it is able to generate high value with a minimal number of employees. It grew by 10.7% in 2013, which indicates that it is moving toward more creative outputs supported by new technology. Changes in marketing techniques involving online services also promotes cost-conscious advertising that contributes significantly to the increase of added value within this industry.

Labour cost competitiveness within the PST industry remained stable in 2013, with its productivity growth of 6.9% exceeding rising labour costs per employee of 4.1%. Unit labour costs also declined by 1.5% (Figure 4.25). All industry specialisations within this industry are fairly cost competitive. The advertising services industry posted the greatest improvement in cost competitiveness, with productivity growing 10.7% while labour costs per employee grew by only 3.0% and unit labour costs declined by 2.5%. Besides its skilled, creative and innovative employees, the advertising industry has also been able to generate higher added value at very competitive rates.

Besides its skilled, creative and innovative employees, the advertising industry has also been able to generate higher added value at very competitive rates.

Meanwhile, capital productivity in the PST industry grew by 2.9% in 2013, with the average capital productivity ratio rising to 2.63 from 2.56 in 2012 (Figure 4.26). This indicates that assets are being utilised more efficiently within the industry, especially among firms that use a lot of ICT assets such as computers. Legal services, accounting services and advertising services registered the highest capital utilisation rates in 2013. Capital productivity growth ranged from 1.8% to 6.5% across all industry specialisations.

Figure 4.24: Productivity Within the PST Services Sub-Sector, 2012-2013



Computed from: Economic Census 2011, Business Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 4.25: Labour Cost Competitiveness, 2012-2013

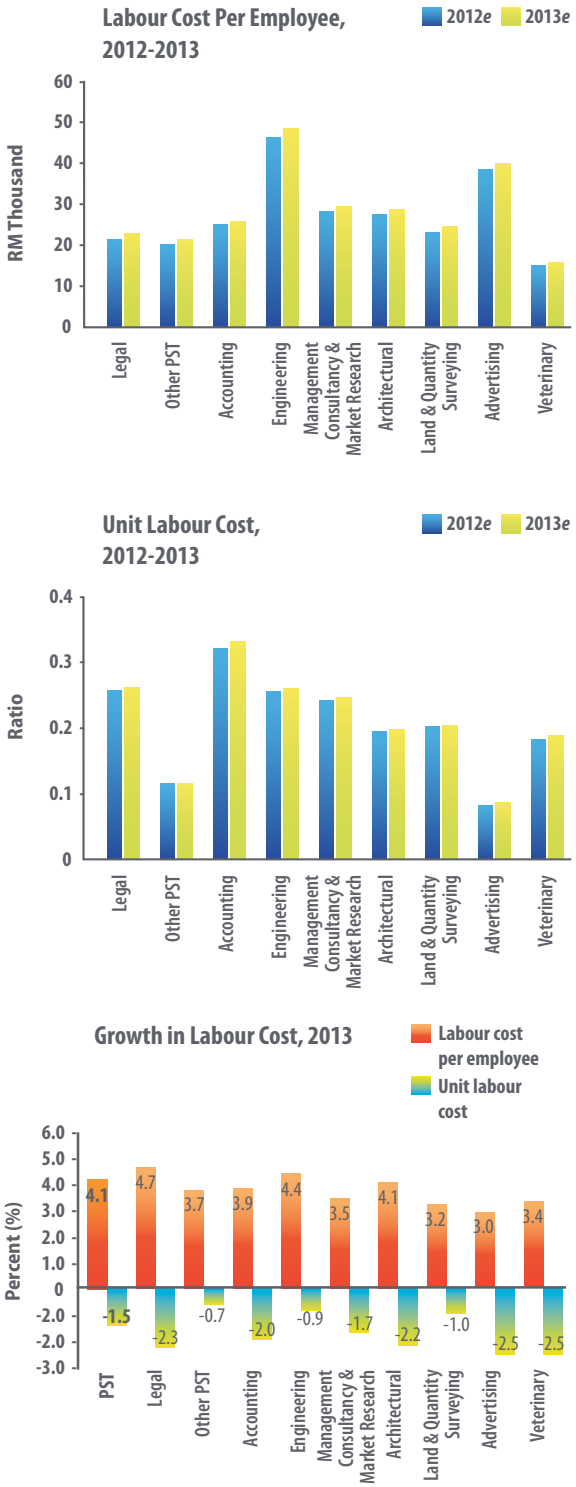


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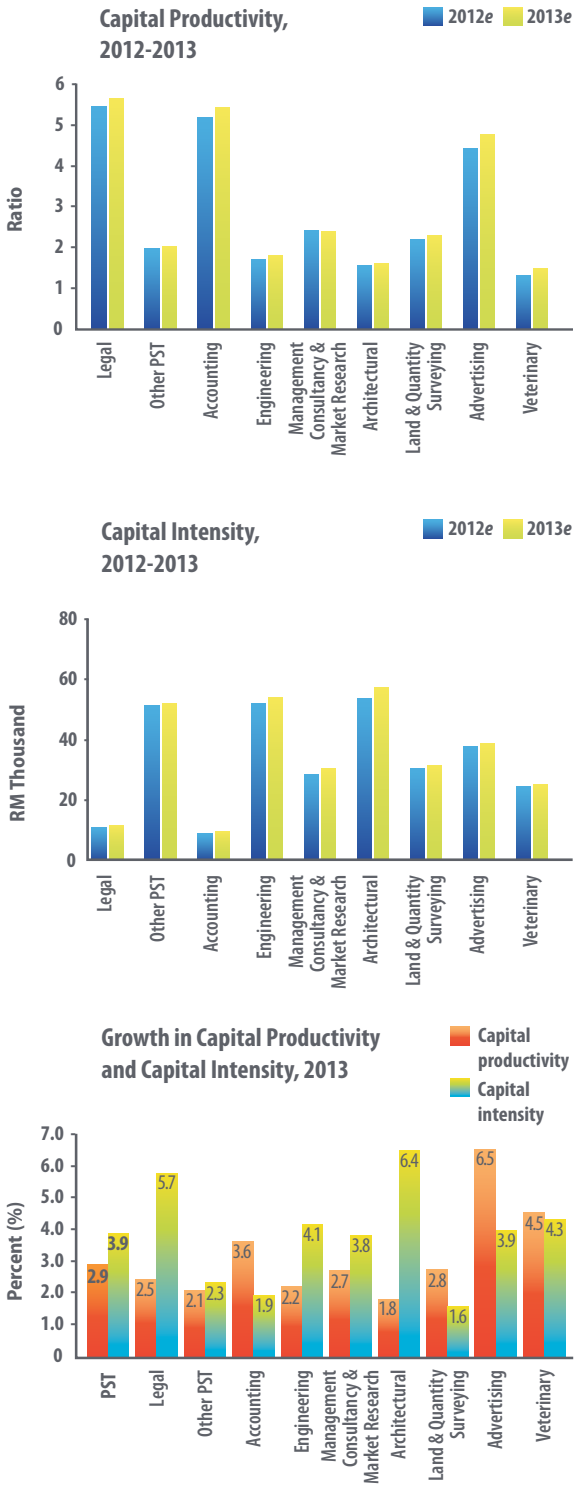
Figure 4.26: Capital Productivity and Capital Intensity, 2012-2013



Computed from: Economic Census 2011, Business Services, Department of Statistics, Malaysia
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Capital investments in this industry have been able to improve business performance by helping firms adopt a multidisciplinary, integrated workflow utilising the latest technologies to generate high value added activities. In 2013, the industry registered capital intensity growth of 3.9% compared to 5.1% in 2012. Architectural services continue to post the biggest increases in capital intensity, growing by 6.4% in 2013 to RM57,519. Other PST industry specialisations which posted higher capital intensity are engineering and advertising, indicating that these services are gearing up for capital intensive operations in the future.

Issues and Challenges

The PST services industry comprises modern service industries that offer comparatively low wages, making it difficult for businesses to retain the professionals they hire. Without competitive remuneration packages, Malaysia stands to lose a lot of professionals to other countries in the region. In addition, many PST service industries have to face the challenges of liberalisation. Most companies within the industry lack the capabilities to compete in higher-value market segments. Indeed, Malaysia's PST services industry is dominated by SMEs, while the global PST market is dominated by large firms which often form consortiums to undertake major projects. To compete globally, Malaysian firms must likewise collaborate with overseas firms to access a wider pool of expertise, skills and resources.

Malaysia's architecture industry is particularly vulnerable to foreign competition. Malaysian firms can improve the quality of their designs by participating in global competitions that encourage transparency and which will enhance their capacities and capabilities. The industry should also begin incorporating elements of sustainability in their designs to improve the environmental performance of buildings and reduce the cost of maintaining them. An emerging technology that has proven successful in the planning, design, construction and management of new buildings is Building Information Modelling (BIM), although it is not widely used among smaller engineering firms due to the high licensing costs involved in using the tool.

PRIVATE EDUCATION SERVICES

Productivity in the private education sub-sector rose by 6.5% to RM63,977 per person employed in 2013 boosted by higher added value which rose by 7.5% to RM7.2 billion. The sub-sector had 8,685 establishments in 2013 which employed about 111,886 employees.

The private education sub-sector includes kindergartens, primary schools, general secondary schools, colleges and universities, technical and vocational secondary schools and other schools and institutions for the arts, commercial and technical disciplines. The sub-sector is of strategic importance to Malaysia's move towards becoming a high income economy, as technical education and vocational training (TEVT) and lifelong learning play an important role in ensuring the availability of skilled employees for the country's industrial and services sectors.

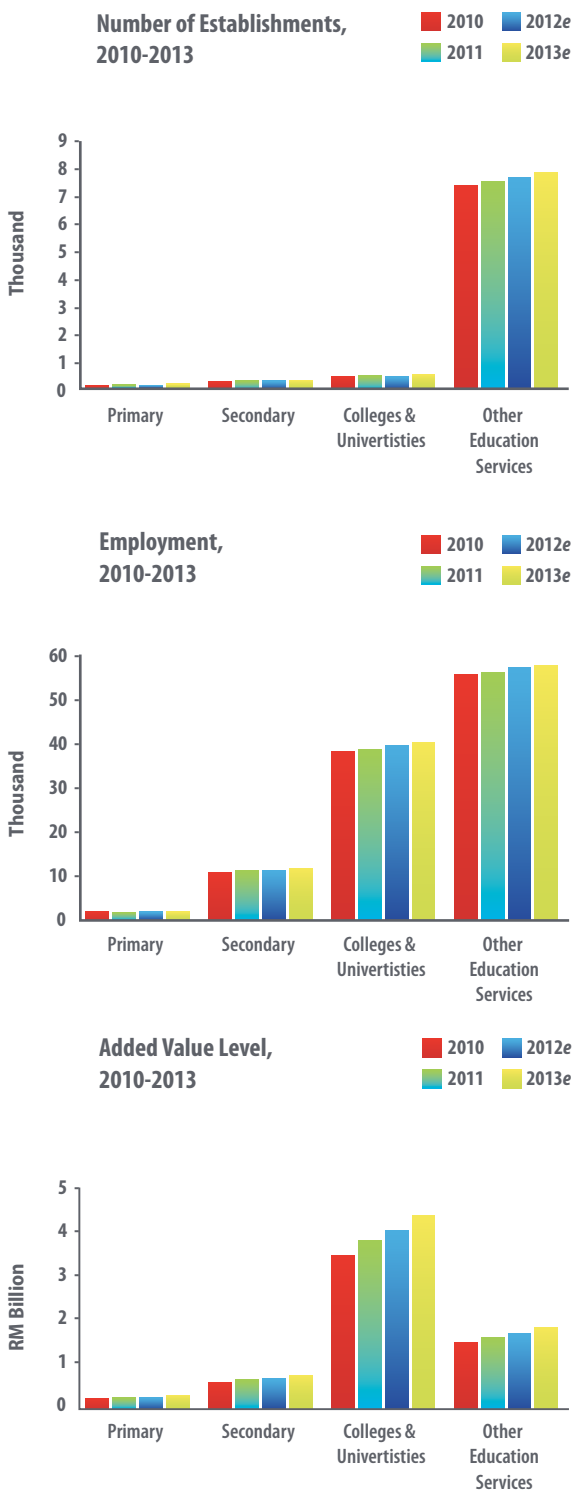
Several renowned foreign universities have established campus branches in Malaysia in recent years, particularly

in the Iskandar EduCity education hub. The education sub-sector has also seen a rise in the participation of international players in early childhood, primary and secondary school education services.

Industry Snapshot

- The number of establishments providing private education services in Malaysia rose by 2% to 8,685 compared to 8,513 in 2012 due to the sub-sector's liberalisation in 2012. The liberalisation policy allows 100% foreign ownership of tertiary institutes with university status.
- The highest growth in establishments was seen within the primary education industry (2.6%) followed by the private colleges and universities industry (2.3%) and other educational institutions (2.2%). This was due to the abolishment of the 40% quota on Malaysian enrolment in international schools as well as the deregulation of tuition fees and more liberal limits on foreign ownership of international schools.
- Employment in the education services sub-sector grew by 0.9% to 111,886 workers in 2013.
- The majority of employees (51%) in the private education services sub-sector were employed in other education services comprising early childhood education, arts, tuition centres and other education institutions.
- The added value of the education services sub-sector grew at 7.5% to RM7.2 billion in 2013 as compared to 5.2% in 2012.
- The private colleges and universities sub-sector recorded the highest added value growth at 8.3% to RM4.4 billion.
- The development of new twinning programmes with reputable universities has proven effective at attracting foreign students to Malaysia. In

Figure 4.27: Snapshot of the Private Education Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Education Services, Department of Statistics, Malaysia
Note: *e* - Estimate

addition, some private higher education institutions in Malaysia have expanded their business operations abroad.

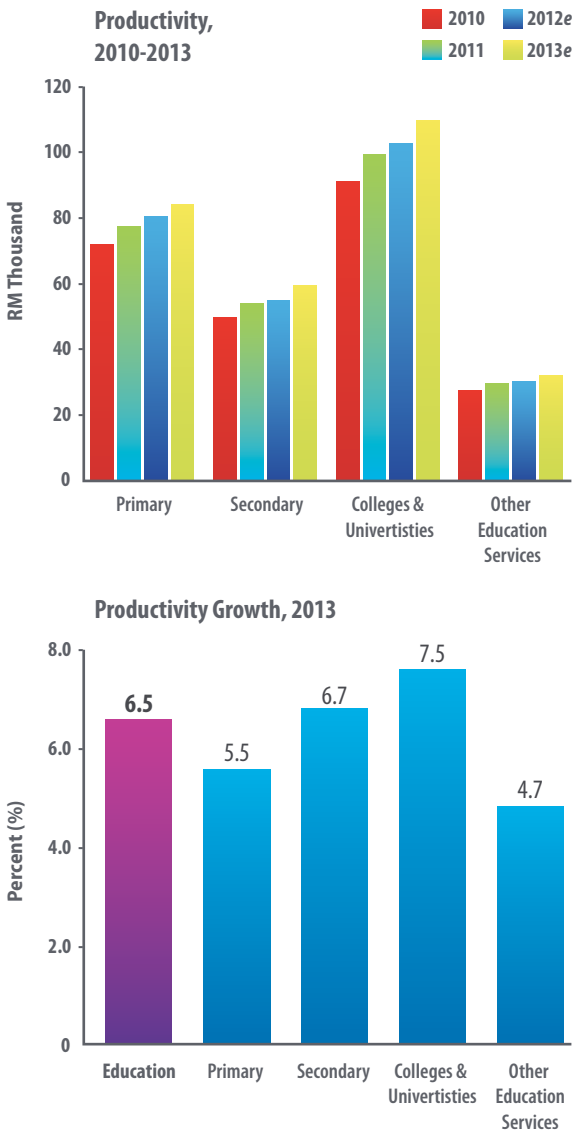
Productivity Performance

Productivity in the private education services sub-sector grew by 6.5% to RM63,977 per person employed in 2013. Productivity growth was highest among private colleges and universities, where it grew by 7.5% (Figure 4.28). The significant growth in productivity in this industry came after accreditation by MQA became compulsory, which boosted the enrolment of both local and international students.

The private education services sub-sector also experienced a significant improvement in its labour cost competitiveness. Productivity growth at 6.5% surpassed rising labour costs per employee of 3.7% while unit labour costs declined by 2.5% (Figure 4.29). The private colleges and universities industry was the most labour cost competitive industry in 2013, with attractive wage rates that helped keep labour turnover low.

Meanwhile, capital productivity in this sub-sector rose by 3.3%, with the private colleges and universities industry posting the highest growth in both capital productivity and capital intensity at 3.9% and 3.5% respectively (Figure 4.30). This industry invests heavily in creating conducive campus environments to delight their students. As a result, a large portion of its capital investments go into building, infrastructure and landscape refurbishments.

Figure 4.28: Productivity Within the Education Services Sub-Sector, 2010-2013



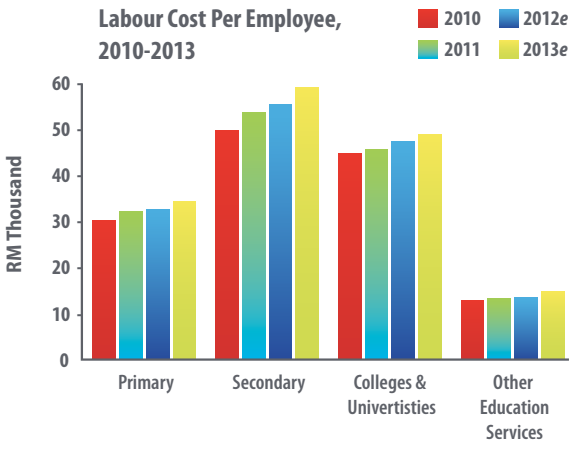
Computed from: Economic Census 2011, Education Services, Department of Statistics, Malaysia
Note: *e* - Estimate

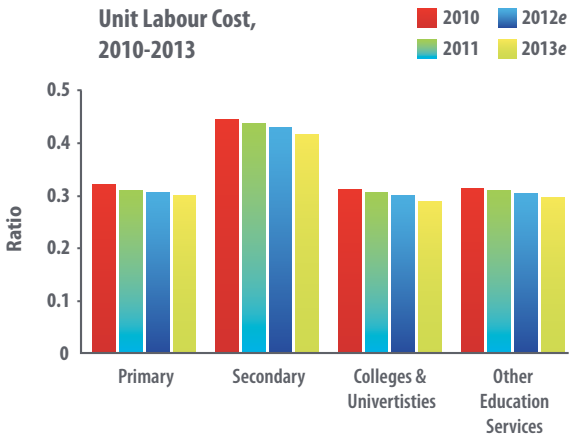
Issues and Challenges

The main challenge for this sub-sector remains in ensuring that it delivers a consistent level of high quality services. Industry players tend to focus their investments on physical improvements rather than productivity improvements. They should instead concentrate on nurturing a culture of quality among teachers. In addition, international students sometimes encounter red-tape issues surrounding passport renewals that has made it hard for them to continue to study in Malaysia. The procedures for renewing the passports of these students must be improved to ensure that the country continues to attract international enrolments.

In terms of curricula, the move for compulsory accreditation is expected to establish a minimum standard for service quality. Accreditation should also

Figure 4.29: Labour Cost Competitiveness, 2010-2013





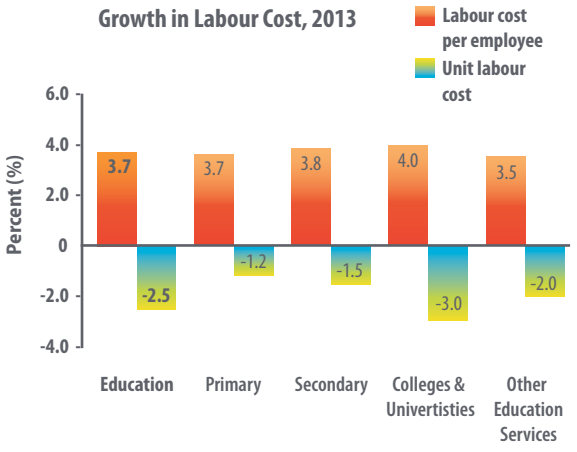


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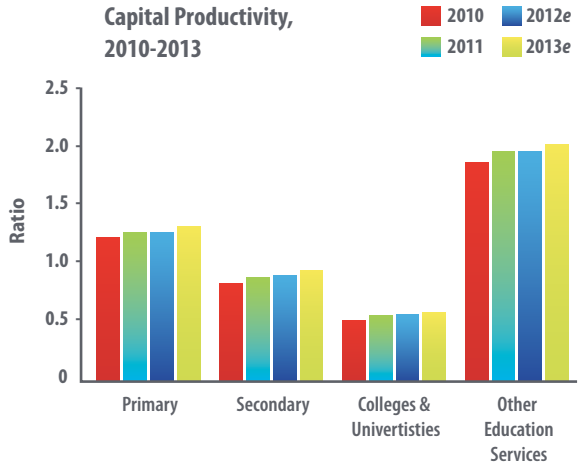
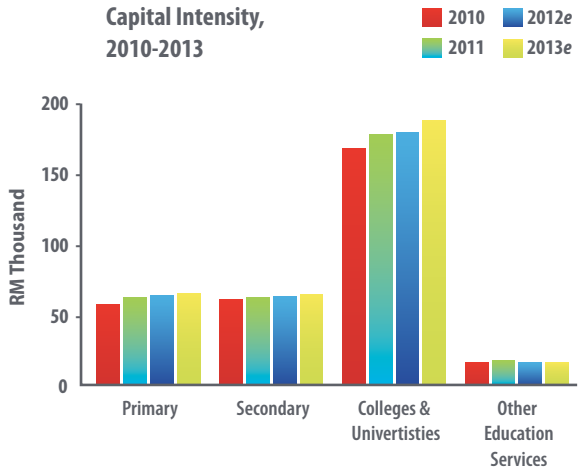
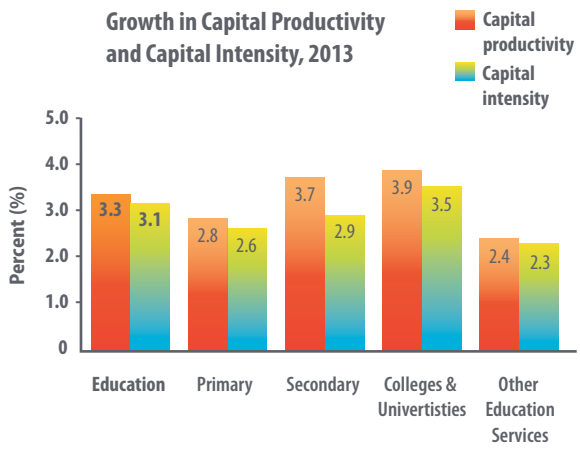
Figure 4.30: Capital Productivity and Capital Intensity, 2010-2013







Computed from: Economic Census 2011, Education Services, Department of Statistics, Malaysia
Note: *e* - Estimate

be made compulsory for smaller service providers that provide skills and training programmes. This will ensure that the capabilities of graduates will meet minimum industry requirements, although the high costs of accreditation may hinder interest among these smaller service providers and affect their ability to attract more students.

There are currently about 520 private colleges and universities in Malaysia. The inefficient monitoring of this sub-sector has led to a proliferation of service providers with minimal experience within the industry. Intense competition often forces these establishments to increase student enrolment beyond optimum teacher-student ratios. This will have an adverse impact on the quality of services offered and affect the sub-sector's productivity performance in the future.

Malaysia must also enhance coordination among private education service providers that provide skill and training programmes to ensure that their educational products are aligned with the country's workforce development strategy. This will help minimise skill mismatches between employers and graduates and help reduce fragmentation within this sub-sector. An up-to-date information system that enables all key stakeholders to share data with each other will also help the sub-sector improve its service delivery standards. In addition, new incentives must be designed to encourage employers to further invest into the upskilling of their workforce.

An up-to-date information system that enables all key stakeholders to share data with each other will also help the private education services sub-sector improve its service delivery standards.

The private education services sub-sector plays a major role in supplying Malaysian industry with a steady supply of suitably qualified workers. Government agencies must focus their efforts on encouraging full workforce participation among the working age population and discourage the use of foreign labour. This may be achieved by introducing measures to ease the re-entry of women into the labour market such as flexi-work

arrangements and improved childcare programmes for parents with children.

The private education services sub-sector should also establish a system to up-skill unemployable fresh graduates and increase their employability appeal.

HEALTHCARE SERVICES

Productivity within the healthcare services sub-sector rose by a healthy 4.2% in 2013. Value added increased by 5.3% to RM4.6 billion while employment remained steady with about 80,595 employees.

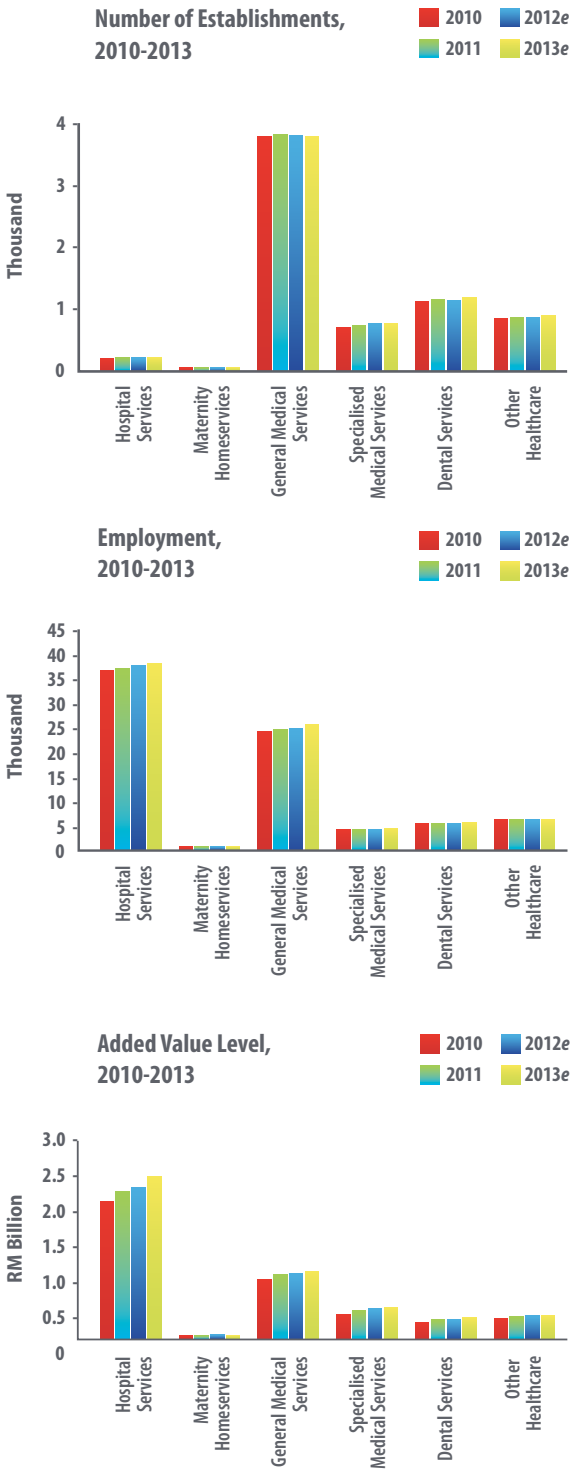
The healthcare sub-sector is one of the country's 12 National Key Economic Areas (NKEAs). Medical services, pharmaceuticals and medical technology products have been identified as the key drivers of growth. The private healthcare services sub-sector includes private hospitals, maternity homes, medical and dental services, general medical services and specialised medical services.

The Malaysian government has undertaken several efforts to improve the healthcare sub-sector, particularly within the preventive and primary healthcare industries. These efforts have resulted in the industry being ranked third among 24 countries in the 2014 Global Retirement Index prepared by the American publication, International Living. The index assesses countries in terms of both the cost and the quality of its healthcare services and found Malaysia's medical services to be equal to or better than most western countries. The government has also established the Malaysia Healthcare Travel Council (MHTC) to promote the healthcare tourism industry.

Industry Snapshot

- The number of establishments in the healthcare services sub-sector grew by 0.6% to 6,897 in 2013 from 6,858 in 2012.
- Most new market entrants have been within the general medical services industry, which had 3,838 establishments, followed by the dental services industry, which had 1,171 establishments in 2013.
- The rising demand for the medical services may be attributed to Malaysia's aging population and longer life expectancy. This group faces chronic medical conditions such as heart disease, coronary heart disease, cancer, diabetes and stroke. Improved healthcare awareness and a higher household income among the middle classes have also led to a higher demand for private healthcare.
- Employment in the healthcare services sub-sector remained stable, with 80,595 employees in 2013 compared to 79,690 employees in 2012.
- The hospital services industry remained the sub-sector's biggest employer with 38,530 workers due to the wide range of services offered. The general medical services industry was the sub-sector's next biggest employer with 25,672 workers.

Figure 4.31: Snapshot of the Healthcare Services Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Health and Social Work Services, Department of Statistics, Malaysia
Note: *e* - Estimate

- Employment growth was highest within the general medical and specialised medical industries (1.3% each) followed by hospital services and dental services (1.1% each).
- The healthcare services sub-sector continued to expand at a rate of 5.3% in 2013 to register RM4.6 billion in added value.
- The specialised medical services industry saw the highest growth in added value at 6%, followed by hospital services at 5.8%. This increase was due to the quality of services offered at premium fees.
- The increased adoption of ICT and the latest medical technologies also contributed to the healthy growth in added value within this sub-sector.

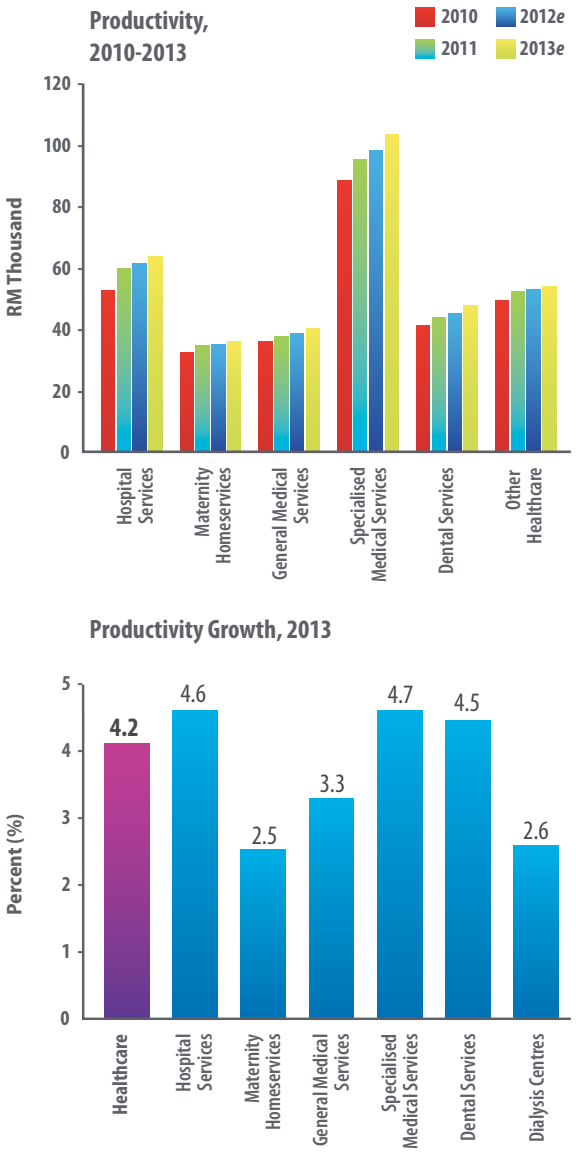
Productivity Performance

Productivity in the healthcare services sub-sector rose by 4.2% to RM56,674 per person employed in 2013 from RM54,407 per person in 2012. Productivity growth was strongest in the specialised medical services industry (4.7%), followed by hospital services (4.6%) and dental services (4.5%) (Figure 4.32).

The high productivity growth observed in these sub-sectors was due to the abilities of its skilled workforce, continuous training programmes and the adoption of ICT and the latest medical technology and equipment. These industries have also focused on delighting their customers by emulating the best practices of the airlines and hospitality industries. Eight private hospitals in Malaysia have been accredited by Joint Commission International (JCI) and 41 have been recognised as health tourism hospitals to date. This recognition enables them to attract more foreign patients to Malaysia and enhances the country's medical tourism appeal.

Labour cost competitiveness within this sub-sector improved in 2013 as productivity growth outstripped growth in labour costs per employee of 3.2% while unit labour costs declined by 1% (Figure 4.33). The decline in unit labour costs experienced by all industries within this sub-sector was due to increased innovation and improved efficiency derived from more efficient processes and the adoption of labour-saving technologies in their business operations.

Figure 4.32: Productivity Within the Healthcare Services Sub-Sector, 2010-2013



Computed from: Economic Census 2011, Health and Social Work Services, Department of Statistics, Malaysia
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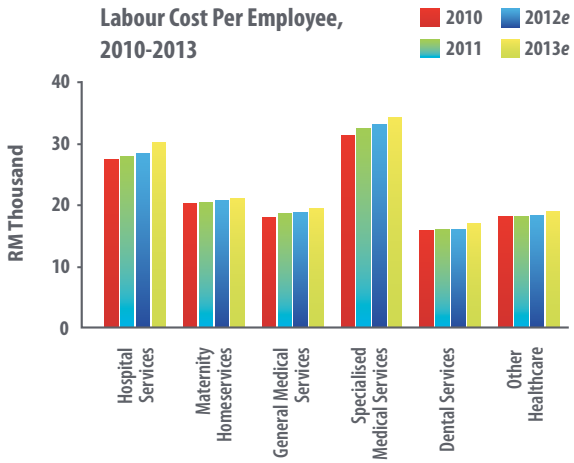
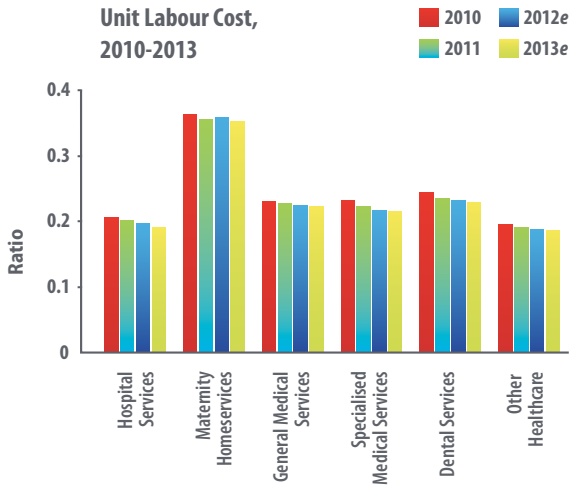
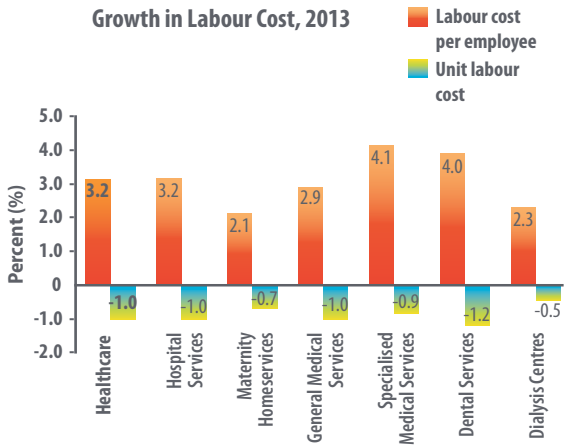
Figure 4.33: Labour Cost Competitiveness, 2010-2013







Computed from: Economic Census 2011, Health and Social Work Services, Department of Statistics, Malaysia
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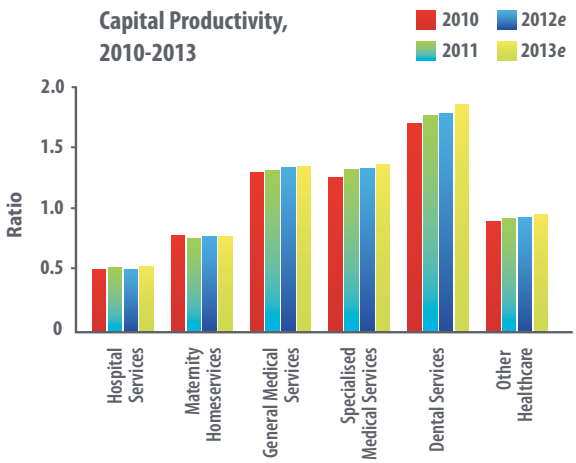
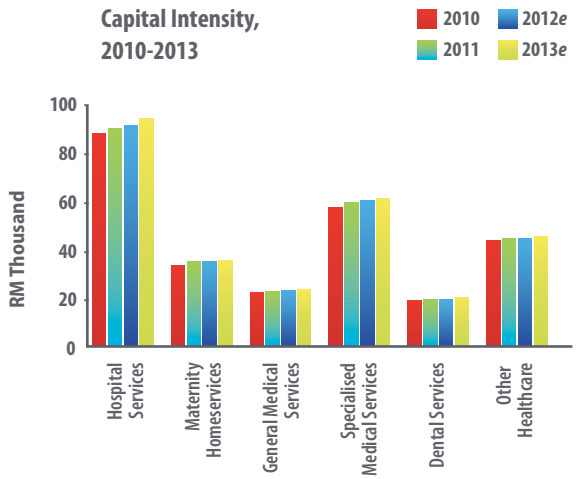
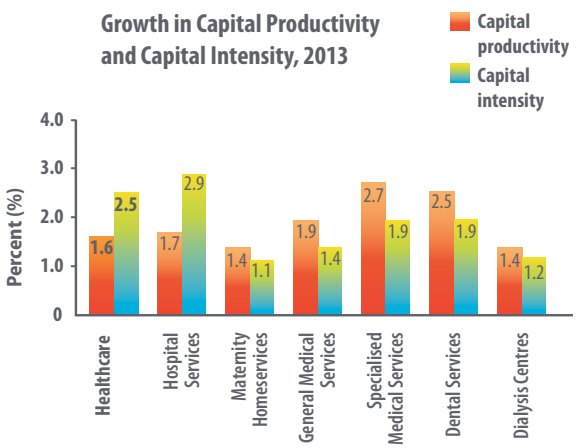
Figure 4.34: Capital Productivity and Capital Intensity, 2010-2013







Computed from: Economic Census 2011, Health and Social Work Services, Department of Statistics, Malaysia
Note: *e* - Estimate

Sustaining labour cost competitiveness in the healthcare sub-sector remains a major challenge as industry players grapple with tight profit margins of less than 10%. Private healthcare service providers must strive for greater economies of scale and continuously seek innovative ways to improve labour efficiency as the key to their survival.

Sustaining labour cost competitiveness in the healthcare sub-sector remains a major challenge.

However, capital productivity in the healthcare services sub-sector improved by 1.6% in 2013 compared to 1% in 2012. The specialised medical services industry registered the greatest growth in capital productivity at 2.7% (Figure 4.34). This industry provides comprehensive medical services for treating unique diseases that require huge investments in advanced equipment, machines and medical devices.

The healthcare services sub-sector is very capital intensive, with hospital services recording the highest capital intensity growth in 2013 (2.9%) followed by dental and specialised medical services at 1.9% each. Rapid advancements in technology have shortened the useful life of medical equipment and machines, making these assets obsolete sooner and requiring them to be replaced more frequently.

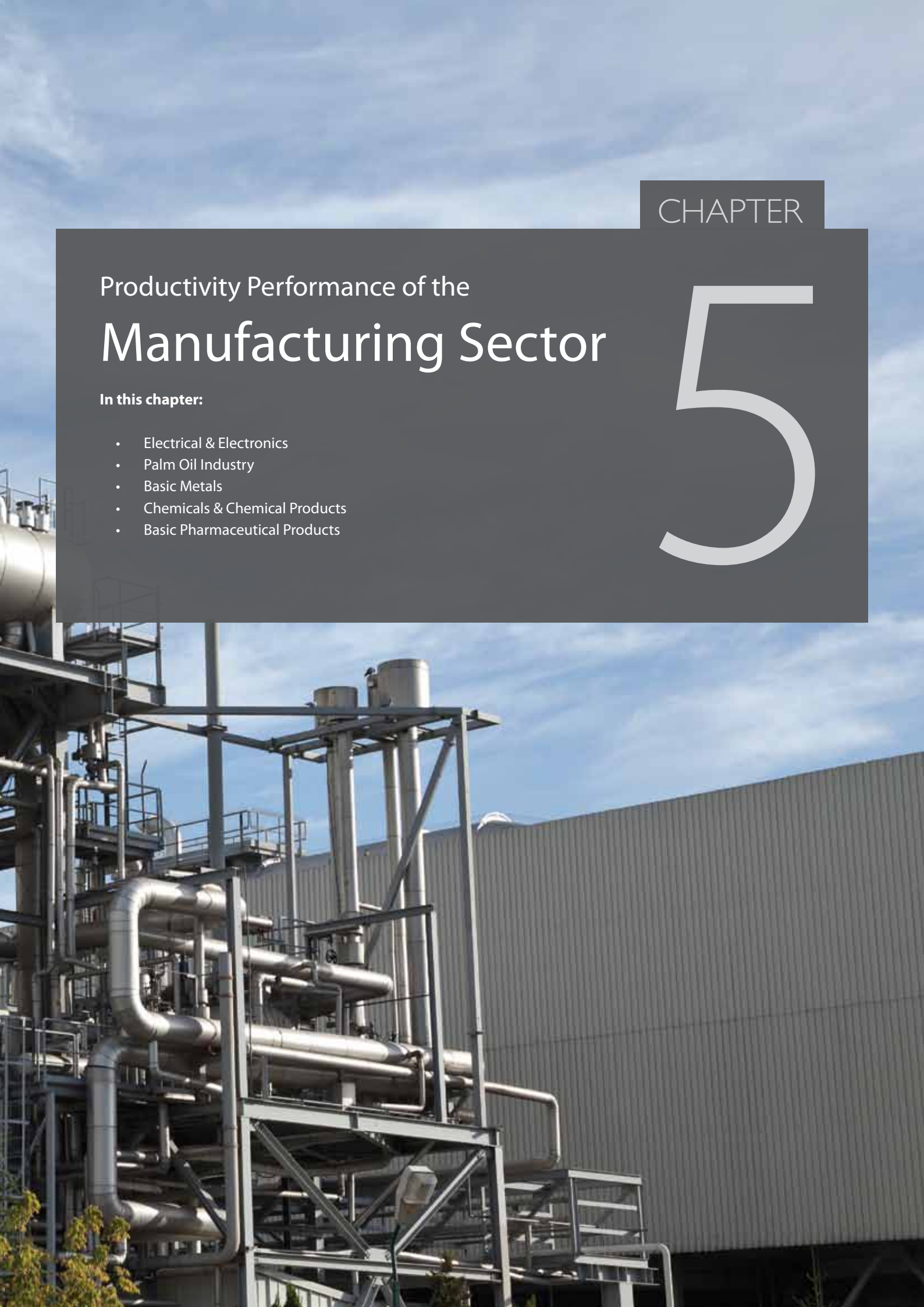
Issues and Challenges

Medical tourism is becoming one of Malaysia's most promising sources of income. The industry has grown by leaps and bounds over the last decade and makes a significant contribution to the country's foreign exchange earnings. The number of medical tourists rose by more than 70% to 671,727 in 2012 from 392,956 in 2010, mainly due to patients from Indonesia and Singapore. Singaporean patients have taken advantage of their health insurance companies' recognition of Malaysian hospitals as well as the favourable exchange rate and comparatively low cost of treatment in Malaysia compared to Singapore. However, more efforts are required to attract medical tourists from other high income nations like Korea, Taiwan, Japan, Hong Kong and Australia.

Private hospitals that have been recognised as health tourism hospitals should aim for JCI accreditation as this will ensure their continuous improvement in terms of quality and patient safety and increase their appeal abroad. Currently, only eight private hospitals in Malaysia have been accredited by JCI. The industry must take steps to ensure that health tourism hospitals focus on quality to attract medical tourists from Australia and North Asia.

One of the main challenges faced by the healthcare industry is its escalating operating costs due to rising labour costs and capital outlays to replace obsolete machinery and equipment. In addition to buying medical supplies in bulk, the industry must consider outsourcing non-core services such as laundry and waste management. It should also look into ways to share the costs and benefits of costly facilities and distribute the burden of purchasing new machinery and equipment among industry players.

The key to survival for private healthcare providers is innovation. Malaysia has a competitive advantage in the areas of cardiology, cosmetic and reconstructive surgery, oncology, orthopaedic, spine surgery, ophthalmology and weight loss surgery. These areas should be promoted more aggressively at the international level to attract foreign patients. Industry players must also differentiate themselves by embarking on productivity and quality initiatives that will reduce wastage, eliminate time-wasting processes, enhance efficiency and reduce costs.



CHAPTER

5

Productivity Performance of the Manufacturing Sector

In this chapter:

- Electrical & Electronics
- Palm Oil Industry
- Basic Metals
- Chemicals & Chemical Products
- Basic Pharmaceutical Products

PRODUCTIVITY PERFORMANCE OF THE MANUFACTURING SECTOR

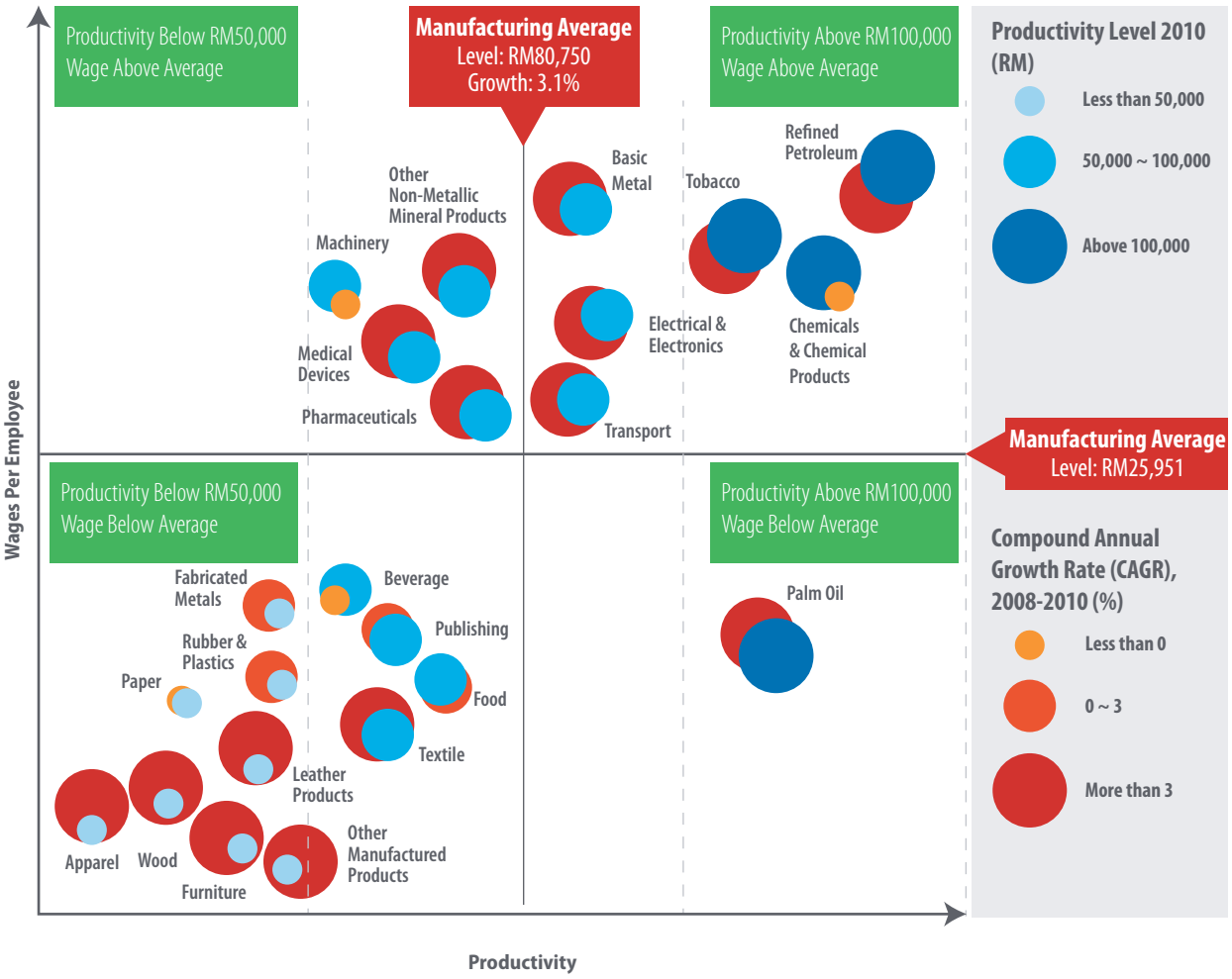
Productivity growth within the manufacturing sector increased to 5.4% to RM88,389 in 2013 boosted by high productivity growth rates within the transport equipment (10%), textiles (8.5%) and other non-metallic mineral products (8.0%) sub-sectors. ▶▶▶

Productivity growth in the manufacturing sector rose to 5.4% to RM88,389 in 2013 from 4.5% in 2012. It continues to be the second largest contributor to national GDP, with its share of GDP growing by 3.4% to RM193 billion. The sector also employed 2.2 million people, comprising 16.8% of the country's total employment.

As one of the main engines for economic growth, three sub-sectors of manufacturing (palm oil, electrical and electronics and refined petroleum products) have been identified as NKEAs to raise Gross National Income (GNI) and create greater employment opportunities towards achieving a high income economy by 2020. Besides these NKEAs, several sub-sectors have the potential to grow further such as transport equipment, chemical and chemical products, basic pharmaceutical products and basic metals (Figure 5.1). These sub-sectors all have high productivity growth rates and could potentially generate higher wage jobs.

The manufacturing sector consists of export-oriented and domestic-oriented industries. China, Singapore, the European Union, Japan and the USA are the main export destinations for Malaysia's manufactured

Figure 5.1: Manufacturing Productivity and Wage Performance by Level and Growth



products. Exports to China amounted to RM97 billion in 2013, comprising 13.5% of the country's total exports. Electrical and electronics (E&E) and refined petroleum products continued to be Malaysia's top export earners, bringing in RM236.8 billion (32.9%) and RM159.9 billion (22.2%) in export revenues respectively.

Industry Snapshot

The manufacturing sector continues to absorb a considerable proportion of labour, although total employment declined by 2.0% to 2.18 million in 2013 compared to 2.23 million in 2012 (Figure 5.2).

- The highest growth in employment was observed in the beverages (13.3%) and transport equipment sub-sectors (9.3%) of the economy. The E&E sub-sector employed the most workers, followed by rubber and plastic products, food, fabricated metal products and transport equipment.

- The E&E sub-sector is dominated by MNCs undertaking semiconductor assembly and test activities. However, recent figures show that the semiconductor industry is gradually moving into high-end products and away from low-end manufacturing activities.

Figure 5.2: Employment Growth of Selected Manufacturing Sub-Sectors, 2013

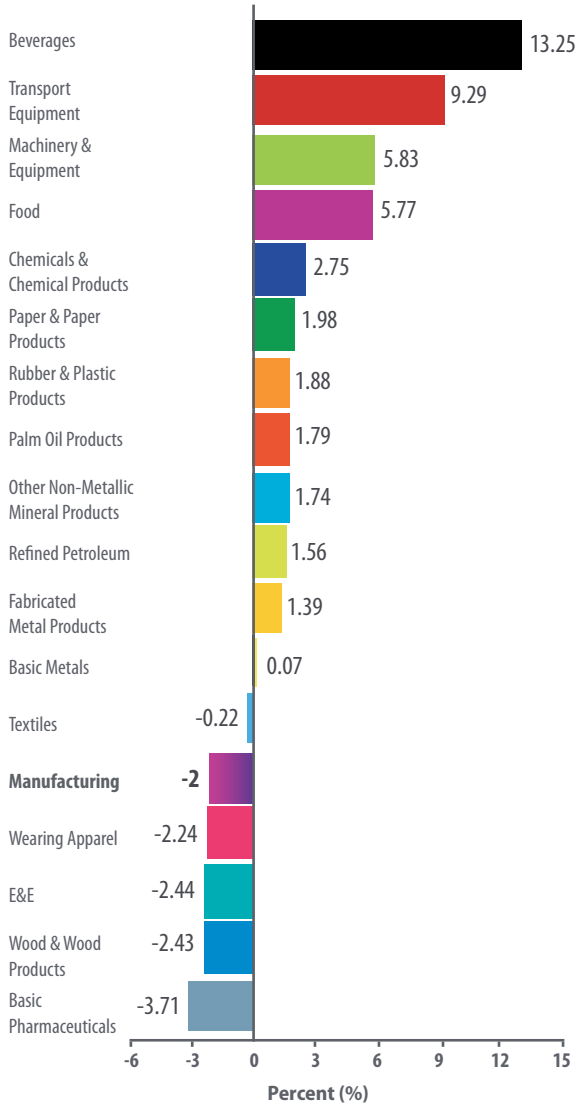


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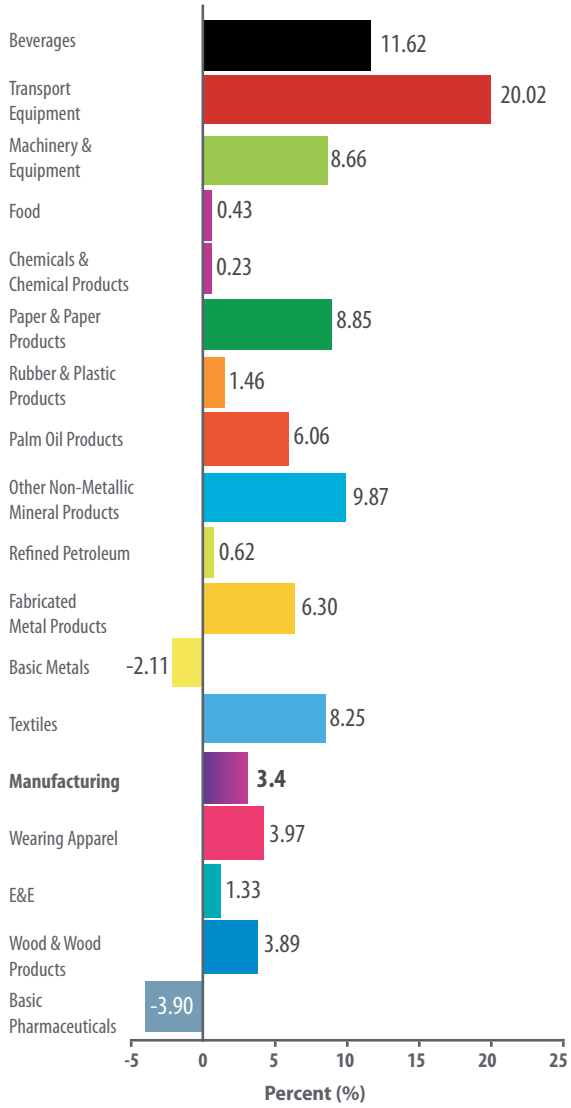
Figure 5.3: Added Value Growth of Selected Manufacturing Sub-Sectors, 2013



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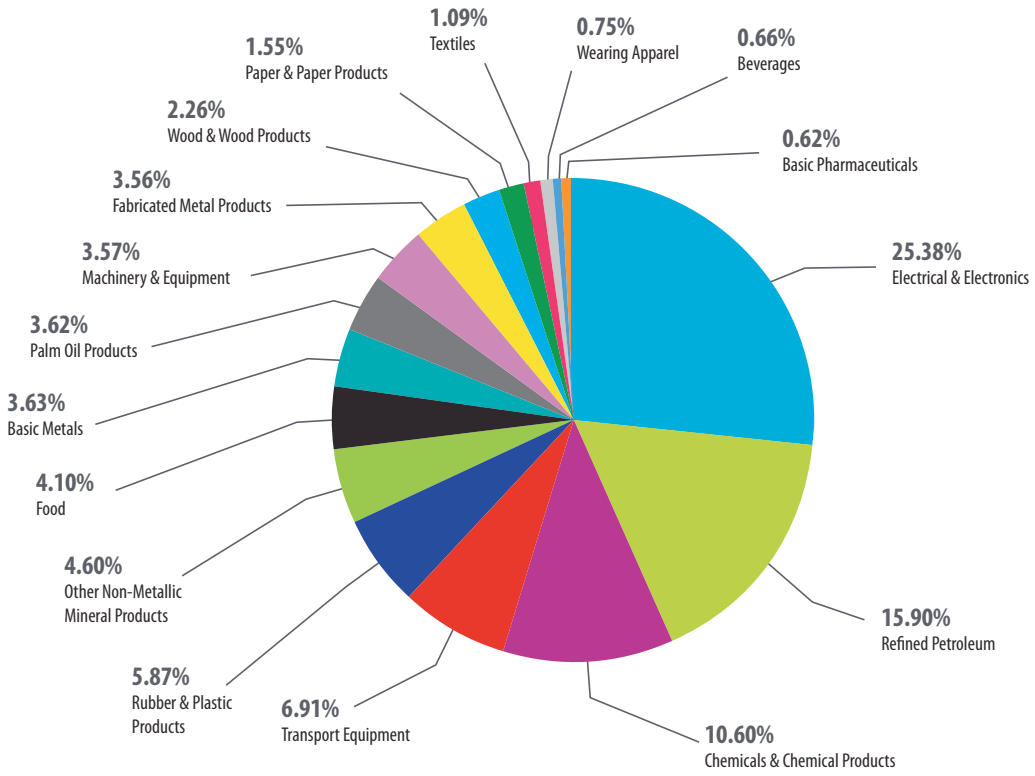
- Added value in the manufacturing sector slowed to 3.4% to RM192.8 billion in 2013 compared to RM186.7 billion in 2012 (Figure 5.3). This is partly due to the increasing costs of bought-in materials and services (BIMS), which constitute 80% of the sector's total output. BIMS costs rose by 2.9% in 2013. Growth in added value within this sector was supported by significant growth in the transport equipment (20.2%), beverages (11.6%) and other non-metallic mineral products (9.9%) sub-sectors, driven by stronger domestic demand.

- Although the E&E sub-sector registered slower growth in added value (1.3%), it remained the largest contributor to added value in 2013 at RM40.4 billion, accounting for 25.4% of total manufacturing added value in 2013 (Figure 5.4).

Figure 5.4: Added Value Contribution of Selected Manufacturing Sub-Sectors, 2013



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- Exports for the E&E sub-sector increased by 2.4% compared to 2012, due in part to the recovery of the global semiconductor industry. Demand for semiconductors was strongest in China, Singapore, the USA and Germany. China remained the principal export market for Malaysia's E&E producers, buying 17% (RM40.2 billion) of the country's total exports.

- The refined petroleum and chemicals and chemical products sub-sectors were the second (15.9%) and third (10.6%) largest contributors to added value.

- Although added value growth within the transport equipment sub-sector was higher in 2013, its total contribution was still four times less than that of the E&E sub-sector.

Productivity Performance

Productivity growth within the manufacturing sector increased to 5.4% to RM88,389 in 2013 compared to 4.5% at RM83,822 in 2012 (Figure 5.5), boosted by high productivity growth rates within the transport equipment (10%), textiles (8.5%) and other non-metallic mineral products (8%) sub-sectors. The notable improvement in productivity growth in the transport equipment industry reflects growing domestic demand for transportation products such as motor vehicles, bodies for motor vehicles and parts and accessories. Several export-oriented sub-sectors such as wood and wood products and E&E also registered positive improvements, but the rates of growth in 2013 were relatively lower compared to 2012.

The productivity growth of the refined petroleum and beverages sub-sectors contracted sharply from their highs of 2012. Rising employment compounded these sub-sectors' inability to create greater added value, thereby hindering productivity growth and reducing the manufacturing sector's overall productivity performance. Rising employment can temporarily reduce productivity growth as even well-qualified new employees take time to get used to new jobs. Until they gain job-relevant skills, the productivity of new hires will lag behind the productivity of existing employees. However, this is a short term effect. Once these employees gain experience on the job, productivity growth should return to normal at these companies.

Labour cost competitiveness within the manufacturing sector declined in 2013 as both unit labour costs and labour costs per employee rose by 3.5% and 5.3% respectively (Figures 5.6 and 5.7). The growth of these factors may be due to a labour shortage, a lack of skilled workers, a poor labour mix or a high labour turnover.

The increase in unit labour costs implies that the manufacturing sector has become less competitive since output is produced at relatively higher costs. Figure 5.7 shows that most manufacturing sub-sectors experienced an increase in unit labour cost in 2013, with the highest growth (13.3%) observed in the food sub-sector. However, some sub-sectors saw welcome reductions in unit

Figure 5.5: Productivity Growth of Selected Manufacturing Sub-Sectors, 2012-2013

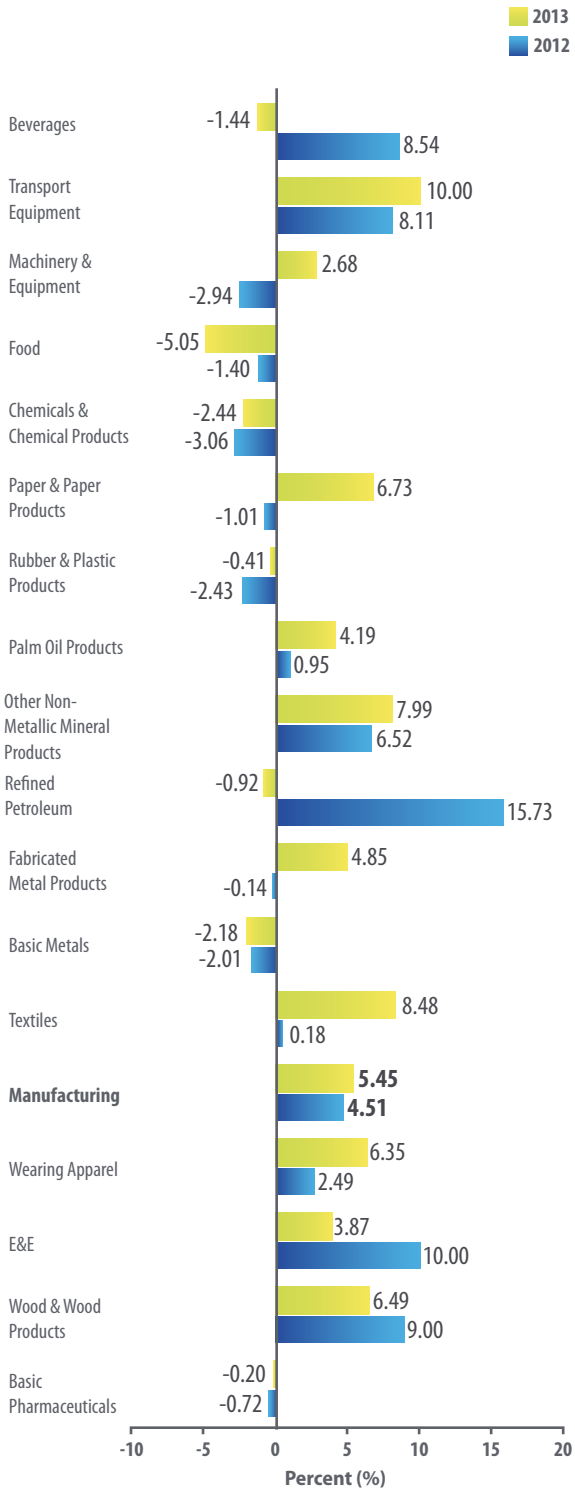

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Figure 5.6: Labour Cost Per Employee Growth of Selected Manufacturing Sub-Sectors, 2012-2013

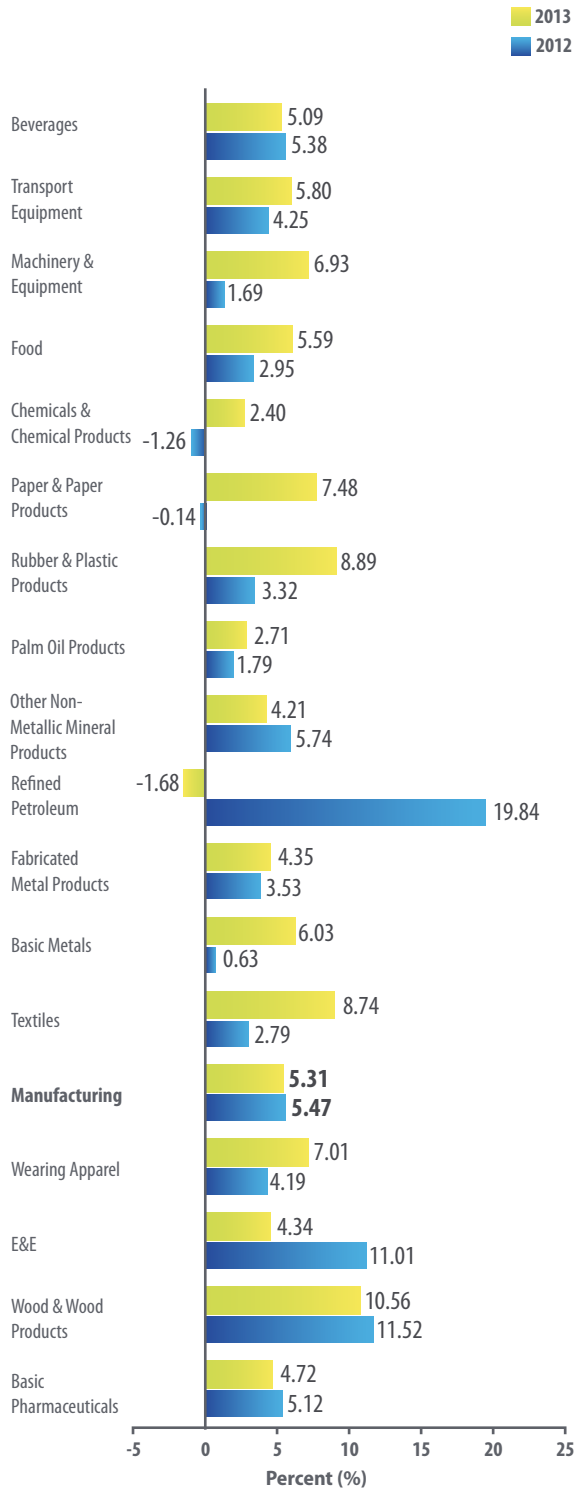

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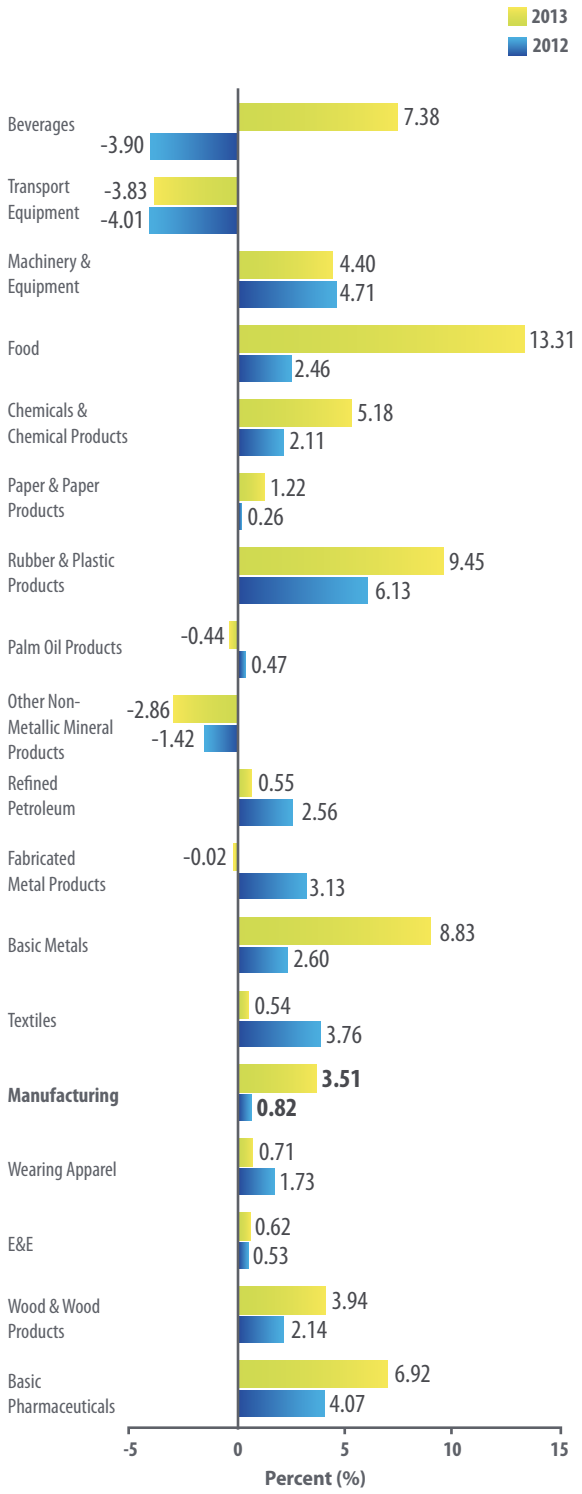
Figure 5.7: Unit Labour Cost Growth of Selected Manufacturing Sub-Sectors, 2012-2013



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labour cost ratios including transport equipment, other non-metallic mineral products, palm oil and fabricated products.

Capital productivity within the manufacturing sector also slowed to 1.1% in 2013 (2012: 3.7%). This decrease was most notable within the food, refined petroleum products and basic pharmaceuticals sub-sectors. However, the deteriorating efficiency in asset utilisation within these sub-sectors was offset by a corresponding increase in capital productivity within the textiles and machinery equipment sub-sectors (Figure 5.8).

Capital intensity within the manufacturing sector remained at 0.9% in 2013. Some labour-intensive sub-sectors made significant investments in 2013 as they move towards more capital-intensive operations. Capital intensity growth improved significantly within the textiles (2.8%), paper and paper products (2.5%) and wearing apparel (1.8%) sub-sectors. All these sub-sectors are export-oriented industries, and capital investments are crucial to meet global demand.

The following sections discuss the productivity growth achievements of selected sub-sectors, namely E&E, palm oil, basic metals, chemicals and chemical products and basic pharmaceuticals.

Figure 5.8: Capital Productivity Growth of Selected Manufacturing Sub-Sectors, 2012-2013

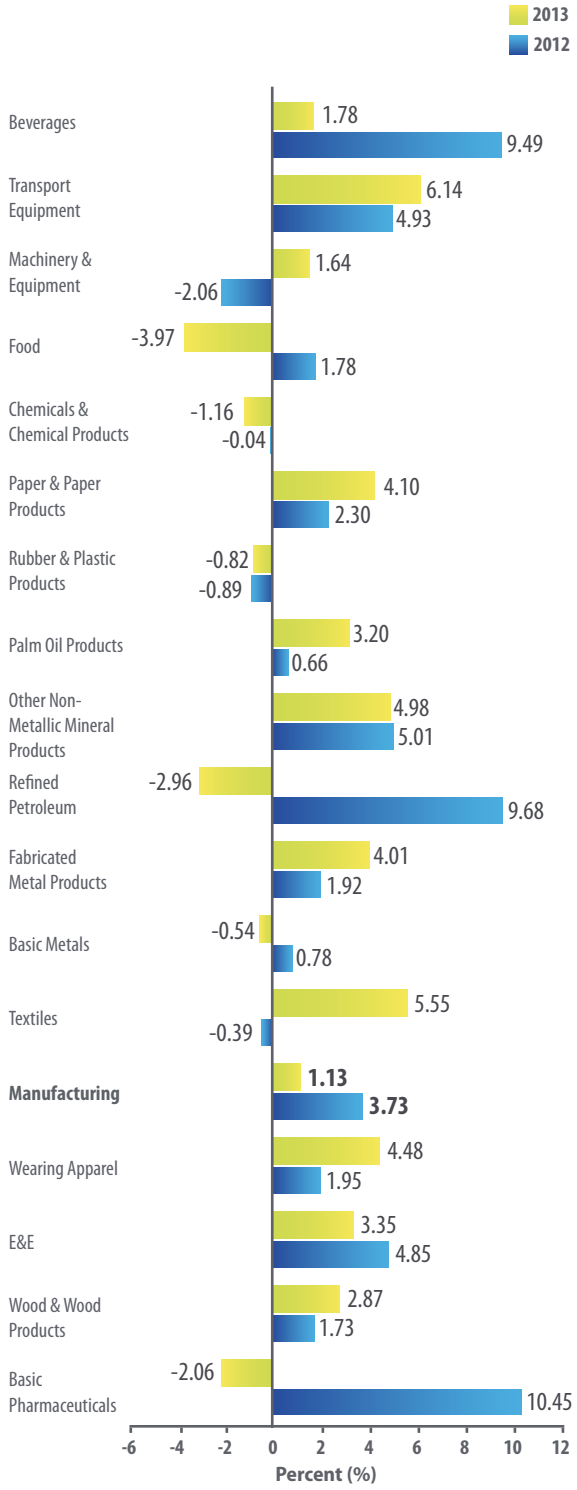

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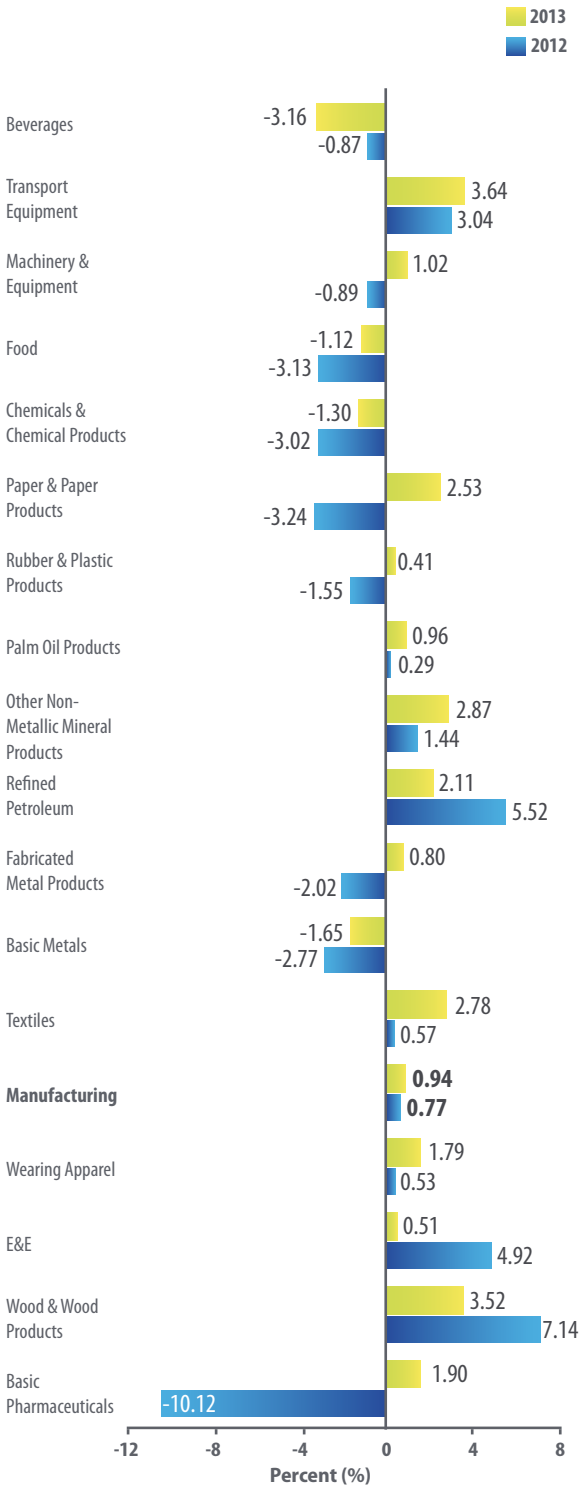
Figure 5.9: Capital Intensity Growth of Selected Manufacturing Sub-Sectors, 2012-2013



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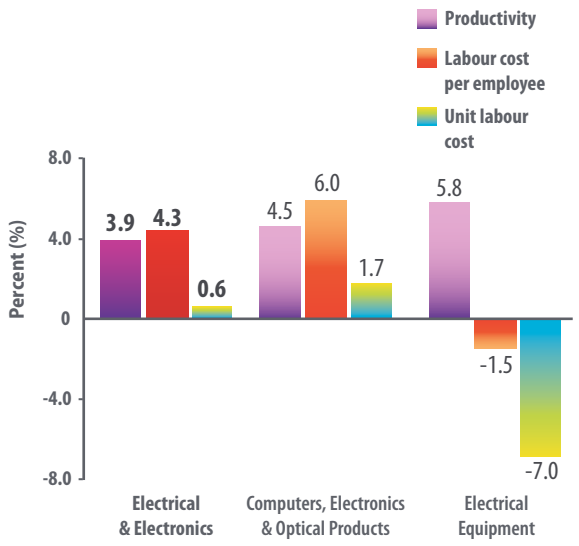
Electrical and Electronics (E&E)

The E&E sub-sector has been identified as an NKEA under the Economic Transformation Programme (ETP). In 2013, E&E exports rose slightly by 2.4% to RM236.8 billion from RM231.3 billion in 2012, although this increase was mainly due to a rise in average unit value rather than total export volume. The sub-sector's total output only increased by 1.2% in 2013, three times less than the rate achieved in 2012 (5.5%). Similarly, the sub-sector's added value only increased by 1.3% in 2013 compared to 5.1% the previous year. This is largely due to the overall nature of the country's E&E sub-sector, which is still characterised by basic manufacturing activities producing low value-added products. The sub-sector relies heavily on low-cost, low-quality components imported from China.

In terms of productivity performance and labour cost competitiveness, the electrical equipment industry outperformed the computer and electronic and optical products industries as well as the E&E sub-sector overall (Figure 5.10) in 2013. Over the years, Malaysia's electrical equipment industry has evolved from mere assembly activities towards designing products for regional and global markets, including local brands. The industry's

Figure 5.10: Productivity Growth and Labour Cost Competitiveness for the Electrical & Electronics Sub-Sector, 2013



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productivity performance as well as labour cost competitiveness shows that its capabilities and skills have developed significantly. Besides household appliances such as air-conditioners, refrigerators, washing machines, vacuum cleaners and other electrical appliances, the industry is also a major producer of electrical industrial equipment and electrical components. In other countries such as Japan, the E&E sub-sector is moving toward higher value goods and green technology products.

Palm Oil Industry

The palm oil industry expanded moderately in 2013, with total output growing by 5% to RM67.8 billion in 2013 from RM64.6 billion in 2012. Exports of palm oil products decreased by 13.6% to RM63.2 billion in 2013 from RM73.2 billion in 2012. However, the industry's added value increased steadily by 6.1% to RM5.8 billion primarily due to strong domestic demand, especially within the processed food and oleochemicals industries.

Productivity within the palm oil industry rose to RM111,603 per person employed in 2013 from RM107,113 the year before, helping to raise productivity growth to 4.2% in 2013 (Figure 5.11) compared to 1% in 2012. The reasonable increase in productivity growth was due to more efficient production process as total output (5%) exceeded the growth in employment (1.8%) and capital (2.8%). The refined palm oil industry posted the highest productivity growth of 6.7%. It was also the most labour cost competitive industry, as it was able to add more value to its output.

Basic Metals

The basic metals sub-sector has seen significant developments in tandem with the country's industrial progress. The expansion of this sub-sector has been supported by its role as being a main supplier of raw materials for others sub-sectors of the economy, notably construction, E&E and fabricated metals.

Exports from metals products decreased drastically by 24.9% in 2013 as is reflected by the sub-sector's

Figure 5.11: Productivity Growth and Labour Cost Competitiveness for the Palm Oil Industry, 2013

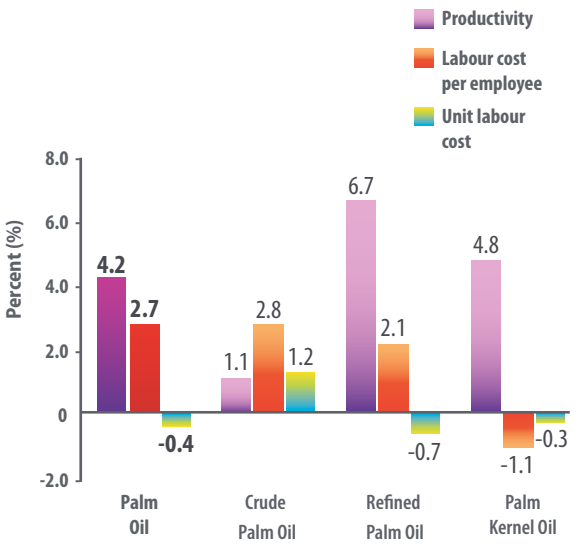

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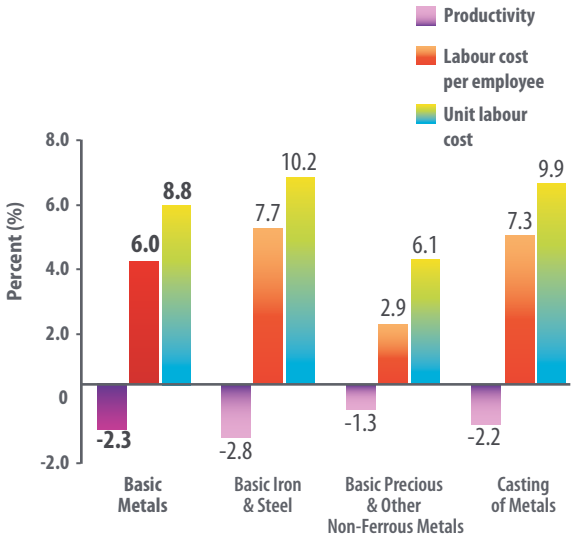
Figure 5.12: Productivity Growth and Labour Cost Competitiveness for the Basic Metals Sub-Sector, 2013



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overall productivity growth, which contracted to -2.2%. Productivity performance and labour cost competitiveness deteriorated in all three industries within this sub-sector (Figure 5.12), as added value decreased

by 2.2% while employment rose by 0.1%. The loss of competitiveness implies that the basic metals sub-sector may be unable to utilise its production inputs efficiently as workers receive higher wages without contributing a commensurate rise to output growth.

Chemicals & Chemical Products

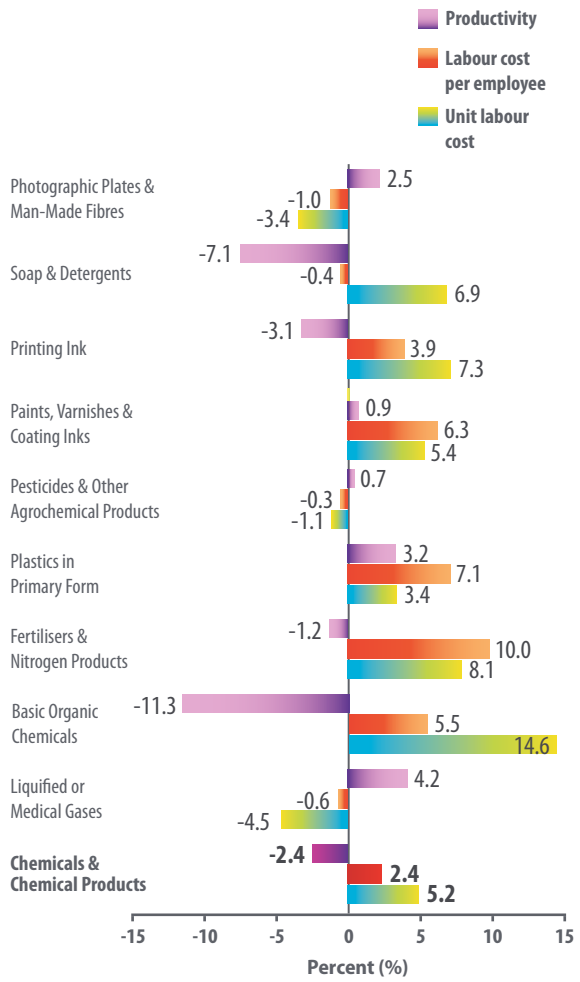
The chemicals and chemical products sub-sector is one of Malaysia's largest sub-sectors and is the third largest contributor to added value within the manufacturing sector. It contributes key raw materials to other industries within the automotive, E&E, basic pharmaceuticals and construction sub-sectors.

In 2013, exports from the chemicals and chemical products sub-sector increased by 12.8% to RM52 billion from RM46.1 billion in 2012. The sub-sector's overall productivity growth improved to -2.4% in 2013 from -3% in 2012 (Figure 5.13), with productivity growth strengthening in industries such as liquefied or medical gases (4.2%), primary plastics (3.2%) and photographic plates and man-made fibres (2.5%).

This is a high-technology, capital-intensive sub-sector that requires a highly-trained and skilled workforce for its R&D activities as well as a continuous development programme.

The growth in labour costs per employee in this sub-sector increased substantially in 2013, rising to 2.4% from -1.3% in 2012. This is a high-technology, capital-intensive sub-sector that requires a highly trained and skilled workforce for its R&D activities as well as a continuous development programme that requires relatively higher wages. The sub-sector also frequently evolves through new production technology and products. Although this sub-sector's overall labour cost competitiveness has decreased, three of its industries managed to improve their labour cost competitiveness by reducing unit labour costs: photographic plates and man-made fibres; pesticides and other agrochemical products; and liquefied or medical gases.

Figure 5.13: Productivity Growth and Labour Cost Competitiveness for the Chemicals & Chemical Products Sub-Sector, 2013



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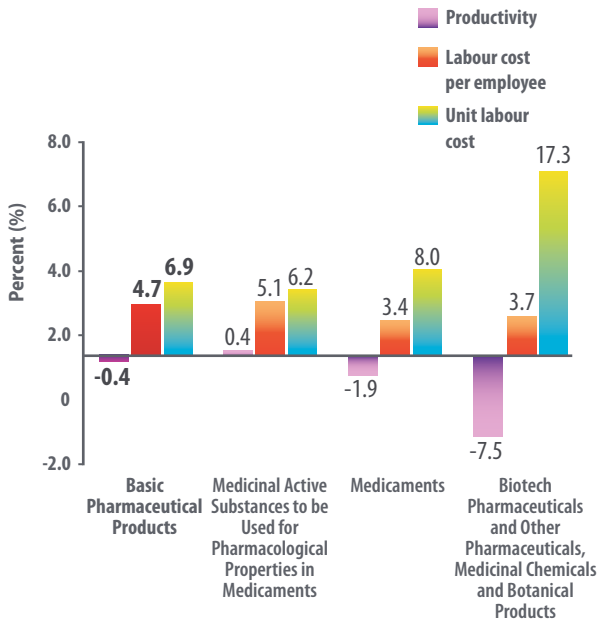
Basic Pharmaceutical Products

The pharmaceuticals-related sub-sector is an important component of the Healthcare NKEA. The sub-sector has high growth potential, both for domestic and export markets. Malaysia's exports of pharmaceutical products amounted to RM981 million in 2013, rising 2.8% from RM954 million in 2012. Although productivity per person employed declined marginally in 2013, productivity growth improved to -0.4% from -1.1% in 2012. Efforts to increase the manufacture of Malaysian generic pharmaceuticals through EPP initiatives will help to further enhance this sub-sector. One of the EPPs under

the Healthcare NKEA is aimed at increasing Malaysia's capacity for exporting generic drugs.

In 2013, productivity growth declined in all industries in the basic pharmaceutical products sub-sector except for medical active substances. The biotech pharmaceuticals industry experienced a significant loss of competitiveness with productivity declining by 7.5% while labour cost per employee and unit labour cost increased by 3.7% and 17.3% respectively (Figure 5.14).

Figure 5.14: Productivity Growth and Labour Cost Competitiveness for the Basic Pharmaceutical Products Sub-Sector, 2013



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ISSUES AND CHALLENGES

Malaysia's economy is projected to grow by a steady 2.7% in 2014 in spite of an increasingly challenging external environment. From the demand side, growth will be anchored by resilient private consumption and strong private investment activity in all sectors. In addition domestic-oriented industries are expected to further boost the growth of the manufacturing sector.

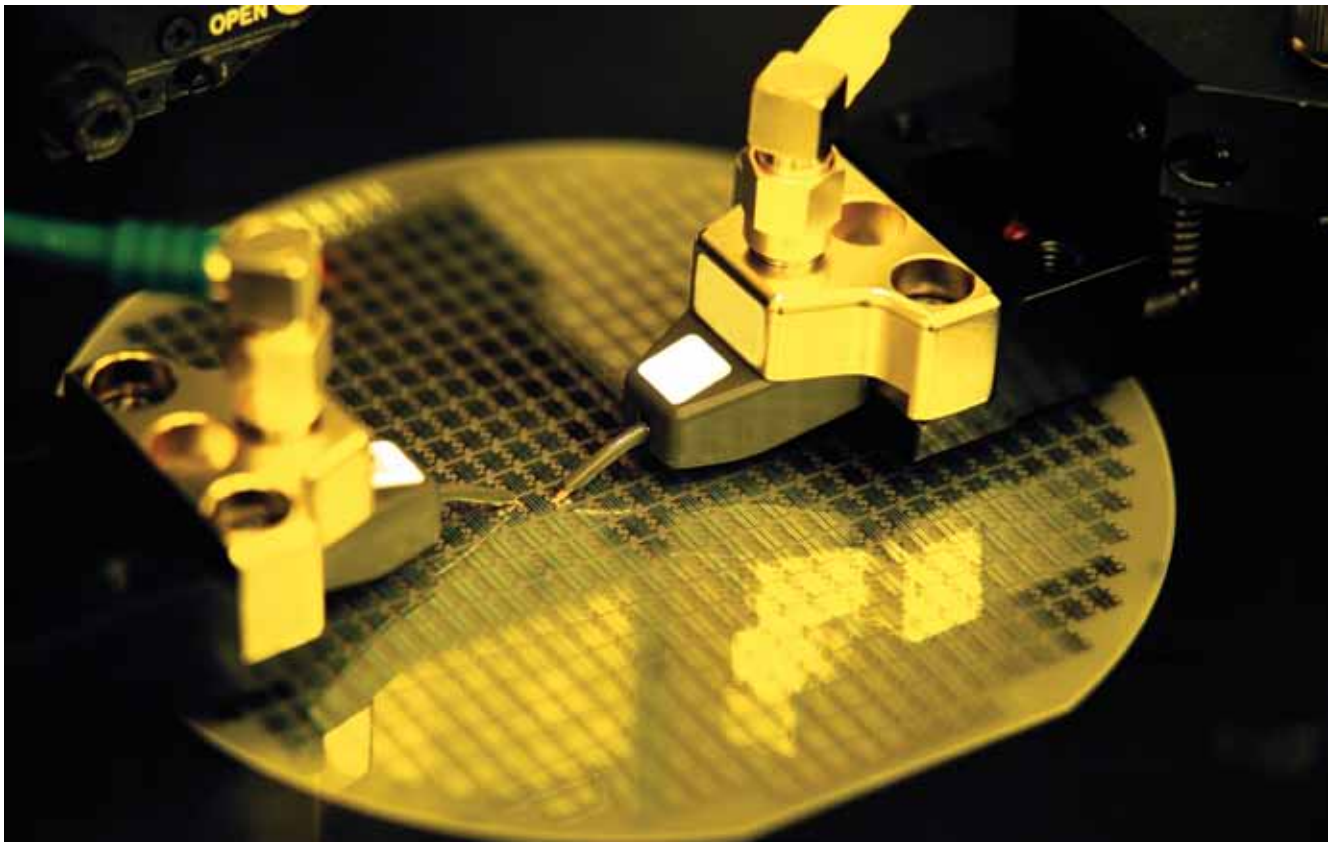
The high production costs experienced by the manufacturing sector are partly due to rising prices of bought-in materials and services (BIMS) as the materials, services and machinery used in the sector are not produced locally and have to be imported at a high cost.

One of the toughest challenges facing Malaysia's manufacturing sector is market competition. For example: the solar industry faces stiff competition from conventional energy sources. In addition, there is a lack of awareness among households to install solar systems as a savvy, environmentally-friendly energy solution. Solar installations also require large up-front investments, and banks are reluctant to extend financial assistance for these investments.

Meanwhile, the pharmaceuticals industry has seen a decrease in the number of export licenses issued since 2009, while the number of import licenses has increased since 2010. This indicates that the local production of pharmaceutical products is shrinking while imports are increasing. Initiatives to promote R&D in bio-pharmaceutical technology through collaborations with established players will benefit this sub-sector and increase the production of Malaysian-made pharmaceutical products.

Like other sectors of Malaysia's economy, the manufacturing sector also faces major challenges in finding and retaining talent. Companies have to compete for talent not only among local and foreign competitors, but also with other sub-sectors both domestic and abroad. As a result, skilled workers often join other industries in search of better wages and job security. In addition, some emerging local industries such as aerospace are too small to provide employment for the entire local talent pool, and skilled workers are beginning to explore opportunities in more established industries such as oil and gas. This reduces the availability of talent for emerging industries.

The manufacturing sector is expected to grow by 3.3% in 2014 due to the strong expansion of these domestic-oriented industries. Export-oriented sub-sectors such as E&E, chemicals and resources-based industries are also expected to grow in 2014 as the world's advanced economies make a full recovery and intra-regional trade



improves. In addition, the transport equipment sub-sector and construction-related sub-sectors are expected to grow in line with the expansion of several EPPs under various NKEAs. The government's efforts to boost small-and-medium industries and the implementation of several other EPPs will also help this sector to expand and engage in higher value-added activities.

Electrical & Electronics

The E&E sub-sector is likely to face increased competition from China, Taiwan, Singapore and other countries in the region. It is crucial that the sector increase the added value in its products for the country to capture a larger share of E&E exports in international markets. The countries cited above have captured higher added value E&E investments in innovation, R&D and design activities.

The E&E sub-sector is expected to grow in 2014 as advanced economies continue to recover and E&E manufacturers diversify their product range to cater to various consumer preferences. The sub-sector should focus on specific areas such as testing, integrated solutions and advanced packaging. It is also recommended that the E&E sub-sector move into producing scientific equipment and instrumentation. E&E companies under vendor programmes should be encouraged to export their products. Such efforts will not only support downstream industries but also produce more value added products and increase the employment of high skilled workers. Malaysia can become hub within these specific areas and cater to the needs of Asian countries.

Textiles

The textiles sub-sector is becoming increasingly capital intensive. However, the machinery and equipment used by this sub-sector is all imported, including basic sewing machines. Rising prices and exchange rate fluctuations could affect this sub-sector's efforts to modernise with imported equipment. The sub-sector is also encountering difficulties in recruiting textile specialist workers such as chemical engineers.

In order for the textile sub-sector to produce higher value added products, it needs the support of other industries such as petrochemicals. Korea has already moved into upstream textile industries focused on producing synthetic fabrics such as artificial silk. If Malaysia takes similar steps to promote these types of products, the textile sub-sector will not only increase its added value but also help other industries to grow such as petrochemicals and transport and storage.

It is recommended that the government reconsider the textile industry cluster approach to promoting industrial development within this sub-sector to create multiplier effects throughout the manufacturing sector. To address the shortage of skilled talent, the government should encourage Technical Education and Vocational Training (TEVT) within textile job specialisations by certifying graduates that are accredited and recognised internationally.

Palm Oil Industry

From the supply side, the palm oil industry is expected to continue to progress at a steady rate as the Palm Oil Industry Cluster (POIC) project in Sabah commences operations in downstream activities. Declining international prices for seed products might limit further expansion for the time being, but as the economies of China, the USA and the European Union continue to improve, it is anticipated that overseas demand for palm oil products will rise in tandem with increased spending. Penetrating new markets in other regions will increase the exports of palm oil products and facilitate further expansion of this industry in the future.

Pharmaceuticals

The basic pharmaceutical products sub-sector had a tough year in 2013. However, growing domestic demand for healthcare services and increased sales of generic drugs in developed and emerging markets will allow this sub-sector the opportunity to recover in 2014. Over the last few years, the industry has also made substantial investments to upgrade its processes to meet the latest Good Manufacturing Practices (GMP) requirements, which is important for penetrating the global market.

Chemicals & Chemical Products

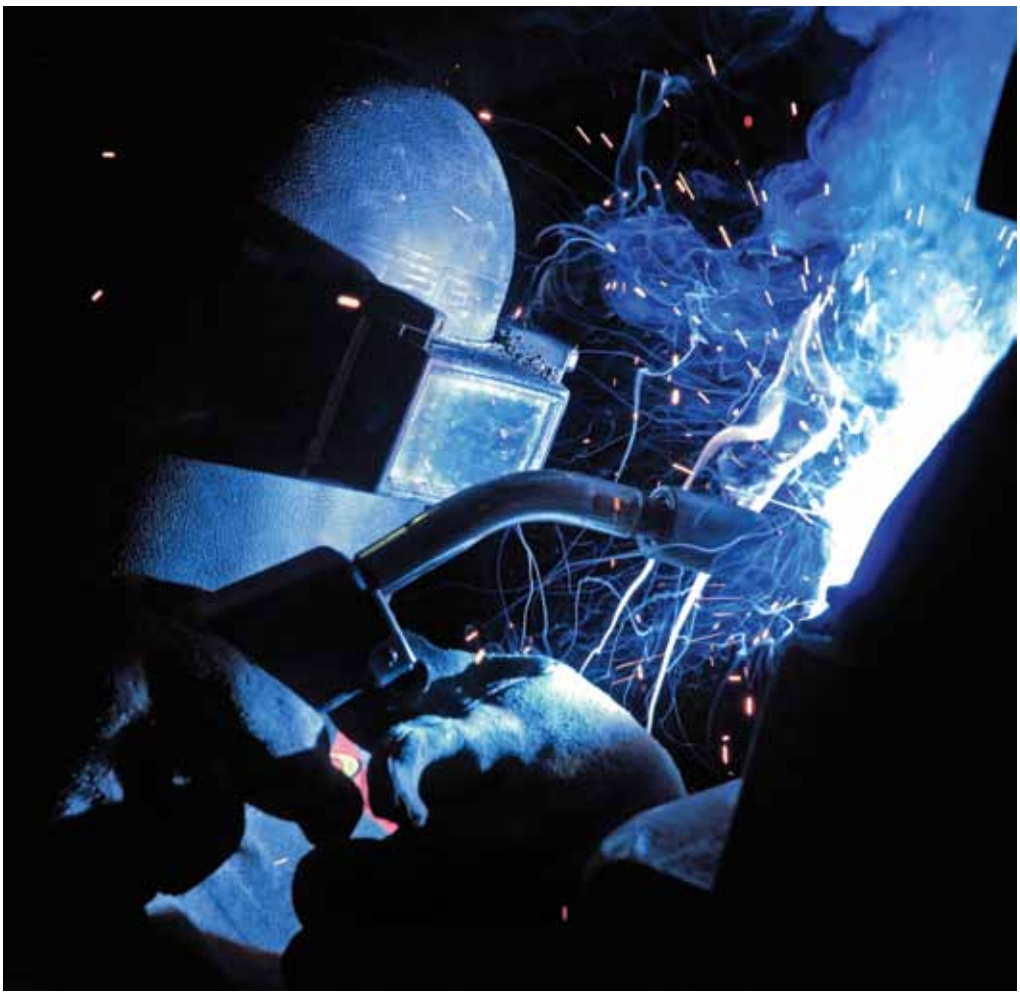
The chemicals and chemical products sub-sector will strengthen further in 2014 supported by its remarkable growth in 2013 and continued strong external demand. From the supply-side, the sub-sector should consider strategic measures for reducing production costs such as wages and prices. It is also crucial that the sub-sector improve its adoption of information technology to enhance operational efficiency. Expansions in other industries such as automotive, construction, infrastructure, E&E and personal care products will also increase demand for chemical intermediate inputs and have a positive impact on this sub-sector.

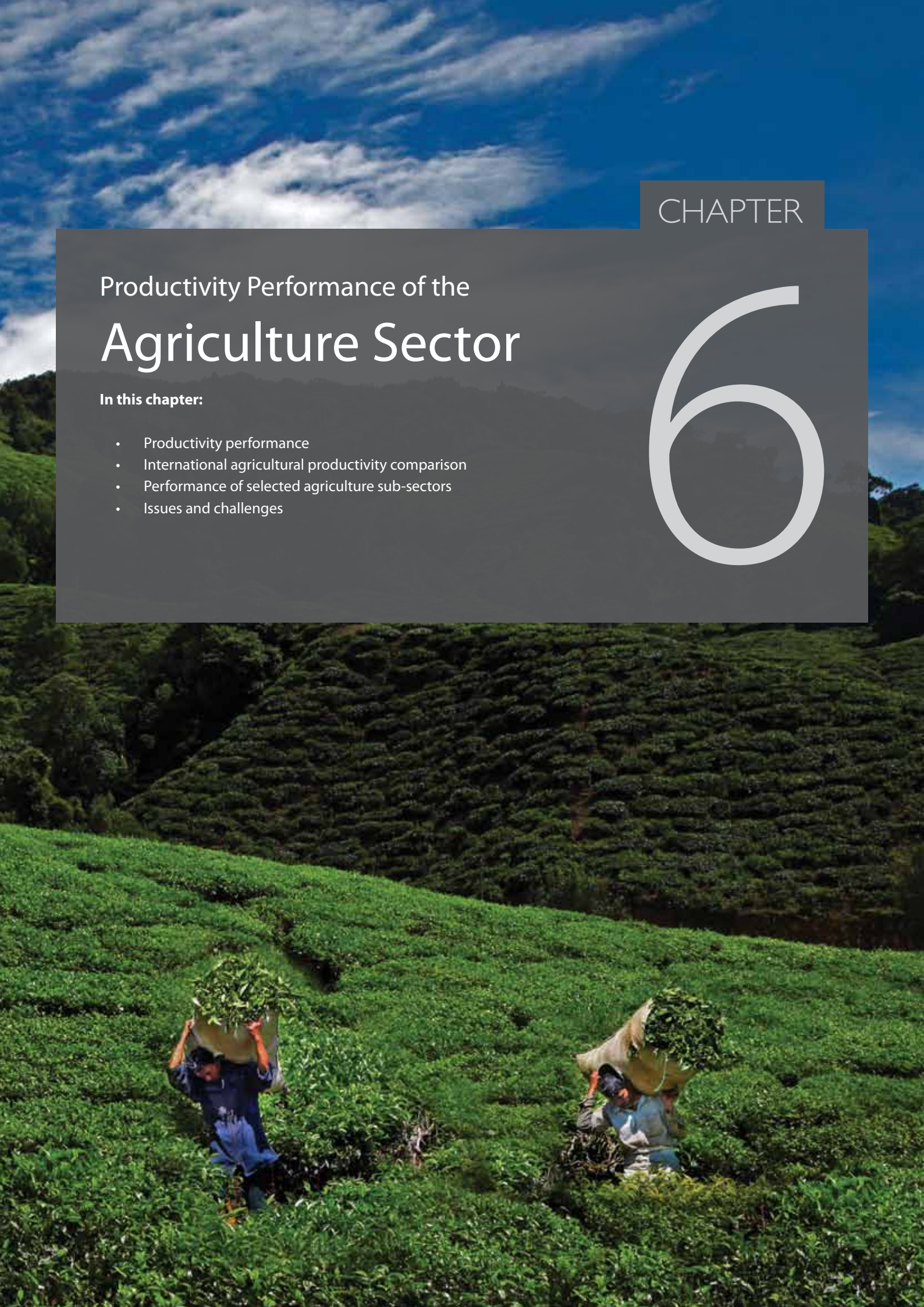
Basic Metals

The basic metals sub-sector had an unfavourable 2013 due to slow growth and a contraction in global demand. Nonetheless, the sub-sector is expected to recover in 2014 as a new iron ore transhipment hub and palletisation plant in Perak begins operations. This is expected to increase total output growth and value added in this sub-sector. Although most of the iron ore will be shipped to China, Japan and Korea, this 'virtual mine' will allow Malaysian mills to purchase virgin iron units at a discount compared to other countries in the region. For the sub-sector to stay competitive, it is crucial that it focuses on reducing production costs and improving the skills of its workforce.

Transport Equipment

The transport equipment sub-sector experienced a surge in value added growth and productivity in 2013. However, the sub-sector also depends on expensive material imports for its operations, particularly within the aerospace industry. These imports may push up production costs in the long term and undermine the sub-sector's ability to improve productivity.





CHAPTER

6

Productivity Performance of the Agriculture Sector

In this chapter:

- Productivity performance
- International agricultural productivity comparison
- Performance of selected agriculture sub-sectors
- Issues and challenges

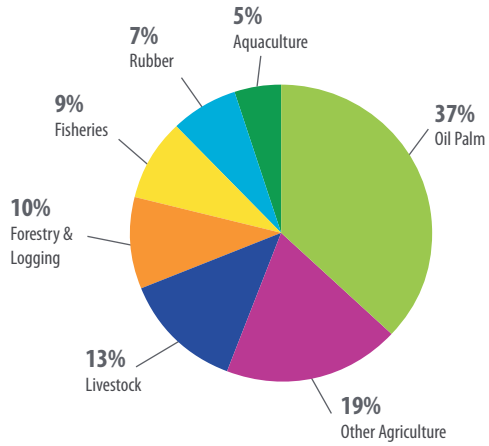
PRODUCTIVITY PERFORMANCE OF THE AGRICULTURE SECTOR

The agriculture sector is going through a period of change as traditional farming practices give way to modern agricultural techniques and smallholders consolidate their operations to gain greater economies of scale. ▶▶▶

Productivity growth in the agriculture sector improved to -3.5% compared to -11.1% in 2012, with productivity rising to RM33,006 from RM34,202. This sector comprises various sub-sectors including oil palm, rubber, livestock, forestry and logging, fisheries, aquaculture and other agriculture (paddy, fruits, vegetables, coconut, tobacco, tea, flowers, pepper, cocoa and pineapple). It contributed RM55.9 billion to Malaysia's GDP in 2013 (7.1% of total GDP), up from RM54.8 billion in 2012. The sector employs about 1.7 million workers, representing 13% of the country's total workforce.

The boost in productivity growth was made possible by a significant increase in the output of crude palm oil (CPO) and food commodities. The oil palm sub-sector was the single largest contributor to the sector's growth, accounting for 36.7% of the sector's total added value. The food segment contributed about 46.2% to total added value, with significant increases in the production of livestock, fisheries, fruits and vegetables. However, the sector's export earnings in 2013 were affected by a decline in global demand and depressed prices for oil palm and rubber primary commodities.

Figure 6.1: Added Value of Agriculture Sub-Sectors, 2013



Source: Department of Statistics, Malaysia

The development thrusts of the Agriculture NKEA are targeted to transform this traditionally small-scale, production-based sector into a large-scale agribusiness industry that makes a significant contribution to economic growth and sustainability. A total of 17 Entry Point Projects (EPPs) have been identified to transform the agriculture sector.

The development thrusts of Agriculture NKEA are targeted to transform this traditionally small-scale, production-based sector into a large-scale agribusiness industry.

Industry Snapshot

- In terms of added value growth, the livestock sub-sector registered the highest added value growth at 9.4%, followed by the other agriculture and oil palm sub-sectors at 8.2% and 2.6% respectively (Table 6.1).

- Oil palm contributed 36.7% to the sector's total added value. The higher contribution was due to better estate management coupled with the efficient integration of institutions.

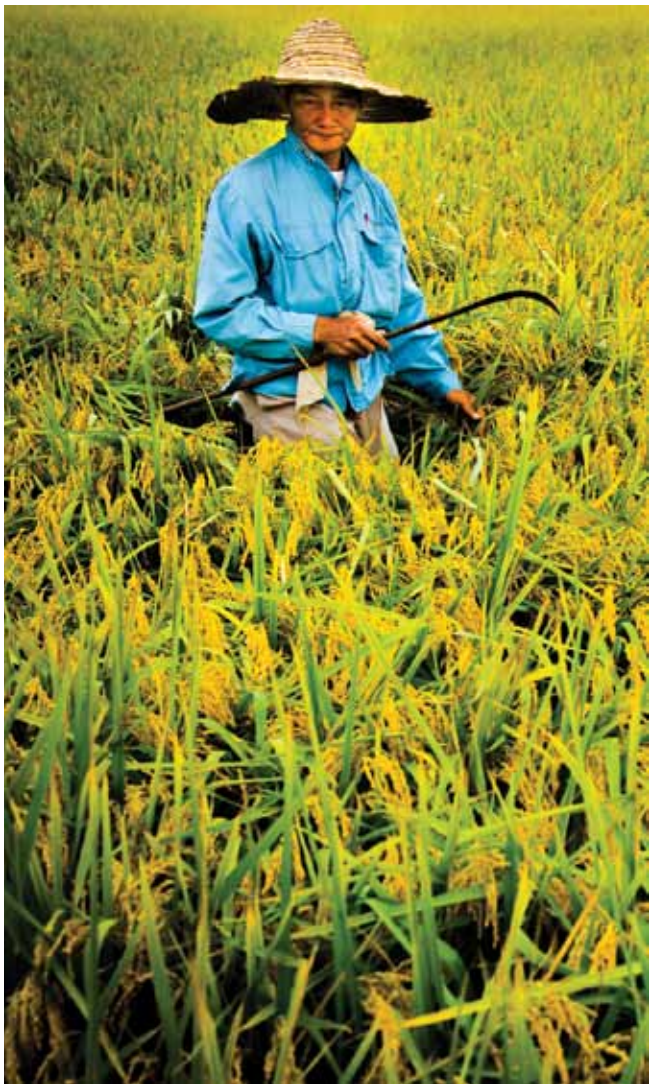


Table 6.1: Added Value of Agriculture Sub-Sectors, 2012 – 2013

Sub-Sector	Growth (%)		Share of Agriculture (%)	
	2012	2013	2012	2013
Oil Palm	-0.3	2.6	36.5	36.7
Rubber	-7.9	-10.1	8.2	7.2
Livestock	8.1	9.4	11.7	12.5
Other Agriculture	6.7	8.2	18.2	19.3
Forestry & Logging	-4.5	-7.8	11.0	9.9
Fisheries & Aquaculture	4.3	1.6	14.4	14.4
Agriculture	**1.3**	**2.1**	**100.0**	**100.0**

Source: Gross Domestic Product (2005-2013), Department of Statistics, Malaysia

- Growth was also supported by the higher output of other agriculture groups such as vegetables, paddy and fruits. The higher output was made possible by farmers' adoption of Good Agriculture Practices (GAP), self-sufficiency and strong domestic demand.
- The prolonged decline in rubber prices has reduced tapping activity, resulting in the share of added value of the rubber sub-sector to decline to 7.3% in 2013.
- Employment in the agriculture sector accounted for 13% of the country's total workforce in 2013, increasing by 5.8% to 1.7 million from 1.6 million in 2012.
- The increase in employment may be attributed to the implementation of several EPPs under the government's NKEA programme such as bird's nest swiftlet farming, estate farming for seaweed, paddy farming and others.
- Weaker external demand and lower prices of major commodities has affected the total trade of agriculture sector in 2013.
- Total trade for the agriculture sector for the first nine months of 2013 accounted for RM133.3 billion.
- The sector registered a positive trade balance of RM22.2 billion in the first nine months of 2013.

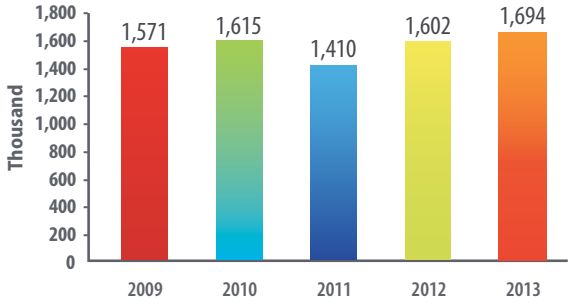
Productivity Performance

Productivity growth in the agriculture sector improved to -3.5% at RM33,006 per person employed in 2013 (2012: RM34,202) from -11.1% in 2012 (Figure 6.3).

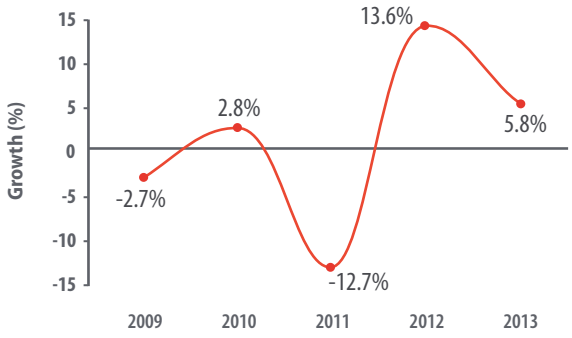
Productivity growth in this sector remained negative because although the sector's output increased by 2.1%, this was not enough to compensate for the increase in input factors which rose by 5.8%. Productivity in 2013 was also affected by slowing external demand and

Figure 6.2: Snapshot of the Agriculture Sector, 2009-2013

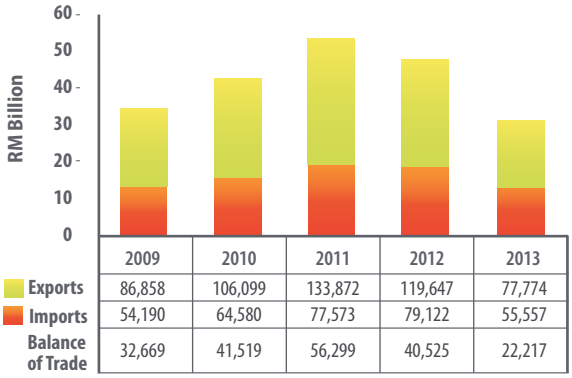
Employment, 2009-2013



Employment Growth, 2009-2013



External Trade, 2009-2013*



	2009	2010	2011	2012	2013
Exports	86,858	106,099	133,872	119,647	77,774
Imports	54,190	64,580	77,573	79,122	55,557
Balance of Trade	32,669	41,519	56,299	40,525	22,217

Source: (i) Department of Statistics, Malaysia.
(ii) Ministry of Agriculture and Agro-Based Industry Malaysia.
*Note: Figures for January - September 2013

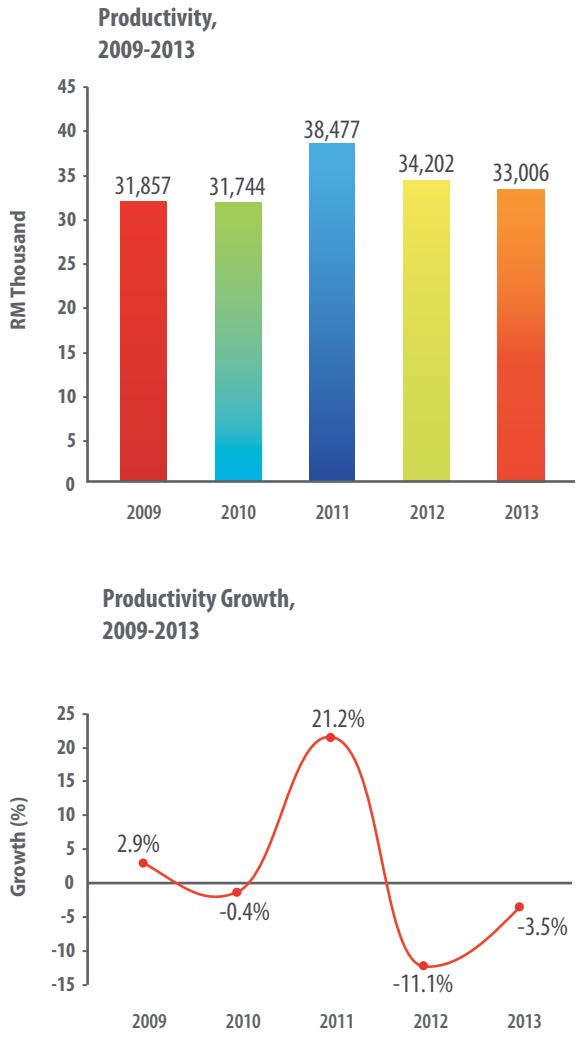
lower commodity prices, especially with the decline in CPO prices and the protracted slump in rubber prices. CPO prices slipped to RM2,371 per tonne in 2013 (2012: RM2,764), while the average price of SMR20 rubber declined to RM7.75 per kilogramme (2012: RM9.53).

Within the agriculture sector, productivity growth was highest in the forestry and logging sub-sector (RM139,754 per person employed) followed by oil palm (RM80,321) and livestock (RM76,773). The high productivity growth observed in the forestry and logging sub-sector could be due to the implementation of a Selective Management System and better logging techniques (Table 6.2).

The high productivity growth observed in the forestry and logging sub-sector could be due to the implementation of a Selective Management System and better logging techniques

Productivity in the agriculture sector is influenced by a range of factors, some of which are beyond the control of farmers. The quality of the land and the meteorological environment surrounding it has a significant impact on the productive capacity of farms within a particular geographic region.

Figure 6.3: Productivity Within the Agriculture Sector, 2009-2013



Computed from: Department of Statistics, Malaysia

Table 6.2: Added Value, No. of Employees, Productivity and Labour Cost Per Employee of Agriculture Sub-Sectors, 2010

	Added Value (RM'000)	No. of Employee	Productivity (RM)	Labour Cost per Employee (RM)
Forestry & Logging	3,360,798	24,048	139,754	23,027
Oil Palm	24,046,600	299,381	80,321	11,571
Livestock	1,539,763	20,056	76,773	15,711
Rubber	858,400	12,911	66,486	12,176
Aquaculture	325,898	6,884	47,341	14,432
Others Agriculture	829,600	18,875	43,952	12,503
Fishing	134,278	4,624	29,039	13,952

Source: Economic Census 2011- Crops, Fisheries, Livestock Department of Statistics, Malaysia

Capital Productivity

Capital productivity growth in the agriculture sector improved to -2.9% in 2013 from -4.0% in 2012 while capital intensity improved to -0.6% from -7.4% (Figure 6.4). The positive performance was due to farms adopting modern agriculture practices using modern technology, especially within the aquaculture sub-sector.

International Agricultural Productivity Comparison

A benchmark analysis of the productivity of Malaysia's agriculture sector against that of selected Asian countries in 2012 indicates that the country performs favourably in comparison with Indonesia, China, Philippines, Thailand and India. Only Japan has a better productivity score than Malaysia at USD24,906 per person employed compared to Malaysia's USD22,325 per person (Figure 6.5).

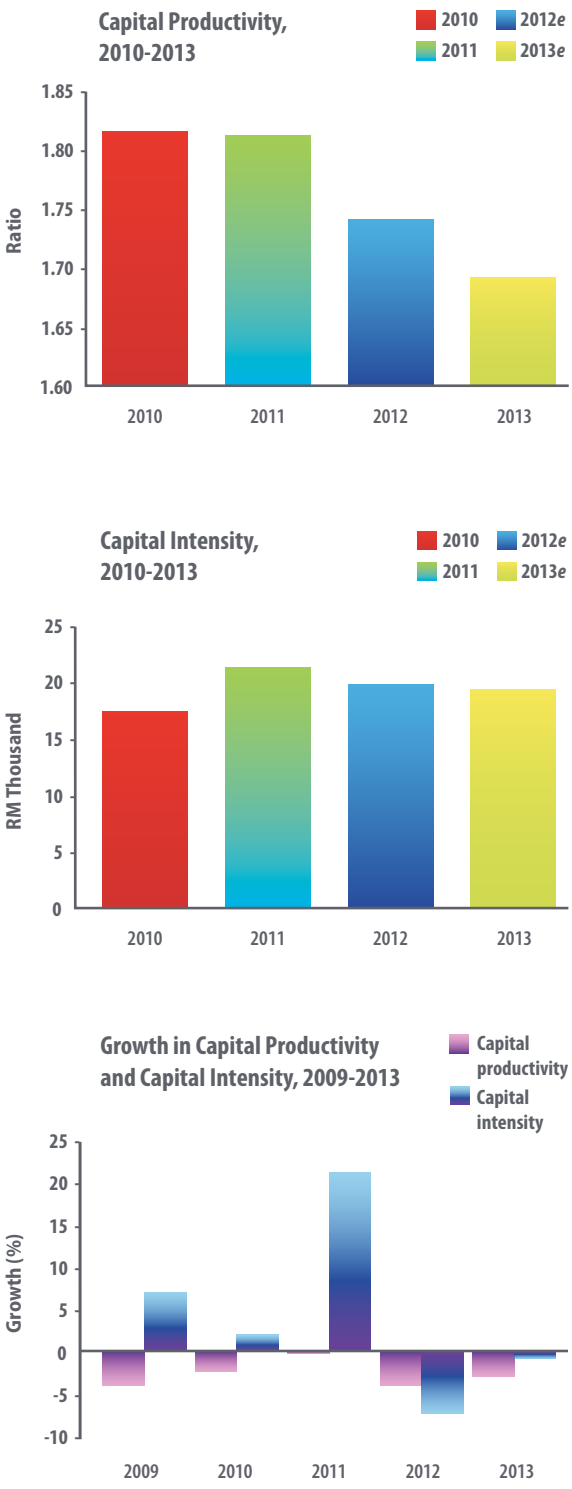
In terms of productivity growth, both Japan and China recorded double digit performances at 26.6% and 14.8% respectively. The rapid productivity growth within Japan's agriculture sector may be attributed to various factors such as ability of the sector to respond to consumer needs, maximising land utilisation through urban agriculture, improving soil productivity, applying cultivation methods to minimise environmental loads and applying new agriculture techniques such as high tech green farming. Productivity growth in China's agriculture sector has been supported by modernisation initiatives through innovations in organic farming, increased food safety practices, providing premium prices and a move towards moderate-scale farming operations.

PERFORMANCE OF SELECTED AGRICULTURE SUB-SECTORS

Oil Palm

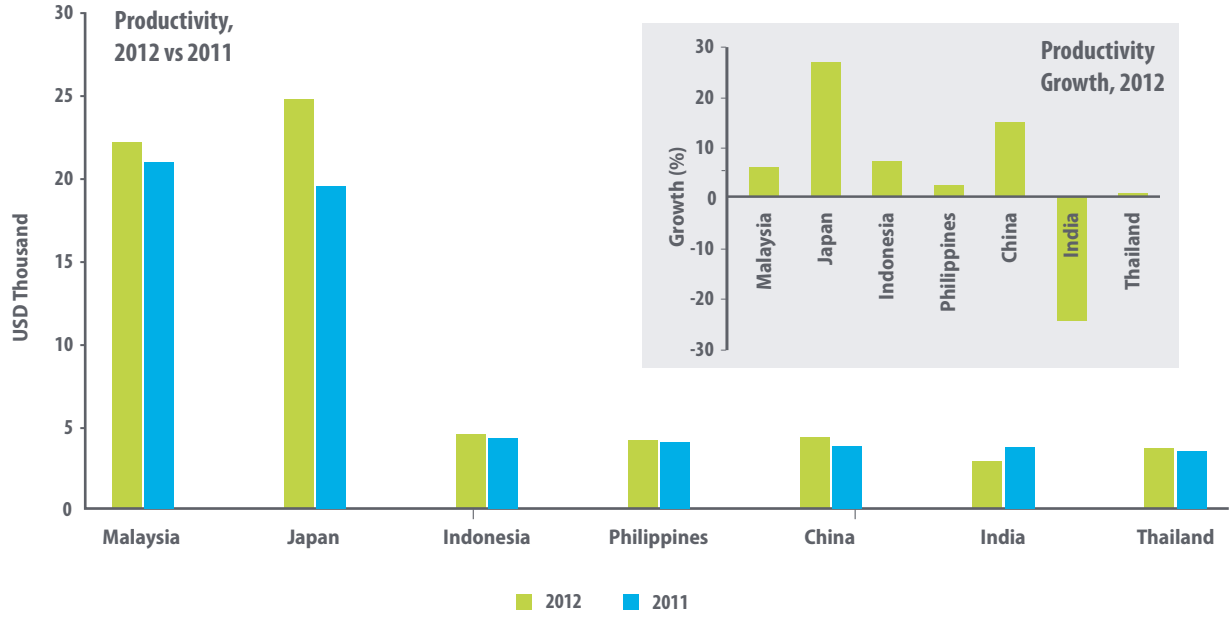
The oil palm industry is targeted for aggressive growth to support its expansion into downstream industries such as biogas, second-generation biofuels, high value oleo-

Figure 6.4: Capital Productivity and Capital Intensity, 2010-2013



Computed from: Department of Statistics, Malaysia

Figure 6.5: International Agriculture Productivity (PPP) Comparison, 2012 vs. 2011



Source: World Competitiveness Yearbook 2013

derivatives and food and health-based products. The oil palm NKEA is expected to deliver RM178 billion in GNI by 2020.

The oil palm NKEA is expected to deliver RM178 billion in GNI by 2020.

An additional 152,810 hectares of oil palm were planted in 2013, representing a 3% increase in planted area over the previous year, with more than 55% of the new planting in Sarawak (Table 6.3). Grants were provided for new planting and replanting, both for smallholders as well as major plantations.

The performance of Malaysia's oil palm sector in 2013 was mixed. Fresh fruit bunch (FFB) yields were 0.7% higher at 19.02 tonnes/ha in 2013 (2012: 18.89 tonnes/ha) as production in Sabah's planted area peaked, but the national average was somewhat depressed by planted areas in Sarawak where young palms (4-6 years) comprised 28% of the total mature planted area. The sector's continued dependence on labour and low technology input makes it hard for the industry to make more than minimal increases in FFB yields.

Table 6.3: Planted Area of Oil Palm Plantations, 2011-2013 (Ha)

	2011	2012	2013
Peninsular Malaysia	2,546,760	2,558,103	2,593,733
Sabah	1,431,762	1,442,588	1,475,108
Sarawak	1,021,587	1,076,238ß	1,160,898
Malaysia	**5,000,109**	**5,076,929**	**5,229,739**

Source: Economic & Industry Development Division, Malaysian Palm Oil Board

Nonetheless, the marginally higher average FFB yield as well as new areas coming into production helped CPO production to rise by 2.3% to 19.2 million tonnes in 2013 (2012: 18.8 million tonnes). However, the average oil extraction rate (OER) contracted by 0.1% to 20.2% in 2013 (2012: 20.3%) due to the lower quality of crops from newly matured areas coming into production, especially in Sarawak. (Table 6.4).

Paddy

Under the Agriculture NKEA, EPP10 aims to strengthen the productivity of Malaysia's paddy farms in order

Table 6.4: FFB Yield, CPO and Oil Extraction Rate (2008-2013)

	2008	2009	2010	2011	2012	2013
Fresh Fruit Bunch (FFB) Yield (tonnes/ha)						
Peninsular Malaysia	19.63	19.36	17.91	19.24	19.05	19.26
Sabah/Sarawak	20.78	19.04	18.15	20.10	18.74	18.84
Malaysia	20.18	19.20	18.03	19.69	18.89	19.02
Crude Palm Oil (CPO) (tonnes/ha)						
P Malaysia	3.85	3.86	3.57	3.86	3.81	3.83
Sabah/Sarawak	4.38	4.06	3.85	4.16	3.90	3.90
Malaysia	4.08	3.93	3.69	4.01	3.84	3.85
Oil Extraction Rate for CPO (%)						
Peninsular Malaysia	19.61	19.93	19.91	20.08	20.05	19.92
Sabah/Sarawak	21.06	21.31	21.19	20.69	20.49	20.59
Malaysia	20.21	20.49	20.45	20.35	20.26	20.19

Source: Economic & Industry Development Division, Malaysian Palm Oil Board

to establish Malaysia's long-term food security while increasing the income of paddy farmers.

Paddy farming in Malaysia is dominated by small farmers, and centralising them into larger, consolidated entities would enable them to benefit from economies of scale.

Paddy farming in Malaysia is dominated by small farmers, and centralising them into larger, consolidated entities would enable them to benefit from economies of scale. The Muda Agricultural Development Authority (MADA) in Perlis has successfully accomplished this by amalgamating local farmers' land into a mini-estate managed by a special purpose vehicle (SPV) that will facilitate the adoption of initiatives across the whole production chain, from seed production to marketing and sales. The objective is to raise paddy yields to eight metric tonnes per hectare by 2020.

Table 6.5: Average Yield of Paddy 2010-2012 (Metric Tonne/Ha)

	2010	2011	2012
MADA, Perlis	4.725	4.955	5.093
KADA, Kedah	3.974	4.096	4.156
Barat Laut, Selangor	5.612	5.908	5.695
Malaysia	**3.636**	**3.747**	**3.973**

Source: Agro Foods Statistics 2012, Ministry of Agriculture and Agro-Based Industry Malaysia

Fruits and Vegetables

Fruits and vegetables grown using fertigation systems in Perak and Selangor started as High Impact Projects in the Permanent Food Production Parks or Taman Kekal Pengeluaran Makanan (TKPM) under the Ninth Malaysia Plan. Fertigation is a technique of supplying dissolved fertilizers, soil amendments or other water-soluble products through an irrigation system. The system is used extensively in commercial agriculture and horticulture in developed countries.

These fertigation projects have since been further expanded under EPP 7: Premium Fruits and Vegetables with the addition of 10 new projects in Peninsular Malaysia. These high value crops are MyGAP certified and include melons, tomatoes and capsicums. The markets for fruits and vegetables are assured as contracts are signed with buyers beforehand. Project participants are guaranteed a monthly income of RM3,000, and are given the fertigation technology package to ensure the project's sustainability. Each participant is provided with permanent structures comprising 12 insect-proof

MAXIMISING THE OIL PALM INDUSTRY

The Palm Oil Industrial Cluster (POIC) project in Lahad Datu, Sabah, is set to transform Malaysia's oil palm sector by giving it higher-value applications in oleochemicals and renewable energy.

The Palm Oil Industrial Cluster (POIC) is one of the Regional Economic Corridor Projects. Under the ETP, Sabah has been designated as the national hub for second-generation biofuel (EPP7) and the production of high-value oleo derivatives (EPP6). The production of second-generation biofuels and high-value oleo-derivative products capitalise on the availability of raw material — Sabah's 1.4 million hectares of oil palm plantation can generate up to 26 million tonnes of oil palm biomass and crude palm oil.

POIC Sabah Sdn Bhd. a wholly-owned entity of the Sabah State government, and the Malaysian Innovation Agency (AIM), a unit under the Prime Minister's Department, launched the Biomass Joint Venture Cluster concept in October 2013. The project aims to aggregate sufficiently large volumes of biomass from oil palm mills to attract foreign investors. POIC Lahad Datu's strategic location, together with the availability of raw materials, natural deep harbor and comprehensive infrastructure within the POIC has drawn foreign and local investors involved in biodiesel, palm oil refining, logistics and warehousing, property development, fertilizer manufacturing and other supporting services.

rain shelters measuring 20 ft x 100 ft, fertigation sets, mixing tanks and irrigation systems, a house and a store. However, project participants will need to invest into seeds and fertilizers.

Poultry

The growth of the poultry sub-sector has been largely propelled by private enterprises rather than public initiatives. It has developed into a progressive and well-organised industry with an annual production of eggs and meat valued at RM1.78 billion and RM6.03 billion respectively.

The National Agro-Food Policy (2011-2020) aims to increase the poultry sub-sector's productivity to ensure national food security and increase its contribution to export trade. The initiatives include encouraging the adoption of new technology, R&D in feed production and improving surveillance to reduce poultry diseases, all of which have contributed to an increase in poultry production (Table 6.6). Investments into environmentally-controlled housing have increased the productivity of breeders, while temperature controls have improved

Table 6.6: Poultry Farming in Malaysia 2010-2012 (RM Million)

	2010	2011	2012
Duck Meat	693.15	713.94	823.35
Chicken Meat	5,083.06	5,235.56	6,042.96
Duck Eggs	70.76	74.64	94.3
Chicken Eggs	2,287.86	2,539.71	3,049.09

Source: Selected Agriculture Indicators, 2013, Department of Statistics

all production parameters including feed-conversion. Farmers' awareness of biosecurity measures as well as regular auditing under the Livestock Farm Accreditation Scheme (SALT) has also minimised disease outbreaks.

Fisheries

Three of the High Impact Projects identified under Third National Agriculture Policy (NAP 3) within the fisheries sub-sector were selected as EPPs under the Agriculture NKEA. These projects include an Integrated Zone for Aquaculture Model (IZAQs) to tap the market for premium shrimp (EPP 6), Integrated Cage Farming (EPP4) and Mini-Estate Farming of Seaweed (EPP3). All these EPPs will involve small farmers organised into groups or clusters as well as contract farmers. The performance of all three EPPs in 2013 exceeded the targets set by the government (Table 6.7).

In the case of EPP6, the Integrated Zones for Aquaculture will be developed with integrated infrastructure comprising hatcheries, grow-out areas, a processing plant and feed mills. Smallholders and SMEs will participate in this project through contract farming or profit-sharing agreements with anchor companies.

Under EPP3, 30 farmers will be clustered into a group to form a co-operative commercial entity. The co-operative will be managed by a professional who will be responsible for production planning, marketing (staggered production), inputs, goods stock and credit.

Table 6.7: Summary of Achievements Under the Agriculture NKEA (Fisheries & Aquaculture Sub-Sector)

Entry Point Project (EPP)	Target (m.t.)	Achievement (m.t.)	Percentage (%)
EPP 3: Mini-Estate Farming for Seaweed	26,000	26,942.18	104
EPP 4: EPP4: Integrated Cage Farming (I-CAGE)	37,000	37,254.09	101
EPP 6: Replicating Integrated Zone for Aquaculture Model (IZAQs)	23,000	23,372.39	102

Source: Department of Fisheries, Malaysia

At the end of 2013, there were four seaweed clusters in Sabah.

Integrated cage culture farming (EPP4) is also made possible through group farming. Anchor companies will be responsible for training and setting the standard operational procedures (SOPs) to create an integrated approach for large scale production. At the end of 2013, there were four groups involved in the cage culture of *tilapia* and *patin* fish in Sungai Pahang.

ISSUES AND CHALLENGES

Improving productivity within the agriculture sector depends on a range of mechanisms and underlying influences including new knowledge or technology, better organisation of production and the more efficient utilisation of land and labour.

New Knowledge and Technology

Acute labour shortage coupled with increasing costs of production, a shortage of suitable land and uneconomic farm sizes have raised new issues and challenges in the agriculture sector, particularly among smallholders. New programmes that incorporate innovative knowledge and technologies need to be formulated to address these challenges with the objective of increasing productivity, competitiveness and the income of smallholders.

One way to achieve these goals is to intensify land use by introducing integrated farming systems that maximise land use. Integrated farming may be promoted by incorporating short and medium-term cash crops and livestock rearing during the immature stage of perennial crops. Oil palm smallholders could benefit from planting crops such as bananas, water melons and pineapples, which are suitable candidates to be cultivated during the immature stage of oil palm growth. Livestock that are suitable for integration into oil palm farms are cattle, sheep and goats.

The Department of Agriculture has also implemented a feedlot system integrating sweet corn planting with

FARM CERTIFICATION SCHEMES

Agriculture certification schemes can improve farm incomes by increasing productivity, marketability and sustainability.

MyGAP is a single certification scheme for Good Agricultural Practices (GAP) and replaces the Malaysian Farm Certification Scheme for Good Agricultural Practices (SALM), Livestock Farm Accreditation Scheme (SALT), and Malaysian Aquaculture Farm Certification Scheme (SPLAM). It is a rebranding exercise under the Agriculture NKEA Strategic Reform Initiative on Competition, Standards and Liberalisation (SRI-CSL). MyGAP emphasises environmental, economic and social factors to ensure that produce is safe and of good quality.

Benchmarked against international GAP certification schemes such as ASEAN GAP and Global GAP, MyGAP certification will increase local consumer confidence in the quality of Malaysian goods and enhance the competitiveness of Malaysian agricultural produce. Since GAP is recognised worldwide, MyGAP will also facilitate the export of Malaysia's agricultural produce.

cattle fattening, whereby the residues of corn plants are processed into silage as cattle feed. In granary areas, the Department of Agriculture has also introduced *ikan keli* rearing during the growing season and duck rearing in the harvested rice fields. These projects have been found to increase farmers' income.

The use of fertigation and hydroponic systems under greenhouses for high-value fruits and vegetables is another potential intensive farming system that can substantially increase crop yield and farmers' incomes. Productivity is also boosted by the more efficient use of water, fertilizer and labour. However, both systems require significant capital investment.

More research must be channelled into integrated farming techniques and innovations for improving agricultural productivity and production.

Strengthening Institutional Support for Agriculture SME Development

The original objectives of Malaysia's extension and advisory service providers were to leverage technology to increase the productivity of crops and livestock. In order to meet the government's aspirations to transform the country's traditional farming sector into a more market-oriented industry, these extension service providers need to adopt a pluralistic approach and provide more specialised and diversified services beyond technology transfer. The focus here would include enhancing farmers' skills and knowledge on farm business management practices that will enable the farm to generate an income comparable to that of non-agricultural sectors.

A market-oriented development strategy requires extension services to be aimed at assisting farmers and rural entrepreneurs to increase their access to markets and realise the benefits of commercialisation. This market-oriented advisory service would include the dissemination of knowledge related to business planning and management, marketing in terms of farm enterprise analysis, market information, market analysis, farm record keeping and regulatory and certification issues.

Meanwhile, the agro-food processing sector can be further developed by matching MARDI's food processing technologies and resources to SMEs' participation in raw material production, food processing and

product packaging. The relevant agencies (MARDI and Department of Agriculture) need to provide continuous R&D input on processing technologies to improve the quality of their products and the productivity of their businesses.

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People

Transforming traditionally-operated farms into market-oriented business entities will increase the adoption of ICT as a tool for modernising farming operations. Modern farming demands ready access to market information and business opportunities. This may be offered through an Internet-based "Technology and Market Information System", which could provide farmers and traders with real-time information on farming technologies, prices, market demands and quality requirements. However, the portal must be maintained in order to be practicable. Farmers and traders will also need to be trained to use of the system.

The My Kampong My Future (MKMF) programme by the Ministry of Agriculture and Agro-based Industry is an initiative to create a modernised farming model in rural areas. It was first introduced for rural youth as part of the Community Transformation under the National Blue Ocean Strategy in 2012. MKMF aims to involve rural youth in the creation of a high-value agriculture-based economy and has been successful in Kampung Pulau Tiga, Perak (*arowana* fish), Kg. Merotai Besar in Tawau, Sabah (shrimps) and Kg. Gedong in Simunjan, Sarawak (chillies). The programme incorporates the concept of "mentor-mentee" whereby an anchor agropreneur provides guidance to mentees in the development of their businesses. Judging from its success, MKMF will be expanded to other states such Kedah, Terengganu and Pahang.

Biosecurity and Quality Assurance

Agro-biosecurity remains an issue for both local and foreign consumers, and agropreneurs are facing challenges in assuring customers of the quality of their produce. The Department of Fisheries has launched an e-Biosecurity system that makes it easy for fish farmers, fishermen and other industry stakeholders to get their operations audited and certified under various certification schemes such as *Skim Persijilan Sistem Akuakultur* (SPLAM), *Sijil Amalan Akuakultur Baik* (SAAB) and Fish Quality Certification (FQC). The e-biosecurity initiative may be expected to increase the local consumption as well as exports of Malaysia's aquaculture produce.

Opportunities in Organic Farming and Hybrid Vegetable Seeds

Rising incomes and more health-conscious lifestyles have increased the demand for niche food products such as organic farm produce. There is vast potential for organic farming to be further developed, especially with the application of the *Sijil Organik Malaysia* (SOM - Malaysia Organic Certification) quality control assurance programme. According to the Department of Agriculture, there were 89 farmers occupying 1,634 ha of organic farm land in 2013. Of these, 49 farmers had valid organic certification.

Opportunities also abound in the hybrid vegetable seed industry in Malaysia, which is estimated to be worth RM50 million per year. Almost 100% of the hybrid vegetable seeds used in Malaysia are imported at a high cost to farmers. Malaysia intends to take advantage of its climate to establish a domestic seed production programme to provide farmers with high quality and certified seeds for better productivity. The Department of Agriculture currently produces and supplies 99% of all locally-produced certified paddy seeds to farmers. Private sector candidates will be invited to participate in this programme in collaboration with research and development institutions such as MARDI and local universities.

GROWING SUCCESSFUL CO-OPERATIVES

Sunkist Growers Incorporated is a compelling example of a successful co-operative initiative that sets international standards in competitiveness and productivity

In today's competitive international market, an independent grower stands alone against competition. But as a member of a co-operative, each individual grower joins with other growers to gain a mutually larger market share. A co-operative of growers together can do many things that a grower alone cannot afford to do – develop a worldwide market, promote a brand name, access a global transportation system, develop comprehensive research capabilities and gain access to overseas markets.

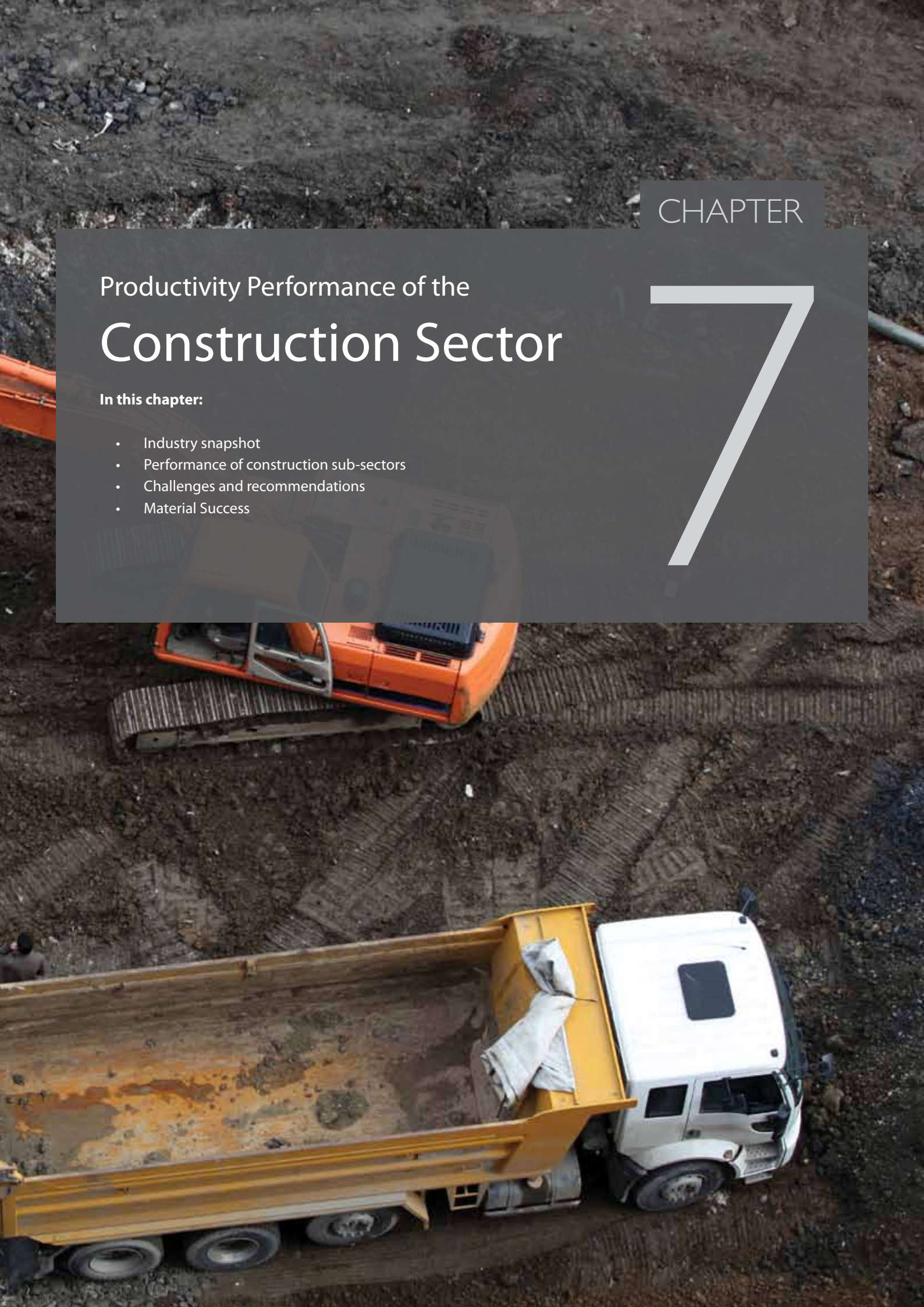
Sunkist Growers Incorporated is a citrus growers' non-stock membership co-operative composed of 6,000 members with its headquarters in Los Angeles. Sunkist was organised in 1893 by a group of citrus growers who realised the benefits of a co-operative approach to marketing their fruit. It is a not-for-profit marketing co-operative entirely owned by and operated for California and Arizona citrus growers who make up its membership.

Sunkist has three levels of organisational hierarchy: local, district and central associations. Individual growers belong to a local organisation; local organisations belong to a district organisation, and district organisations belong to a central organisation. The main purpose of the co-operative is to create systems enabling fruit from multiple growers to be efficiently harvested, sorted into various sizes and grades, and packed and shipped across the United States and throughout the rest of the world.

Sunkist's core business is the marketing of its members' fruit and fruit products. However, Sunkist neither earns nor retains any profit for itself. All the money the co-operative generates from the sale of its members' fruit (less expenses) is returned to the growers. Only income generated from non-member and other incidental business activities is retained by the co-operative and then only as a source of capital with which to operate the business for the members.

Packinghouses are critical to the Sunkist co-operative's success. These packinghouses represent the absolute best in the citrus industry, setting new standards in care and handling of Sunkist fresh lemons, oranges, grapefruit and seasonal specialities. While Sunkist does not manufacture its licensed products, it does approve all licenses and their products, overseas quality control and sets packaging and advertising standards.

Sunkist has developed the most diversified citrus marketing and processing operation in the world, and has created a multi-million dollar international market for fresh citrus and citrus products from California and Arizona. Over the years, Sunkist has built an organisation and a trademark known and respected throughout the world. Sunkist is proud of the wide range of products bearing its name, making the brand one of the most recognised in the world. Consumers know they can depend on the quality of fruit bearing the Sunkist brand sticker or any packaged product bearing the Sunkist name.



CHAPTER

7

Productivity Performance of the

Construction Sector

In this chapter:

- Industry snapshot
- Performance of construction sub-sectors
- Challenges and recommendations
- Material Success

PRODUCTIVITY PERFORMANCE OF THE CONSTRUCTION SECTOR

The construction sector is one of Malaysia's key economic drivers and a major enabler of the Economic Transformation Programme. But there are still untapped opportunities to boost productivity through mechanisation, automation and advanced building systems. ▶▶▶

Productivity in the construction sector grew by a moderate 5.2% in 2013 (2012: 15.0%) to RM23,975 (2012: RM22,799), contributing 3.7% to Malaysia's gross domestic product (GDP).

The construction sector comprises four major sub-sectors: residential, non-residential, specialised activities and civil engineering. The first three sub-sectors generally encompass all building activities, with the specialised sub-sector providing essential services such as mechanical and electrical works, plumbing, glass works, painting, tiling and others. Civil engineering involves the construction of infrastructure such as oil and gas facilities and transportation and utilities networks.

The construction industry has high forward-linkages with the services sector and even higher backward-linkages to the manufacturing and services industries. The industry is an important economic driver and builds all of the social and economic facilities that enable wealth creation and economic growth.

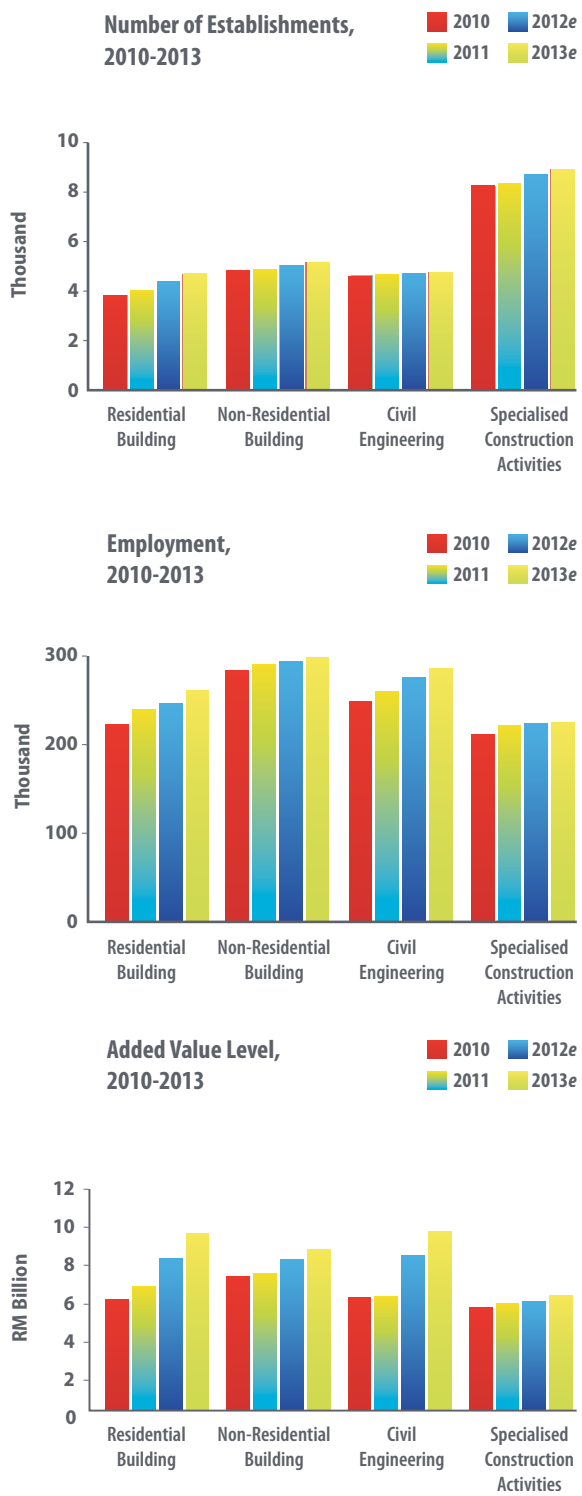
Industry Snapshot

- In 2013, the number of establishments in the construction sector grew by 2.7% to 24,067 from 23,428 in 2012.
- The majority of establishments are within the specialised construction activities sub-sector. They are mainly smaller construction companies providing specialised sub-contracting services to bigger companies.
- There were a total of 1.1 million employees in the construction sector in 2013.
- Out of this total, more than 50% were involved in the civil engineering and non-residential buildings sub-sectors. This is understandable since the bulk of construction gross output, more than 54.1% of the sector's total output, came from these two sub-sectors.
- The construction sector recorded slower added value growth in 2013 at 10.9% to RM34.8 billion from RM31.4 billion in 2012. This was due to higher costs of intermediate inputs, which accounted for 64% of total output.
- In 2013, the highest value added growth was observed in the residential building sub-sector at 17.5% followed by civil engineering at 13.8% (RM9.8 billion).

Productivity Performance

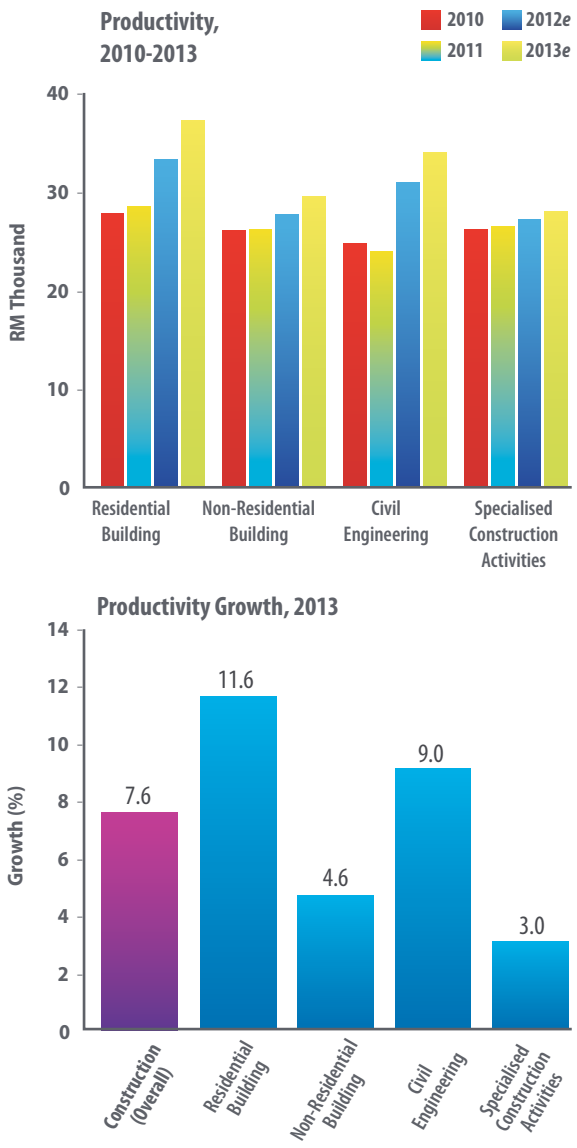
The construction sector registered moderate productivity growth at 5.2% to RM23,975 in 2013 compared to 15.0% at RM22,799 in 2012. The decline in productivity growth indicates that some on-site construction practices and tasks still require a high degree of labour input and that the sector has been relatively slow at adopting mechanisation, automation and other advanced methods of construction.

Figure 7.1: Snapshot of the Construction Sector, 2010-2013



Computed from: Economic Census 2011, Construction, Department of Statistics, Malaysia
Note: *e* - Estimate

Figure 7.2: Productivity Within the Construction Sector, 2010-2013



Computed from: Economic Census 2011, Construction, Department of Statistics, Malaysia
Note: *e* - Estimate

Residential building remained the most productive sub-sector in 2013, growing by 11.6% (RM37,417 per person employed) and contributing 9.85 billion (28.3%) to the sector's total added value (Figure 7.2).

The healthy productivity growth within this sub-sector stems from a greater demand for repetitive housing such as terrace houses and high-rise dwelling units, both of which require less labour per housing unit. Based on CIDB reports, terrace houses and high-rise housing units comprise more than 65% of the total housing units built in Malaysia in 2013.

Meanwhile, productivity in the civil engineering sub-sector grew by 9% to RM33,909 per person employed and contributed 9.80 billion (28.1%) to total added value.

The construction sector managed to maintain its labour cost competitiveness as labour costs per employee rose by 3% while unit labour costs declined by 3.5% (Figure 7.3). All sub-sectors maintained their labour cost competitiveness with a significant performance observed in the residential building sub-sector. The ability of this sub-sector to generate higher output helped reduce unit labour costs by 5% even though labour costs per employee rose by 3.4%.

All sub-sectors maintained their labour cost competitiveness with a significant performance observed in the residential building sub-sector.

Capital productivity within the construction sector grew by 5.3% in 2013 (2012: 9.9%) while capital intensity increased by 2.2% (Figure 7.4). This indicates a growing utilisation of fixed assets within the industry, although the pace of adoption appears to have slowed. The slowing rate of adoption could also indicate that the machinery and other assets being used are leased rather than owned, particularly within the civil engineering sub-sector. The relatively low capital intensity of this sector is another indication that the industry is still dependent on a high degree of labour input.

Capital productivity growth was highest in the residential building sub-sector (7.3%) followed by civil engineering (5.2%) and non-residential building (4.1%). Capital intensity within these sub-sectors also grew by 3.9%, 3.6% and 0.6% respectively. The high capital productivity and capital intensity growth observed in the residential building and civil engineering sub-sectors indicates that they are utilising their assets efficiently even though they still rely on a high degree of labour input, which may be observed from their capital intensity numbers of RM12,473 and RM11,571 respectively. In contrast, the

Figure 7.3: Labour Cost Competitiveness, 2010-2013

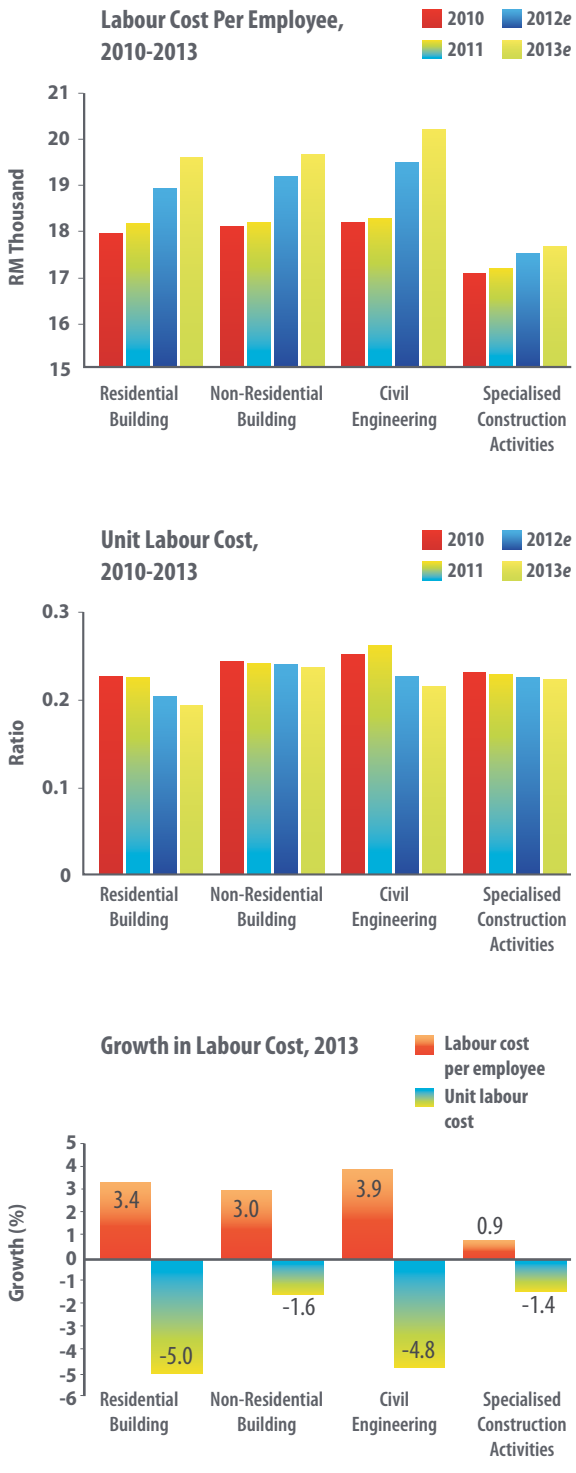


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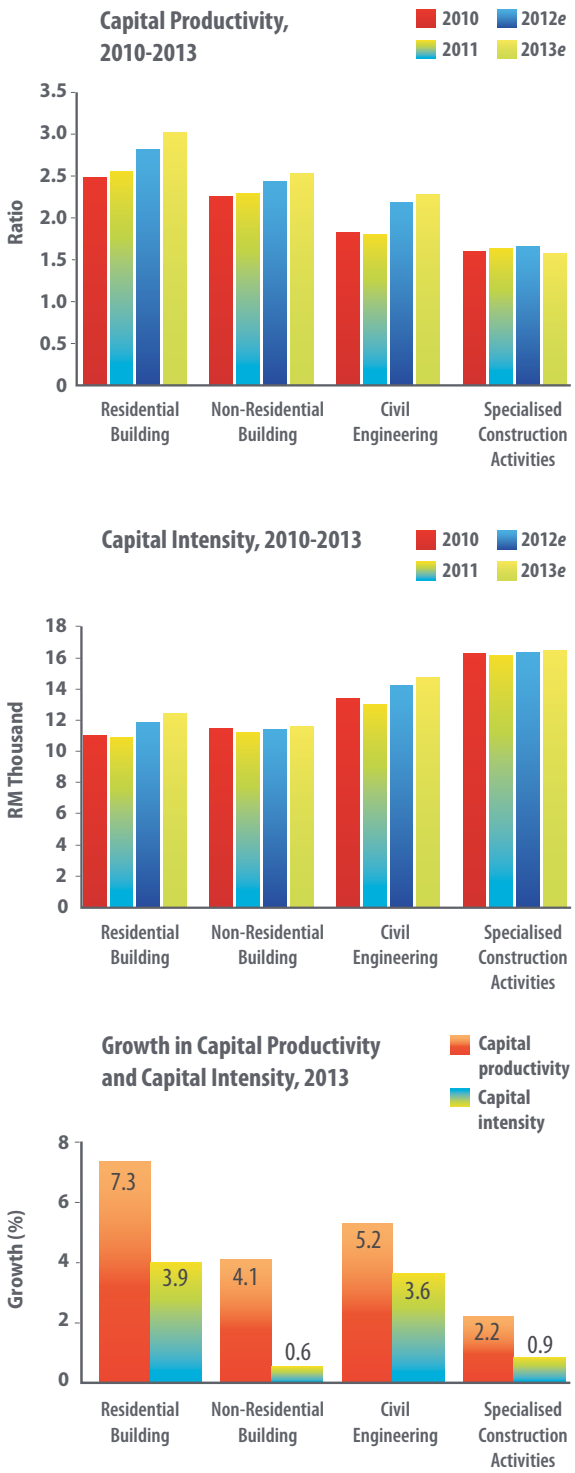
Figure 7.4: Capital Productivity and Capital Intensity, 2010-2013



Computed from: Economic Census 2011, Construction, Department of Statistics, Malaysia
Note: *e* - Estimate

civil engineering and specialised construction sub-sectors rely on capital to increase productivity as shown by their capital intensity numbers of RM14,766 and RM16,492 respectively.

Challenges and Recommendations

Unskilled Labour and Occupational Safety

Unskilled labour is still this industry's most favoured resource even though advances in technologies and building systems present it with very viable options for mechanisation and automation. Industry players must revamp their processes and provide higher value-added work on construction sites with more advanced equipment or high-skilled assembly of pre-manufactured components. Upskilling workers and enhancing training in specialised areas will also result in less labour input and higher value-added works.

Construction sites that employ large labour forces are also more at risk of facing Occupational Safety & Health (OS&H) issues. Work must stop every time an accident occurs. If there is a fatality, the stoppage could be indefinite. Discounting the costs of these accidents, worksite OS&H issues will always have an impact on productivity. If they are unable to reduce the number of workers on site through modernisation, businesses must focus on improving current work practices to reduce the risk of downtime.

Modernisation

Since construction materials make up between 30 to 50% of construction costs, stringent supply chain controls and zero-waste targets can significantly reduce costs within this industry. A modern material procurement system coupled with efficient logistics and material handling all built upon a state-of-the-art IT system can greatly improve the performance of a construction project just by reducing the amount of time spent waiting for available materials. Unfortunately, the Malaysian construction industry has not adopted IT automation and modelling systems such as Building Information Modelling as keenly as many had hoped.

The construction industry would benefit from an aggressive regime of structured research and development, especially within areas of improving the

MATERIAL SUCCESS

Construction companies can realise greater productivity gains by adopting material management best practices.

Material constitutes a major component in the production and delivery of construction products and services. Intermediate input, which routinely contributes about 60% to the construction gross output, is made up primarily of materials. Other components of intermediate input include the costs of works done by other parties, utilities, consumables and other administrative costs and fees. Actual material cost could be between 30-50% of construction cost before logistics costs are factored in, after which they could make up to 60% of the construction cost.

Any organisation stands to benefit from managing material procurement, handling, storage and use in an effective and efficient manner. Industries such as manufacturing have long since realised the economic benefits of paying closer attention to their supply chains and materials. A number of these strategies involve the use of IT systems such as Material Requirement Planning (MRP), Just in Time (JIT), Total Quality Management (TQM), zero inventory, LEAN and others. Many of these systems have their roots in the construction reform initiatives of the UK, where construction companies have sought to adopt the best practices of the manufacturing industries. LEAN is widely applied as it focuses on identifying and eliminating non-value added activities through continuous improvement for the benefit of customers.

Some of Malaysia's larger and more dynamic construction companies have already developed strategies for managing their material input more effectively. A good Computer-Aided Drafting and Design (CADD) system could, for instance, produce accurate bills of materials that can then be directed to material suppliers, eliminating a lot of guesswork and wastage. One particularly innovative company used structural drawings and the bill of materials to procure steel reinforcement bars that were cut to the required dimensions at the steel manufacturer's factory. This simplified handling and storage on the work site and reduced the amount of manual activities involved. Similarly, the use of Radio Frequency Identification (RFID) has been shown to help companies correctly identify materials during shipping and facilitates more efficient storage and transportation.

Effective material management saves more than just the material costs. It also encourages higher labour productivity. Materials shortages, inadequate and inappropriate storage, double handling, wrong orders and poor material identification all contribute towards project slowdowns and decreased labour productivity. Effective project management always considers efficient material management to be a cornerstone to a project's success.

efficiency of local materials and reducing waste. More professional project implementation practices including the adoption of LEAN construction, interoperable technology and buildable design and construction would also enhance the productivity of the construction sector.

More professional project implementation practices including the adoption of LEAN construction, interoperable technology and buildable design and construction would also enhance the productivity of the construction sector.

To help the estimated 63,000 SMBs in the construction sector improve their financial and management performance, CIDB has introduced the SCORE programme (SME Competitiveness Rating for Enhancement), which was developed by SME Corp. The Business Excellence Framework (BEF) developed by MPC can also help construction firms achieve excellence by adopting productivity and quality tools such as LEAN, Just-In-Time delivery, Zero-Waste, World-Class Quality and Customer Service Excellence.

Low Profit Margins

Another challenge that faces the construction industry is its pervasive preference for low bids coupled with multilayered sub-contracting practices. Together, these practices perpetuate low-cost services throughout the supply chain that squeeze revenues for the estimated 20,000 sub-contractors that are active within the industry. As a result, these companies are unable to invest in training, equipment and research and development.

Forward-thinking procurement practices that allow contractors to offer better value at reasonable costs with a guarantee of a fair margin could encourage these companies to invest in better training, technology and modernisation initiatives. The capacity and capabilities of these smaller sub-contractors must also be increased, with fairer contractual working relationships that allow for adequate risk protections and margins. A revamp of the Contractor Grading System could also help companies distinguish quality and highly-productive sub-contractors from cost-driven sub-contractors.

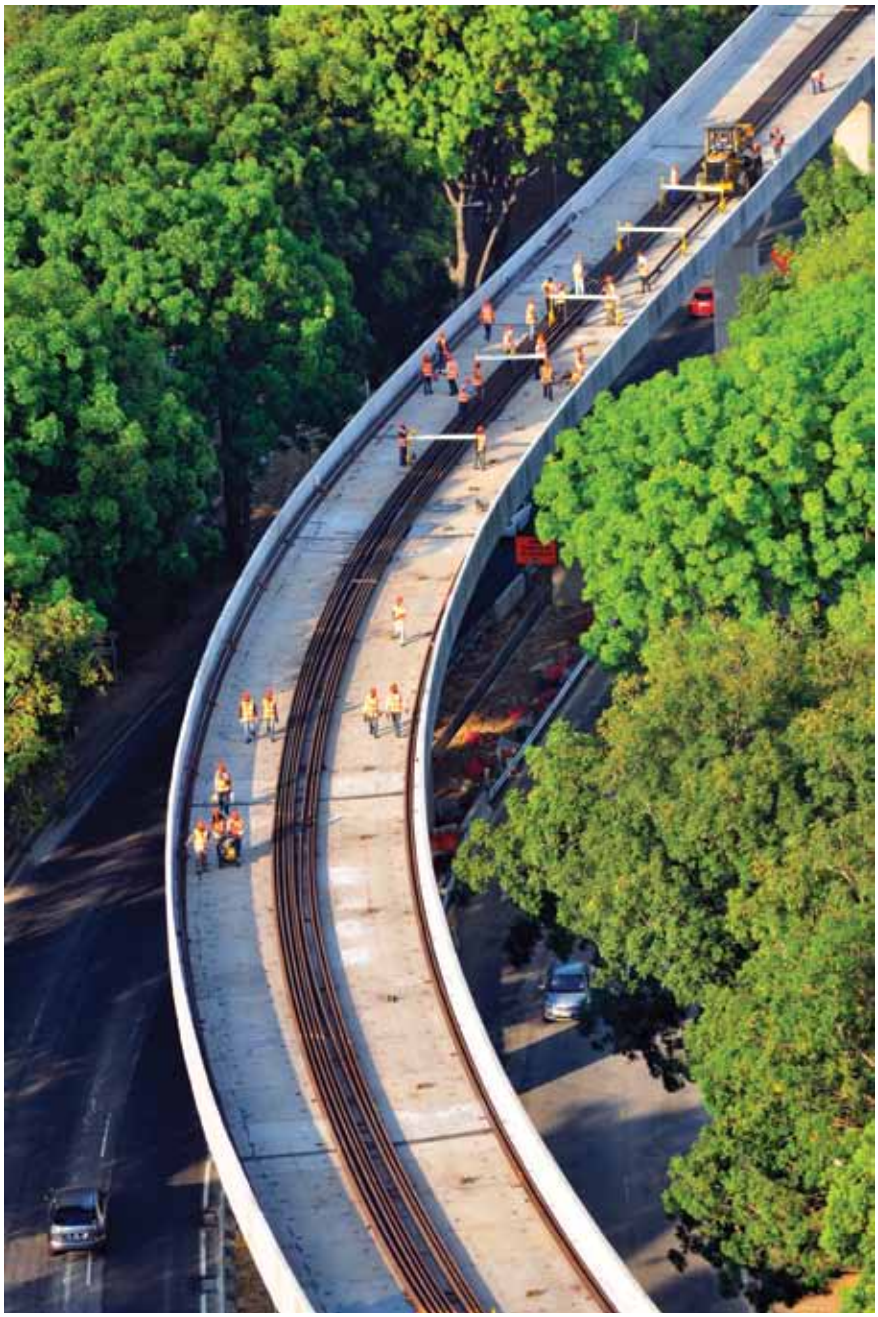
All companies have limits to their capacity for project planning, design, construction and maintenance. Projects issued indiscriminately will result in these companies being unable to meet project objectives in terms of cost, quality and completion time. Government and industry must collaborate when discussing government projects to ensure that resources are always available to complete the project. This will also go a long way towards mitigating the boom-bust cycle of the industry and maximise the use of available resources.

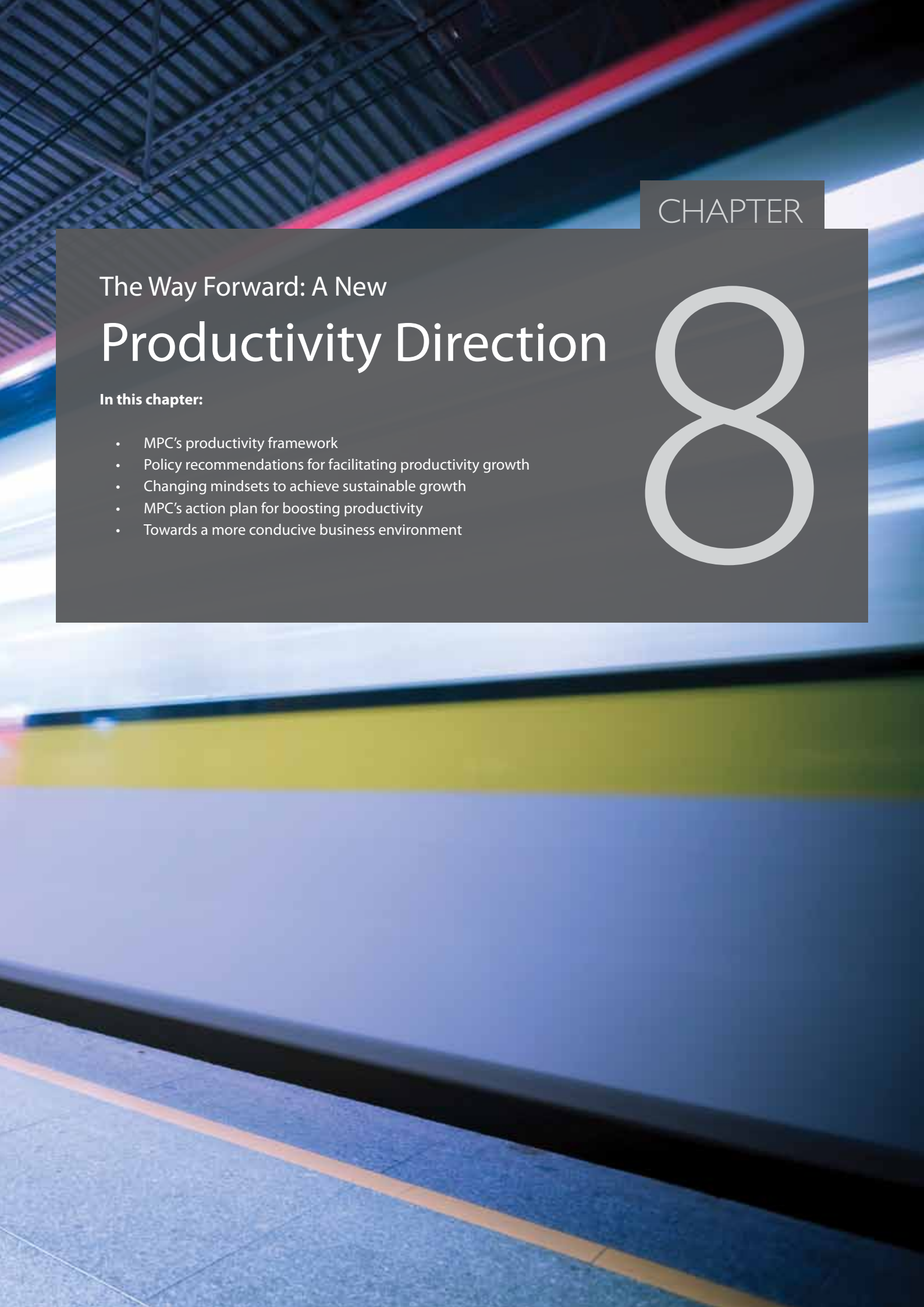
Sustainability and Global Competition

The removal of energy subsidies is also expected to increase the demand for energy-efficient features in the construction, retrofitting and maintenance of buildings and other facilities. Clients are demanding more sustainable building solutions that achieve all economic, social and environmental goals, and bigger construction companies have already begun to include sustainability metrics in their performance evaluations. In addition, the government's Second National Physical Plan, Climate Change Policy, National Green Technology Policy and Tenth Malaysia Plan all recommend that Malaysia improve its environmental performance.

Foreign construction companies with international exposure will be able to offer sustainability solutions to the Malaysian market that will help the country realise its environmental goals. This should spur Malaysian companies to quickly upgrade their service delivery to meet the challenge of foreign competition.

The industry may also be due for a round of consolidation in order to prepare its key players for global competition. It is well understood that bigger firms tend to be more efficient, more professionally managed and better prepared to undertake bigger and more complex projects both locally and overseas. Increasing a firm's size and giving it greater domestic experience will enable it to remain competitive in the face of liberalisation and global trade.





CHAPTER

8

The Way Forward: A New Productivity Direction

In this chapter:

- MPC's productivity framework
- Policy recommendations for facilitating productivity growth
- Changing mindsets to achieve sustainable growth
- MPC's action plan for boosting productivity
- Towards a more conducive business environment

THE WAY FORWARD: A NEW PRODUCTIVITY DIRECTION

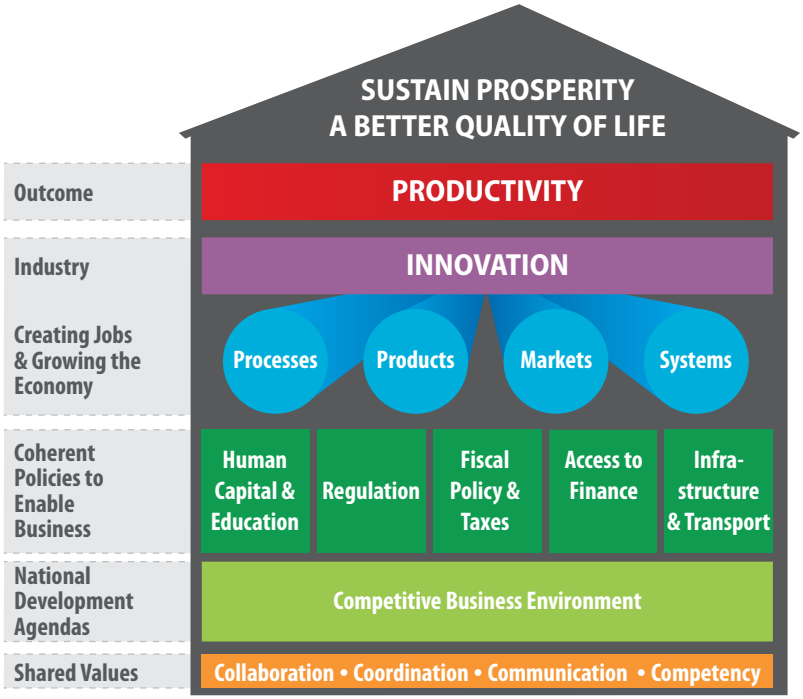
The key to long-term, sustainable economic growth is productivity. But boosting productivity growth will require Malaysia to make some important changes to the way it does business. ▶▶▶

Productivity is the single most important factor in a country's long-term growth. High productivity nations are able to quickly adapt to changing macroeconomic challenges as well as fundamental shifts brought on by technological advancement. The investment environment in high productivity countries is thus very dynamic, with both capital and labour responding to changes in patterns of consumption and market forces. Economic growth is not driven by pure investment or spending, but rather by the ever-increasing productivity of the country's workforce.

There are limits to the number of work hours in a day and the number of employees that are available in the workforce. A country is also limited by the capacity of its land and raw materials and is subject to geopolitical challenges that can undermine its economic reforms. However, there is no limit to how much total output the labour force can produce when equipped with productivity-enhancing tools and technologies. The measure of a highly productive nation may be thus observed in almost all sectors of its economy – its farms, factories and business services all produce more output per unit of input than other countries.

Innovation and technology can sustain productivity growth indefinitely and increase a country's income per capita even though all other input factors remain the same. Productivity growth is the only way of growing an economy without requiring additional physical inputs. It relies instead on the application of knowledge embodied in capital, labour and new technologies. Higher productivity growth can also help attract foreign investment, which also contributes to income growth.

Figure 8.1: Productivity Framework



Productivity growth contributes to Malaysia's wellbeing by raising income per capita while improving society's quality of life.

Productivity growth contributes to Malaysia's wellbeing by raising income per capita while improving society's quality of life. Generally speaking, the higher the productivity of a country, the higher the standard of living it can afford in terms of better healthcare and education, improved roads and infrastructure, better security and improved environmental standards. A higher standard of living also allows the country to better support its less privileged citizens. To achieve its goal of becoming a high-income nation, Malaysia must forge a new mandate to increase productivity.

A NEW DIRECTION

Although even low-productivity, low-skill and low-wage investments can raise income per capita and create wealth in the short-term, the main determinant of income growth over the long-term is productivity growth. However, sustained productivity growth is not a guaranteed outcome of expanding economic growth. Rather, it requires continuous improvement in labour efficiency, innovation and the diffusion of new and better production methods. Productivity growth is a national agenda, and MPC's adopted productivity framework (Figure 8.1) calls for industry and government to join hands in improving productivity and competitiveness through changing the mindsets of Malaysians and Malaysian businesses.

The Productivity Framework is based on shared Malaysian values (Collaboration, Coordination, Communication and Competency) 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, education, taxes, incentives and access to finance. Government programmes also pave the way for improvements in the country's infrastructure and transportation networks.

The various policies, regulations and initiatives that form the foundation of the national development agenda allow industry to take the lead in creating jobs and growing the economy through open market competition. However, it is crucial that the foundation itself encourage businesses to continuously improve

their products, processes and systems as these will lead to greater 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 net result is a real gain in productivity growth. 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.

Innovation and its diffusion is therefore a fundamental aspect of accelerating productivity growth. However, 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.

JOINING HANDS TO BOOST PRODUCTIVITY

Government and industry therefore both have an important role in improving productivity. Malaysia's strategy for raising overall productivity must address barriers to productivity growth at both the macroeconomic and microeconomic levels. This is a long-term challenge as it will take time for workers, businesses and the government to adapt to the ideas and reforms proposed. However, the incremental rewards gained from gradual implementation will accumulate over time. In the long run, the benefits of cumulative productivity growth to Malaysia will be considerable.

Malaysia's strategy for raising overall productivity must address barriers to productivity growth at both the macroeconomic and microeconomic levels.

MPC has formulated three recommendations to address the issues facing Malaysia's productivity goals, which are discussed in the following sections.

Recommendation #1: Nurture a Competitive and Productive Mindset

All productivity initiatives start with people. It is people who power the processes and systems used in industry, and it is people who demand the products and services produced by these industries. When the expectations of consumers rise, businesses are likewise forced to raise their game to meet those expectations or face extinction. Economic transformation therefore also calls social transformation, when all social functions – workplaces, families and consumers – start thinking in more competitive terms. Being satisfied with the status quo leads to complacency. When the status quo becomes no longer acceptable, consumers, businesses and workers will motivate each other onto greater heights and productivity. A transformative mindset is crucial for Malaysia to reach its economic and government transformation goals.

The nation's aspirations for achieving high-income status rest of on the shoulders of the country's workforce. It is crucial that workplace harmony be maintained and encouraged to ensure that everyone is motivated to carry the burden of the country's economic goals. Many firms tackle productivity challenges in a top-down way, which can oftentimes be counterproductive. Malaysia needs to foster a workplace culture in which employees' views and contributions are valued up and down the corporate ladder. Organisations must maintain open lines of communication and allow employees to play a role in formulating, measuring and evaluating the company's productivity goals.

Establishing and activating this competitive mindset in workplaces and society will not be easy. Public and private sector organisations must nurture this competitive mindset within their workplaces and inculcate a winner-takes-all attitude among their employees. Organisations that are staffed by highly-competitive employees invariably produce better products at lower prices, enabling them to win a larger share of the market. Highly-competitive employees can also adapt more quickly to changing

technologies, circumstances or evolving best practices.

There needs to be a national drive for inculcating a more competitive and productive mindset among Malaysians at all levels of society.

MPC's first recommendation therefore calls for a national drive for inculcating a more competitive and productive mindset among Malaysians at all levels of society so as to increase the country's capacity for innovation and productivity. International studies show that all countries that have succeeded in linking skills with productivity have also enjoyed improved incomes per capita. These countries target their policies towards matching the supply and demand for skills, preferably in high-wage, high-skill and high-productivity industries. These countries also guarantee equal opportunity and access to education and work, sustaining a dynamic skills development process in which innovation and technological advancement is fueled from within the country rather than from external forces.

Recommendation #2: Promote Incentives Within Targeted industries

Although the main thrust of productivity growth rests with the private sector, the government does have a role to play in improving a country's productive capacity. Innovation and productivity growth require a flexible regulatory environment, a competitive workforce and efficient infrastructure, all of which depend upon government support. The government is also responsible for establishing the general foundations to support productivity improvements, including enforcing law and property rights and providing investors an attractive business environment. These foundations require ongoing attention and improvement.

The key role of government in boosting productivity is to provide industry the stability and certainty it needs to make investments into productivity-enhancing tools and technologies. The government influences productivity at companies directly in three ways: providing incentives for investment, providing support for innovation and enacting policies for talent development. These three policy dimensions interact with each other, and any policy framework directed at boosting productivity must address all areas simultaneously.

Government incentives encourage companies to make smart investments into new production processes or management systems that they would otherwise not make. To be effective, such incentives should be designed to boost the inherent competitiveness and productivity of the company. Poorly-designed incentives encourage companies to invest into superficial facelifts of their premises, acquire unnecessary assets or employ additional cheap labour. Such investments have little or no effect on the long-term productivity of a company, and can in fact reduce productivity growth over time as the additional labour and under-utilised assets turn into liabilities.

To be effective, incentives should be designed to boost the inherent competitiveness and productivity of the company.

The key to designing focused incentives that actually increase productivity is to build them on a framework of open-market competition rather than protective market policies. Government incentives should be focused on target industries that have a high potential to push for a quantum leap in productivity and create high value jobs. Focused and well-formulated incentives will promote market competition and remove many entrenched inefficiencies from the economy. Such incentives will also motivate companies to invest into upskilling its existing workforce and to take advantage of new technology and production systems rather than rely on cheap labour.

MPC's second recommendation calls for incentive policies to be formulated, implemented, reviewed and continually adjusted to ensure that they encourage productivity growth by creating competition rather than hindering it. In addition, it also recommended that a formal framework be established to monitor

and streamline the objectives of the country's various investment promotion agencies (IPAs) and economic corridors to ensure that their interests are aligned to each other and that of Malaysia as a whole. These agencies should also be measured in terms of qualitative factors that affect long-term national productivity growth instead of merely quantitative factors that only offer short-term economic benefits.

Open and fair markets give businesses an incentive to innovate and invest.

Recommendation #3: Strengthen Regulatory Review to Boost Productivity

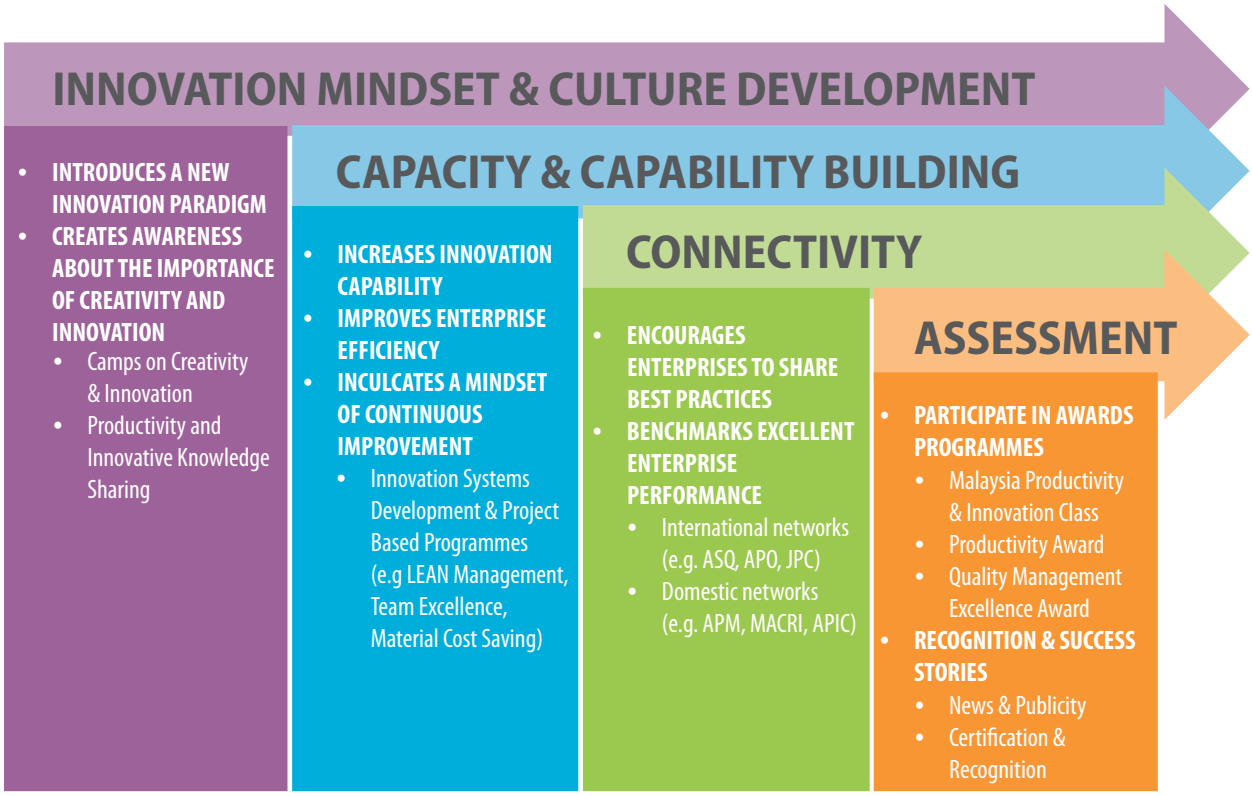
Government policies should provide more room for efficient enterprises to grow and discourage the proliferation of inefficiency. The government plays a key role in determining the extent to which market forces are allowed to influence productivity growth. Since market competition is the key to driving productivity growth, government policies should be designed to create competition rather than hinder it. Open and fair markets give businesses an incentive to innovate or to invest into productivity-enhancing tools and technologies. In contrast, closed or heavily-regulated markets tend to encourage complacency, with businesses preferring to manage growth by increasing their labour force rather than improving the productivity of their existing workers. Protective policies hamper real productivity growth and should be adopted sparingly.

While regulation often tends to be associated with adverse effects on productivity, it can nonetheless have beneficial impacts on productivity by promoting competition and facilitating an improved investment and innovation climate. Indeed, businesses rely on the government to both regulate the market and enforce the laws governing it. However, some regulations can reduce an organisation's adaptability or responsiveness and burden it with unnecessary costs.

The government recognises that regulations contribute towards developing an economy that not only attracts investments but also generates more employment and increases national wealth. MPC's third recommendation calls for regulatory agencies to be proactive in gathering industry feedback before enforcing new regulations that may cripple innovation and productivity growth. MPC has developed the National Policy on The Development and Implementation of Regulations to address gaps in the national regulatory infrastructure and position Malaysia to meet international best practices in regulations or Good Regulatory Practices (GRP). This will enhance the transparency and predictability of regulatory actions and help create a more conducive business environment.

Furthermore, it is recommended that all new and amended regulations undergo a Regulatory Impact Analysis (RIA) before they are

Figure 8.2: Enterprise Intervention Innovation Programme (EIIP) Roadmap



implemented to ensure that the benefits of the proposed regulation will outweigh its costs. In addition, it is also recommended that existing regulations be reviewed frequently to ensure that they remain relevant and offer more benefits than costs to both producers and consumers.

INDUSTRY ACTION

Data from international studies suggest that the main driver of productivity growth is market competition. Today's global economic environment demands that companies change the way they operate and focus on improving productivity by strengthening their core capabilities and investing into productivity-enhancing tools and technologies.

MPC 's approach to boosting companies' productivity allows companies to leverage competitive advantages against both domestic and foreign competitors while boosting a nation's overall productivity at the same time. MPC has designed several programmes that need industry commitment and which call upon businesses to become partners in boosting national productivity. These programmes have been very successful in improving productivity and cultivating more competitive mindsets at some of the country's most admired companies.

Enterprise Intervention Innovation Programme (EIIP)

EIIP helps steer companies towards greater productivity growth by changing the mindsets of employees (Figure 8.2).

Before embarking on the EIIP, a diagnostic examination is undertaken to assess the current situation of the organisation. In addition MPC also offer performance measurement both qualitative and quantitative using BEF and iCOMPASS.

Innovation Mindset & Culture Development

The Innovation Mindset phase inculcates employees with a greater awareness of their inherent creativity and innovative capacity, and they are taught to think, act and react more creatively in day-to-day work activities.

Capacity and Capability Building

The next phases seek to nurture the company's innovative capacity and capabilities by encouraging the development of innovative systems and skills through tools such as LEAN Management, Team Excellence, Employee Productivity and Service Excellence. The benefits of these tools and how they work are described in the following sections.

LEAN Management

Becoming a LEAN enterprise means eliminating non-value added activities along value stream to be more efficient systems of production that eliminate waste, reduce delays and costs and improve quality all at the same time. A lean system looks for ways to prevent wastage before it occurs in terms of time, labour or material.

When successfully implemented, LEAN Management has a significant impact on participating organisations in both the private and public sector. PUSPAKOM, Burnmark Industries and Pejabat Daerah Tanah Kuantan are among the organisations that have benefitted from LEAN Management.

Team Excellence

The value of teamwork in improving workplace productivity cannot be overstated. A positive and competitive team spirit encourages greater collaboration and can lead to valuable innovations in workplace productivity and product improvement.

MPC has established a platform for teams to demonstrate the best practices of team projects at both national and international level conventions. MPC also brings Malaysian teams to participate in international events such as the International Exposition on Team Excellence (IETEX), International Quality and Productivity Convention (IQPC), International Convention on Quality Circle (ICQCC) and ASQ's Team Excellence Award. The best teams at these events receive awards and recognition for their excellence.

Employee Productivity

Employee productivity is best when workers are satisfied with their jobs and are working in a productive and conducive working environment. It also includes elements such as a healthy work-life balance and positive workplace culture, both of which contribute towards

PUSPAKOM
Operational Efficiency through LEAN Operation System

PUSPAKOM adopted LEAN Operational System (LOS) to reduce costs and optimise its human resources through initiatives such as the establishment of the manpower standard, daily productivity monitoring system and standardised work chart. The exercise saved the institution approximately RM1.2 million and improved productivity, staff morale and efficiency.

BURNMARK INDUSTRIES
Productivity and Quality Initiatives

BURNMARK initiated LEAN management techniques throughout the organisation including visual controls in every aspect of the company's work processes. The company also adopted 5S practices and Kaizen to improve operational efficiency, monitoring and safety. The LEAN initiative has reduced maintenance times by 81.4%.

PEJABAT DAERAH DAN TANAH KUANTAN (PDTK)
Improvement in Work Process through LEAN Management

PDTK committed to providing the best service to customers by implementing the LEAN management system. Value Stream Mapping improved the processing of temporary occupation license applications (LPS), reducing the number of procedures required from seven to four and cutting processing time by 87% and waiting time from 12 months to 8 months. The initiative also improved the process of appointing contractors, reducing the processing time and waiting time of appointing a contractor by 88% and 39% respectively.

KHAZANAH NASIONAL
The Power of Team

KHAZANAH NASIONAL promotes business effectiveness through team-based management and encourages individuals to excel through participation practices. A special project team managed to reduce the payment cycle time by more than 50 percent at a branch office by adopting a Plan-Do-Check-Act (PDCA) methodology and various tools such as cause and effect diagrams, 5 Whys and multivoting. The results improved employee morale and increased personnel marketability.

PANASONIC APPLIANCES AIR-CONDITIONING MALAYSIA

Productivity-Linked Performance

PANASONIC APPLIANCES AIR-CONDITIONING implemented a wage system that linked productivity to individual performance called as Productivity-Linked Wage System (PLWS). The first phase of the initiative (Mind Change) bases bonuses and increments on company performance, while the second phase (Real Productivity Enhancement) bases bonuses and increments on company and individual performance as well as a challenging performance index. The PLWS system raised attendance of 98.3%, improved human productivity (830 set per employee), operation ration (83%), production quantity (1.89 million sets), and employee training hours (60 hours per employee).

AGILENT TECHNOLOGIES

Work-life Balance in Enhancing Employee Productivity

AGILENT has developed work-life balance programmes which cover essential elements that provide positive effects on employees and the company as a whole. These elements include mothers at work, studying while working, playing while working, health and well-being, sports and recreation, corporate citizenship and flexible work schedules. These initiatives have reduced operating costs, absenteeism and insurance claims while employees' punctuality, commitment and performance continue to rise.

an overall feeling of well-being among employees and help raise their performance. These factors help determine the organisation's productivity performance.

Service Excellence

MPC's Service Excellence programme shows companies how they can offer service excellence within their given resources with the ultimate objective of delivering that 'WOW!' experience to customers. It places the customer at the centre of all of the organisation's business processes and balances customer and company agendas. Over the long-term, the Service Excellence agenda emanates from the company culture and the spirit of its employees and their emphasis on providing the ultimate customer experience. A company that embarks on a journey towards Service Excellence will ultimately discover the uniqueness of its brand.

WILDLIFE RESERVES SINGAPORE (WRS)

Co-Creating Excellent Customer Experiences

WRS gives customers a unique wildlife experience based on its five core values: Creative and Innovative Thinking; Achieving Excellence Together; Focus on the Guest; Pride of a Professional; Respect and Care for Wildlife. These core values are supported by three strategic priorities: first, to create an immersive wildlife experience with unified conservation and actionable education programs; second, to deliver a seamless and easy-to-visit and-enjoy experience; and third, to enable the right people, processes and infrastructure to achieve WRS's goals. WRS parks have been awarded the Best Leisure Attraction Experience Award by the Singapore Tourism Board a total of 18 times, affirming WRS parks' status as Singapore's premier leisure venues. To date, WRS parks have welcomed more than 70 million visitors and have established a community of 1,700 volunteers.

Source: 5th Business Excellence Global Conference, Singapore

Connectivity

MPC has assisted in developing Community of Practices (CoPs) through the benchmark model to help individuals and organisations compare business practices and to learn from each other (Figure 8.3). In Phase 1, members of a CoP are grouped together with MPC facilitating discussions to establish a benchmark and then evaluate CoP performance. In Phase 2, MPC helps identify the best practices used by exemplary organisations and then organises workshops to encourage CoP members to learn-and-share these best practices with each other. In Phase 3, CoP members are encouraged to initiate a continuous improvement project based on their findings from phases 1 and 2.

Assessment

Malaysia Business Excellence Framework (MBEF)

The Malaysia Business Excellence Framework (MBEF) provides organisations with a tool to

PLUS MALAYSIA BERHAD

Journey to Excellence

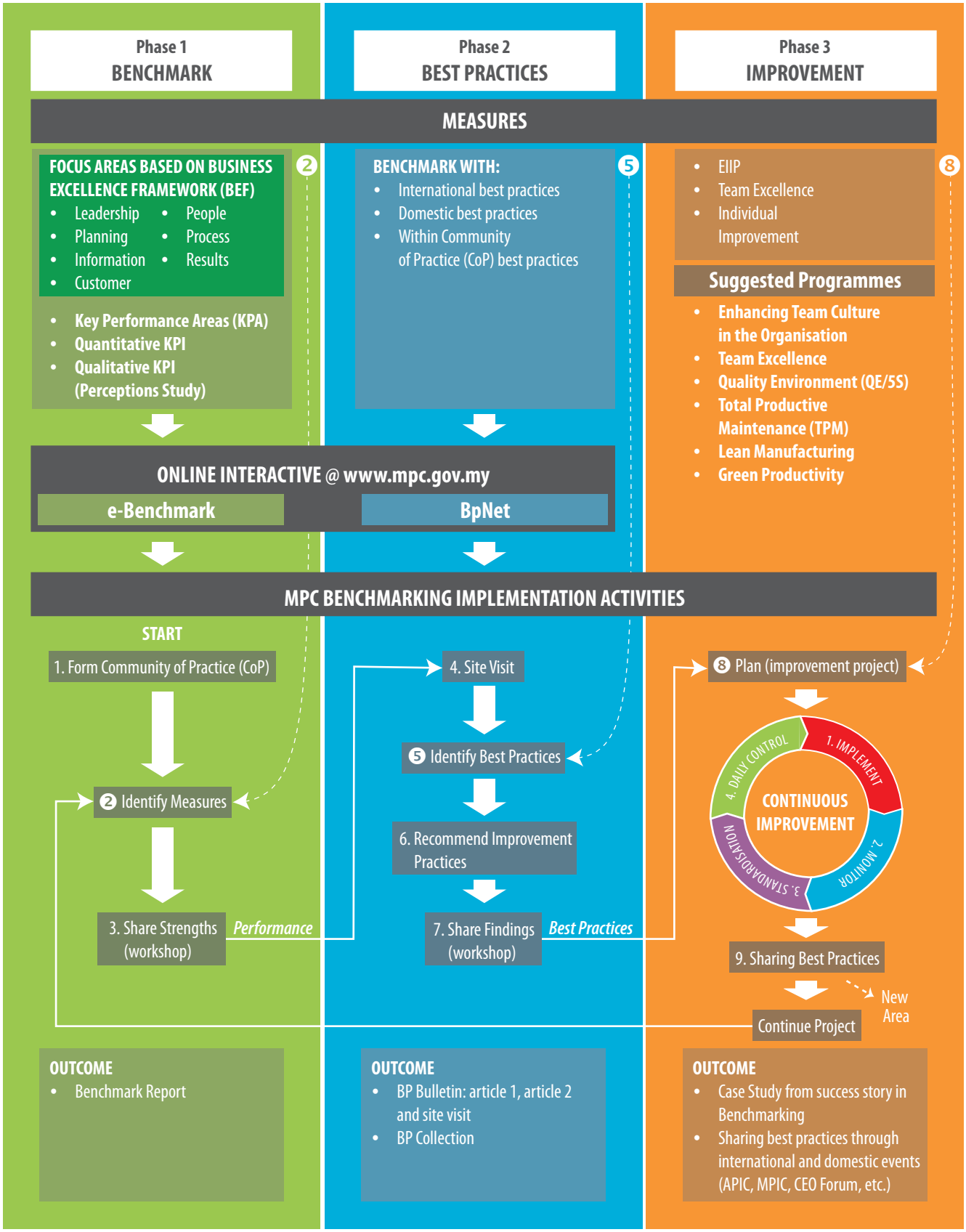
PLUS Malaysia Berhad is Malaysia's largest toll expressway operator and continues its journey to excellence with the Malaysia Business Excellence Framework (MBEF) to enhance its management systems and work processes and also to drive value creation to ensure business sustainability and growth.

ALFA LAVAL MALAYSIA

Leveraging Innovation for Future Growth

ALFA LAVAL has made innovation one of its core activities and part of the company culture. Its innovations have given the company more than 1,900 patents in heat transfer, fluid handling and separation. In 2011, the company became a Thomson Reuters Top 100 Global Innovator. The company believes that interaction between people of various backgrounds and experiences will lead to creativity and innovation.

Figure 8.3: MPC Benchmark Model

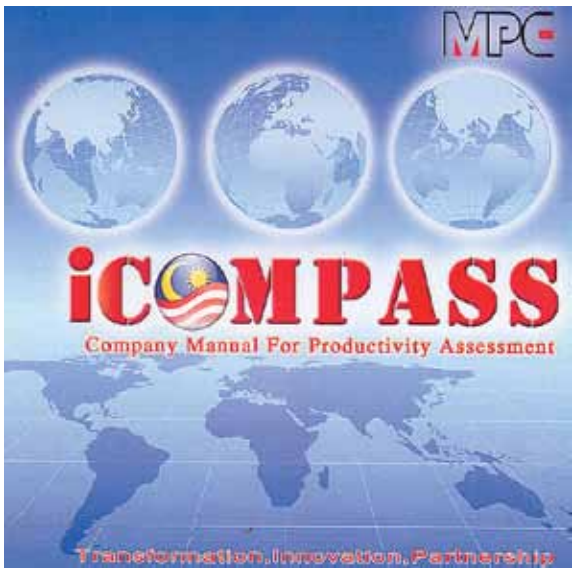


strengthen their management systems and capabilities in achieving organisational sustainability and competitiveness. The framework has been adopted in more than 96 countries worldwide. By utilising this framework, organisations improve productivity through adopting approaches to excellence in common areas such as leadership, planning, information, customer, people, process and results. MPC has collaborated with several anchor organisations in Malaysia that in turn lead their subsidiaries and vendors towards adopting MBEF.

Figure 8.4: Business Excellence Criteria

iCOMPASS

For any productivity initiative to be meaningful, it must be measurable. MPC helps organisations define productivity metrics for their operations by using the Company Manual for Productivity Assessment (COMPASS). MPC's iCOMPASS application helps measure a business's efficiency in quantitative terms by examining the company's financial statement. This tool enables businesses to develop a comprehensive strategic plan for improving productivity and profitability. Companies can then identify the reasons for their productivity gaps by comparing their production processes and business practices with other companies.



Towards a More Conducive Business Environment

All productivity initiatives rely upon a conducive business environment that encourages competition and

REDUCING UNNECESSARY REGULATORY BURDEN: PRIVATE HOSPITALS

Regulations governing the establishment of private hospitals are stifling growth.

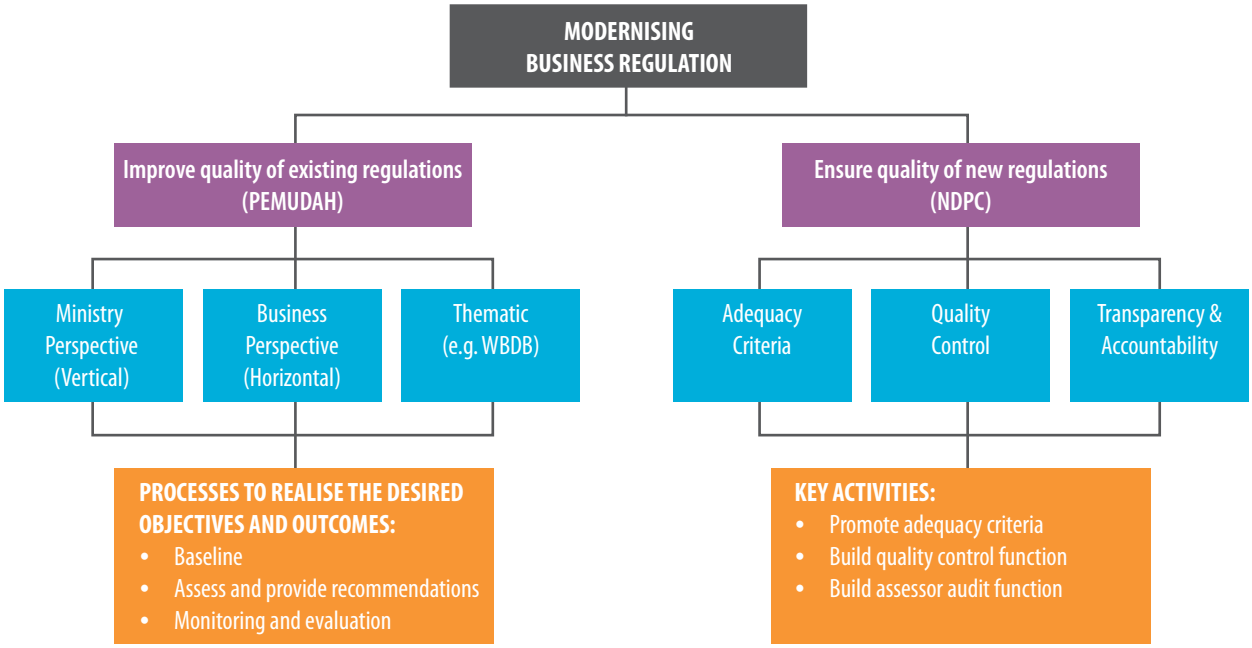
Malaysia's healthcare sub-sector is highly regulated, and this has impaired its ability to grow. This sector is highly regulated because it directly impacts the safety, health and wellbeing of the general public. However, good regulations and a good regulatory regime are able to balance the often competing objectives of economic growth and societal wellbeing. The cost impact of regulations are acceptable to businesses, consumers, the government and the community in general provided that the benefits accrued from achieving the regulatory objectives are greater than the total cost of regulation. The best regulations achieve their objectives and at the same time deliver the greatest benefit to the community.

Between 2006 to 2012, the number of private hospitals in Malaysia increased from 199 to 209 with an average growth rate of a mere 0.8%, while the number of private hospital beds grew from 11,206 to 13,568 with an average growth of 3.7%. The slow rate of growth rate has been attributed to many factors, but the main one is the highly-prescriptive Private Healthcare Facilities and Services Regulations (Private Hospitals and Other Private Healthcare Facilities) Regulations 2006, which specifies the regulatory requirements for establishing, maintaining and operating a private hospital.

Among of the key issues of regulatory burdens that are of most concern to the private hospitals include operating license renewals, planning approvals for facility improvements, approvals for advertisements, personal data protection, workforce regulation and regulated medical fees. In addition, MPC's study of the regulatory environment for private healthcare also found many inefficiencies that, if improved upon, could significantly reduce regulatory burden and encourage greater competition. For example: it takes almost four years to build a private hospital, with building approvals alone taking up to a year. There are also several overlapping processes for getting building approvals involving different government agencies. The lack of collaboration and coordination between agencies also raises issues of competency and efficiency.

If the procedures and paperwork required at these agencies were streamlined, the sector would attract more competition and grow at a much faster rate. The sector would also benefit from a thorough review of the entire process of setting up a private healthcare facility to reduce the time-to-market for would-be competitors.

Figure 8.5: MPC's Regulatory Review Framework



supports growth. These regulations must also be efficient, accessible, cost effective and simple for businesses and industries to implement. Malaysia has always emphasised the importance of enhancing existing business regulations and transforming regulatory-enactment processes by eliminating unneeded costs, reducing regulatory duplication and overlap and enhancing consistency.

In carrying its mandate, MPC is assessing both written regulations and the administration and enforcement of these regulations (Figure 8.5).

MPC's "The Guide to Reducing Unnecessary Regulatory Burdens: Core Concepts" provides the underlying concepts used to identify regulations which are imposing unnecessary regulatory burdens on business. The handbook also includes information that helps readers understand the regulatory review process and why it is necessary to design new regulations to replace unnecessary and over-costly regulations. It also advocates the introduction of regulation impact analysis (RIA) for all new legislation to ensure that the benefits of the proposed regulation will outweigh its costs.

Appendices

In this chapter:

- Technical notes on measuring productivity
- Contributions by manufacturing sub-sector
- Productivity statistics of the manufacturing sector
- Malaysia's performance in the World Competitiveness Yearbook 2014
- Entry Point Projects (EPPs) of the Economic Transformation Programme (ETP)
- Acronyms and abbreviations

APPENDIX A.1: 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 one input only, 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 measure. Both output and inputs are commonly expressed in monetary terms.

APPENDIX A.1.1: PARTIAL FACTOR PRODUCTIVITY MEASURE

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.

APPENDIX A.1: MEASURING PRODUCTIVITY *(CON'T)*

Variables	Description
	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.
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, and stationery and office supplies + Utility, fuels, lubricants and 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 and 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.1: MEASURING PRODUCTIVITY *(CON'T)*

APPENDIX A.1.II: TOTAL FACTOR PRODUCTIVITY MEASURE

The Total Factor Productivity (TFP) 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 TFP, 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 TFP known as KLEMS. 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:

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

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:

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

Where Y_j^P denotes the price of output, X_j^P denotes the price of intermediate inputs, K_j^P denotes the price of capital services and L_j^P denotes the price of labour services. Under the standard assumption of profit maximizing behavior, competitive markets, such that factors are paid their marginal product, and constant returns to scale, we can define TFP growth ($\Delta \ln t_j$) as follows:

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

Growth of TFP 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:

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

APPENDIX A.1: MEASURING PRODUCTIVITY *(CON'T)*

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

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

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

$$V_j = g_j\,(K_j, L_j, T) \qquad \textbf{(6)}$$

$$P_j^{V} V_j = P_j^{K} K_j + P_j^{L} L_j \qquad \textbf{(7)}$$

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 TFP (A^{V}).

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

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:

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

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

APPENDIX A.1: MEASURING PRODUCTIVITY (*CON'T*)

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:

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

$\bar{v}_{jt}$ with a bar denoting period averages and $\bar{v}$ 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:

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

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

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 account 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:

$$\Delta \ln L_{t} = \sum_{l} v_{l,t} \Delta \ln H_{l,t}$$

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

APPENDIX A.1: MEASURING PRODUCTIVITY (*CON'T*)

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):

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

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 $I_{k,t-\tau}$, the investment in period t-τ. 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, $A_{k,t}$ 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 $v_{k,t} = (\sum_k p^K_{kt} A_{kt})^{-1} p^K_{kt} A_{kt}$ with p^K_{kt} the price of capital.

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 $(1-\delta_k)p^I_{k,t+1}$ in the next period, or earning a nominal rate of return, t_i on a different investment opportunity. The equilibrium condition can be rearranged, yielding the familiar cost-of-capital equation:

$$p^K_{k,t} = p^I_{k,t-1} i_t + \delta_k p^I_{k,t} - [p^I_{k,t} - p^I_{k,t-1}] \quad \textbf{or} \quad p^K_{k,t} = r_{k,t} p^I_{k,t-1} + \delta_k p^I_{k,t}$$

The nominal rate of return can be estimated as follows:

$$i_{k,j} = \frac{p^K_{j,t} K_{j,t} + \sum_k [p^I_{k,j,t} - p^I_{k,j,t-1}] A_{k,j,t} - \sum_k p^I_{k,j,t} \delta_k A_{k,j,t}}{\sum_k p^I_{k,j,t-1} A_{k,j,t}}$$

Where the first term $p^K_{jt} K_{jt}$ 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.11: PRODUCTIVITY INDICATORS

Labour Competitiveness

Competitiveness in terms of labour cost indicates the comparability of the industry in producing products or services at the lowest possible labour cost.

Ratio	Unit	What it Tells
i) Added Value Per Labour Cost $= \frac{\text{Added Value}}{\text{Labour Cost}}$	Pure Number	Indicates how competitive the enterprise is in terms of cost. A low ratio indicates high labour cost which does not commensurate with added value creation.
ii) Labour Cost Per Employee $= \frac{\text{Labour Cost}}{\text{No. of Employees}}$	Ringgit Malaysia (RM)	Measures the average remuneration per employee. A high ratio means high returns to individual workers and vice-versa.
iii) Unit Labour Cost $= \frac{\text{Labour Cost}}{\text{Total Output}}$	Pure Number	Indicates the proportion of labour cost to total output. A high ratio indicates high labour costs. This could be due to a labour shortage and lack of skilled labour, or indicative of a poor labour mix. It could also be due to high labour turnover.

APPENDIX A.11: PRODUCTIVITY INDICATORS (*CON'T*)

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 working procedures such as: • High prices 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.

Capital Productivity

Capital productivity indicates the degree of utilisation of fixed assets and how efficient these assets are being utilised. It is defined as Added Value generated per Ringgit of Fixed Assets.

Ratio	Unit	What it Tells
Added Value Per Fixed Asset $= \frac{\text{Added Value}}{\text{Fixed Assets}}$	Pure Number	Indicates the degree of utilisation of tangible fixed assets. A high ratio indicates that assets are being efficiently utilised. A low ratio reflects poor asset utilisation.

APPENDIX A.11: PRODUCTIVITY INDICATORS *(CON'T)*

Capital Intensity

Capital intensity measures the amount of fixed assets allocated to each employee. It is also known as Fixed Assets per Employee or simply capital-to-labour ratio. This ratio measures whether an industry is relatively capital-intensive or labour-intensive.

Ratio	Unit	What it Tells
Fixed Assets Per Employee $= \frac{\text{Fixed Assets}}{\text{No. of Employees}}$	Ringgit Malaysia (RM)	Indicates whether an enterprise adopts a capital-intensive or labour-intensive policy. A high ratio indicates high capital intensity. A low ratio indicates that the enterprise is dependent on labour-intensive methods or that there is low technological input.

APPENDIX B: CONTRIBUTIONS BY MANUFACTURING SUB-SECTOR, 2013

Sub-Sectors	Total Output		Added Value		Employed Persons	
	RM (Million)	Share (%)	RM (Million)	Share (%)	RM (Million)	Share (%)
Food Products	110,384.6	14.1	12,277.2	7.7	220.1	11.8
Beverages	6,897.2	0.9	1,047.9	0.7	15.8	0.8
Tobacco Products	830.6	0.1	254.3	0.2	1.6	0.1
Textiles	7,423.1	0.9	1,740.3	1.1	29.9	1.6
Wearing Apparel	4,402.9	0.6	1,192.0	0.7	45.2	2.4
Leather and Related Products	1,183.8	0.2	340.4	0.2	9.9	0.5
Wood and Products of Wood and Cork, Except Furniture; Articles of Straw and Plaiting Materials	16,529.9	2.1	3,602.4	2.3	96.8	5.2
Paper and Paper Products	10,766.3	1.4	2,460.6	1.5	64.2	3.4
Printing and Reproduction of Recorded Media	18,155.7	2.3	3,666.3	2.3	59.4	3.2
Refined Petroleum Products	96,225.0	12.3	25,314.4	15.9	5.8	0.3
Chemicals and Chemical Products	68,962.8	8.8	16,883.7	10.6	84.1	4.5
Basic Pharmaceutical Products and Pharmaceutical Preparations	3,034.0	0.4	982.4	0.6	12.8	0.7
Rubber and Plastic Products	46,482.1	5.9	9,340.0	5.9	215.2	11.5
Other Non-Metallic Mineral Products	28,837.3	3.7	7,317.4	4.6	84.8	4.6
Basic Metals	36,127.8	4.6	5,787.5	3.6	73.8	4.0
Fabricated Metal Products, Except Machinery and Equipment	24,571.5	3.1	5,663.3	3.6	121.0	6.5
Computer, Electronic and Optical Products	177,799.3	22.8	35,946.3	22.6	308.5	16.6
Electrical Equipment	24,982.8	3.2	4,462.9	2.8	87.0	4.7
Machinery and Equipment n.e.c.	22,962.1	2.9	5,679.6	3.6	92.7	5.0
Motor Vehicles, Trailers and Semi-Trailers	41,505.8	5.3	7,734.8	4.9	83.6	4.5
Other Transport Equipment	16,556.4	2.1	3,272.1	2.1	37.1	2.0
Furniture	9,246.4	1.2	2,465.6	1.5	75.6	4.1
Other Manufacturing	5,344.7	0.7	1,225.9	0.8	26.2	1.4
Repair and Installation of Machinery and Equipment	2,204.0	0.3	560.2	0.4	12.8	0.7
Manufacturing Total	**781,416.1**	**100.0**	**159,217.7**	**100.0**	**1,864.1**	**100.0**

APPENDIX C: PRODUCTIVITY STATISTICS OF THE MANUFACTURING SUB-SECTOR, 2013

Sub-Sector	Productivity		Labour Cost Per Employee		Unit Labour Cost		Capital Productivity		Capital Intensity	
	RM	Growth (%)	RM	Growth (%)	RM	Growth (%)	RM	Growth (%)	RM	Growth (%)
Food Products	55,780	-1.74	21,839	4.90	0.0435	7.34	1.3808	-0.92	40,398	-0.82
Beverages	66,344	-1.44	27,794	5.09	0.0637	7.38	1.3423	1.78	49,424	-3.16
Tobacco Products	158,308	-2.91	67,699	9.52	0.1309	15.24	0.9819	-4.56	161,224	1.73
Textiles	58,226	8.48	27,860	8.74	0.1122	0.54	0.6983	5.55	83,384	2.78
Wearing Apparel	26,360	6.35	21,149	7.01	0.2172	0.71	3.1255	4.48	8,434	1.79
Leather and Related Products	34,345	6.63	24,696	6.84	0.2068	1.60	3.5692	5.08	9,623	1.47
Wood and Products of Wood and Cork, Except Furniture; Articles of Straw and Plaiting Materials	37,196	6.49	19,723	10.56	0.1156	3.94	0.9740	2.87	38,189	3.52
Paper and Paper Products	38,298	6.73	23,339	7.48	0.1393	1.22	0.6616	4.10	57,888	2.53
Printing and Reproduction of Recorded Media	61,757	3.85	25,403	2.05	0.0831	-1.63	1.3946	2.13	44,282	1.69
Refined Petroleum Products	4,381,145	-0.92	110,072	-1.68	0.0066	0.55	2.3514	-2.96	1,863,180	2.11
Chemicals and Chemical Products	200,723	-2.44	42,045	2.40	0.0513	5.18	0.7851	-1.16	255,669	-1.30
Basic Pharmaceutical Products and Pharmaceutical Preparations	76,840	-0.20	28,870	4.72	0.1217	6.92	1.9494	-2.06	39,417	1.90
Rubber and Plastic Products	43,402	-0.41	25,352	8.89	0.1174	9.45	1.1776	-0.82	36,857	0.41
Other Non-Metallic Mineral Products	86,255	7.99	31,386	4.21	0.0923	-2.86	0.6171	4.98	139,782	2.87
Basic Metals	78,452	-2.18	40,709	6.03	0.0831	8.83	0.9533	-0.54	82,294	-1.65
Fabricated Metal Products, Except Machinery and Equipment	46,796	4.85	25,527	4.35	0.1257	-0.02	1.6916	4.01	27,664	0.80
Computer, Electronic and Optical Products	116,513	4.49	35,731	5.96	0.0620	1.71	2.0170	3.31	57,765	1.14
Electrical Equipment	51,318	5.84	25,695	-1.51	0.0894	-6.95	1.9966	3.76	25,703	2.01
Machinery and Equipment n.e.c.	61,237	2.68	29,616	6.93	0.1196	4.40	1.8083	1.64	33,864	1.02
Motor Vehicles, Trailers and Semi-Trailers	92,543	9.35	28,760	3.93	0.0579	-4.70	2.1033	6.62	43,999	2.55
Other Transport Equipment	88,195	11.67	31,505	9.83	0.0706	-2.53	2.5387	4.13	34,740	7.24
Furniture	32,602	1.95	19,240	4.03	0.1574	3.08	2.4818	1.23	13,136	0.71
Other Manufacturing	46,726	-3.07	23,270	9.01	0.1142	12.74	2.5508	-1.72	18,318	-1.37
Repair and Installation of Machinery and Equipment	43,671	2.84	23,380	4.82	0.1361	0.34	2.7235	1.54	16,035	1.29
Manufacturing	**85,413**	**2.08**	**28,433**	**5.31**	**0.0678**	**3.51**	**1.3872**	**1.13**	**61,571**	**0.94**

APPENDIX D.1: MALAYSIA'S PERFORMANCE IN SELECTED INDICATORS AMONG TOP 15 COUNTRIES IN WCY 2014

Overall Ranking		Working hours		Redundancy costs		Overall productivity (PPP)		Overall productivity - real growth		Labor productivity (PPP)		Compensation levels ($)	
		Average number of working hours per year		Number of weeks of salary		Estimates: GDP (PPP) per person employed, US$		Estimates: Percentage change of real GDP per person employed		Estimates: GDP (PPP) per person employed per hour, US$		Total hourly compensation in manufacturing (wages + supplementary benefits), US$	
	Top 15	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
1	USA	23	1,949.12	1	0.00	4	114,984.98	28	0.84	5	58.99	39	19.30
2	Switzerland	26	1,890.42	1	0.00	8	97,225.54	29	0.76	9	51.43	57	41.75
3	Singapore	15	2,036.90	1	0.00	9	96,238.81	46	0.02	18	47.25	38	18.46
4	Hong Kong	4	2,295.65	18	1.43	6	100,486.82	31	0.55	20	43.77	29	8.06
5	Sweden	42	1,795.28	1	0.00	16	88,072.91	32	0.52	14	49.06	51	25.07
6	Germany	53	1,743.14	40	11.56	20	82,431.73	51	-0.18	17	47.29	56	32.53
7	Canada	39	1,814.79	26	5.00	21	82,267.38	39	0.35	19	45.33	47	23.40
8	UAE	13	2,095.66	1	0.00	27	71,658.92	58	-4.12	30	34.19	20	5.73
9	Denmark	59	1,674.35	1	0.00	14	88,750.07	43	0.19	8	53.01	59	51.31
10	Norway	51	1,749.49	1	0.00	2	127,940.05	48	-0.10	1	73.13	58	43.61
11	Luxembourg	46	1,788.11	21	4.33	3	125,870.78	36	0.41	2	70.39	43	20.85
12	**Malaysia**	**18**	**1,986.10**	**48**	**17.22**	**47**	**39,790.02**	**12**	**2.32**	**47**	**20.03**	**15**	**4.76**
13	Taiwan	10	2,115.67	49	18.78	19	83,495.85	23	1.11	24	39.47	30	8.14
14	Netherlands	50	1,755.21	1	0.00	17	86,105.30	50	-0.11	15	49.06	54	29.08
15	Ireland	57	1,707.30	32	8.17	5	105,006.93	57	-3.49	3	61.50	53	28.28

Source: World Competitiveness Yearbook 2014, IMD

APPENDIX D.II: MALAYSIA'S PERFORMANCE IN SELECTED INDICATORS AMONG 13 ASIA-PACIFIC COUNTRIES IN WCY 2014

Overall Ranking		Working hours		Redundancy costs		Overall productivity (PPP)		Overall productivity - real growth		Labor productivity (PPP)		Compensation levels ($)	
		Average number of working hours per year		Number of weeks of salary		Estimates: GDP (PPP) per person employed, US$		Estimates: Percentage change of real GDP per person employed		Estimates: GDP (PPP) per person employed per hour, US$		Total hourly compensation in manufacturing (wages + supplementary benefits), US$	
	Asia-Pacific	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**
3	Singapore	15	2,036.90	1	0.00	9	96,238.81	46	0.02	18	47.25	38	18.46
4	Hong Kong	4	2,295.65	18	1.43	6	100,486.82	31	0.55	20	43.77	29	8.06
12	**Malaysia**	**18**	**1,986.10**	**48**	**17.22**	**47**	**39,790.02**	**12**	**2.32**	**47**	**20.03**	**15**	**4.76**
13	Taiwan	10	2,115.67	49	18.78	19	83,495.85	23	1.11	24	39.47	30	8.14
17	Australia	33	1,846.17	33	8.67	13	88,913.14	18	1.58	16	48.16	55	31.28
20	New Zealand	31	1,852.19	1	0.00	28	66,139.58	37	0.41	27	35.71	46	21.73
21	Japan	17	2,012.32	1	0.00	26	73,111.82	26	0.89	26	36.33	42	20.74
23	China Mainland	21	1,973.00	51	23.11	55	17,165.29	1	7.32	56	8.70	10	3.49
26	Korea	3	2,308.25	51	23.11	31	61,664.46	19	1.39	39	26.71	37	16.96
29	Thailand	2	2,312.31	58	31.67	56	17,052.43	9	2.90	57	7.37	6	2.11
37	Indonesia	11	2,111.86	59	57.78	59	11,490.76	3	5.79	58	5.44	2	0.93
42	Philippines	6	2,245.90	51	23.11	58	11,862.57	2	6.28	59	5.28	3	0.94
44	India	5	2,258.08	38	11.43	60	10,794.34	5	4.33	60	4.78	1	0.79

Source: World Competitiveness Yearbook 2014, IMD

APPENDIX D.III: MALAYSIA'S PERFORMANCE IN SELECTED INDICATORS AMONG ASEAN COUNTRIES IN WCY 2014

Overall Ranking		Working hours		Redundancy costs		Overall productivity (PPP)		Overall productivity - real growth		Labor productivity (PPP)		Compensation levels ($)	
		Average number of working hours per year		Number of weeks of salary		Estimates: GDP (PPP) per person employed, US$		Estimates: Percentage change of real GDP per person employed		Estimates: GDP (PPP) per person employed per hour, US$		Total hourly compensation in manufacturing (wages + supplementary benefits), US$	
	Top 15	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**	**Rank**	**Value**
3	Singapore	15	2,036.90	1	0.00	9	96,238.81	46	0.02	18	47.25	38	18.46
12	**Malaysia**	**18**	**1,986.10**	**48**	**17.22**	**47**	**39,790.02**	**12**	**2.32**	**47**	**20.03**	**15**	**4.76**
29	Thailand	2	2,312.31	58	31.67	56	17,052.43	9	2.90	57	7.37	6	2.11
37	Indonesia	11	2,111.86	59	57.78	59	11,490.76	3	5.79	58	5.44	2	0.93
42	Philippines	6	2,245.90	51	23.11	58	11,862.57	2	6.28	59	5.28	3	0.94

Source: World Competitiveness Yearbook 2014, IMD

APPENDIX E: ENTRY POINT PROJECTS

These Entry Point Projects (EPPs) guide the development of selected targeted industries and were formulated through public and private sector consultations during labs held in 2010.

No.	National Key Economic Areas (NKEAs)		2020 GNI (millions)	Jobs	Location	Status
1.0	**Oil, Gas and Energy**					
	EPPs					
	1.1	Rejuvenating Existing Fields through Enhanced Oil Recovery (EOR)	16,600	-	International, Nationwide	Work In Progress
	1.2	Developing Small Fields through Innovative Solutions	5,500	-	International, Nationwide	Work In Progress
	1.3	Intensifying Exploration Activities	-	-	International, Nationwide	Work In Progress
	1.4	Building a Regional Storage and Trading Hub	1,625.7	790	Nationwide	Work In Progress
	1.5	Unlocking Premium Gas Demand in Peninsular Malaysia	2,404	27,000	Johor, Melaka, Sabah	Work In Progress
	1.6	Attracting MNCs to Bring Their Global Oil Field Services and Equipment Operations to Malaysia	6,124.80	20,000	Nationwide	Work In Progress
	1.7	Consolidating Domestic Fabricators	4,108.80	5,000	Nationwide	Work In Progress
	1.8	Developing Engineering, Procurement and Installation Capabilities and Capacity through Strategic Partnerships and Joint Ventures	4,028.80	15,000	Nationwide	Work In Progress
	1.9	Improving Energy Efficiency	13,900	-	Nationwide	Work In Progress
	1.10	Building Up Renewable Energy and Solar Power Capacity	457.6	1,906	Nationwide	Work In Progress
	1.11	Deploying Nuclear Energy for Power Generation	212,300	2,637	-	Work In Progress
	1.12	Tapping Malaysia's Hydroelectricity Potential	5,700	590	Sarawak	Work In Progress
	1.13	Increase Petrochemical Outputs	-	-	-	Not Started
2.0	**Palm Oil & Rubber**					
	EPPs					
	2.1	Accelerating the Replanting and New Planting of Oil Palm	4,612	N/A	Nationwide	Work In Progress
	2.2	Improving Fresh Fruit Bunch Yield	10,172.7	1,600	Nationwide	Work In Progress
	2.3	Improving Worker Productivity	1,692.4	-82,500	Nationwide	Work In Progress
	2.4	Increasing the Oil Extraction Rate (OER)	13,711	10,000	Nationwide	Work In Progress
	2.5	Developing Biogas Facilities at Palm Oil Mills	2,934	2,000	Nationwide	Work In Progress
	2.6	Developing High Value Oleo Derivatives and Bio-Based Chemicals	5,813.5	5,858	Johor, Penang, Selangor	Work In Progress
	2.7	Commercialising Second-Generation Biofuels	3,261.5	1,044	Sabah	Work In Progress
	2.8	Expediting Growth in Food and Health-Based Segment	4,924.7	74,942	International	Work In Progress
	2.9	*2.9.1* Increasing Average National Rubber Productivity	3,110	31,000	Nationwide	Work In Progress
		2.9.2 Ensuring Sustainability of the Upstream Rubber Industry	3,244.2	233,766	Nationwide	Work In Progress
		2.9.3 Increase World Market Share of Latex Gloves to 65% by 2020	20,750	29,000	Selangor	Work In Progress
		2.9.4 Commercialising Ekoprena and Pureprena	1,300	560	Negeri Sembilan	Work In Progress
3.0	**Financial Services**					
	EPPs					
	3.1	Revitalising Malaysia's Equity Markets	3,325.2	8,598	Nationwide	Work In Progress
	3.2	Deepening and Broadening Bond Markets	183.2	1,400	Nationwide	Work In Progress

APPENDIX E: ENTRY POINT PROJECTS *(CON'T)*

No.	National Key Economic Areas (NKEAs)		2020 GNI (millions)	Jobs	Location	Status
3.0	**Financial Services *(con't)***					
	EPPs					
	3.3	Transforming Development Financial Institutions (DFIs)	1,790.5	N/A	Nationwide	Work In Progress
	3.4	Creating an Integrated Payment Ecosystem	2,647.7	7,765	Nationwide	Work In Progress
	3.5	Insuring Most, If Not All, of Our Population	1,544	8,659	Nationwide	Work In Progress
	3.6	Accelerating the Growth of the Private Pension Industry	2,061.1	2,208	Nationwide	Work In Progress
	3.7	Spurring the Growth of the Nascent Wealth Management Industry	2,096	6,147	Nationwide	Work In Progress
	3.8	Accelerating and Sustaining a Significant Asset Management Industry	2,396.7	7,430		Not Started
	3.9	Nurturing Regional Banking Champions	5,564.3	-8,524	Nationwide	Work In Progress
	3.10	Becoming the Indisputable Global Hub for Islamic Finance	7,242.4	11,644	Nationwide	Work In Progress
4.0	**Tourism**					
	EPPs					
	4.1	Positioning Malaysia as a Duty-Free Shopping Destination	7,838.3	64,294	Nationwide	Operational
	4.2	Designating Bukit Bintang-Kuala Lumpur City Centre Area as a Vibrant Shopping Precinct	1,159.2	14,546	Kuala Lumpur	Work In Progress
	4.3	Establishing Premium Outlets in Malaysia	875.2	1,500	Nationwide	Work In Progress
	4.4	Establishing Malaysia as a Global Biodiversity Hub	1,486.9	2,919	Nationwide	Work In Progress
	4.5	Developing an Eco-Nature Integrated Resort	706.6	7,733	Sabah	Work In Progress
	4.6	Cruise Tourism – Creating a Straits Riviera	1758.2	9,713	Nationwide	Work In Progress
	4.7	Targeting More International Events	426.7	8,036	Nationwide	Work In Progress
	4.8	Dedicated Entertainment Zones (DEZ)	740.4	5,614	Nationwide	Work In Progress
	4.9	4.9.1 Developing Local Expertise and Better Regulating the Spa Industry	374.1	3,540	Nationwide	Work In Progress
		4.9.2 Golf Tourism	147.2	1,220	Nationwide	Work In Progress
	4.10	Establishing Malaysia as a Leading Business Tourism Destination	3,947	16,720	Nationwide	Work In Progress
	4.11	Enhancing Connectivity to Priority Medium Haul Markets	3,310.5	13,402	Nationwide	Work In Progress
	4.12	Improving Rates, Mix and Quality of Hotels	5,528.7	64,424	Nationwide	Work In Progress
5.0	**Business Services**					
	EPPs					
	5.1	Growing Aviation Maintenance, Repair and Overhaul Services	13,350.5	20,720	Selangor	Work In Progress
	5.2	Building Globally Competitive Outsourcers	6,863.8	43,330		Work In Progress
	5.3	Positioning Malaysia as A World-class Data Centre Hub	2,462	13,290	Selangor	Operational
	5.4	Jump-starting a Vibrant Green Technology Industry	7,236.4	47,590		Work In Progress
	5.5	Nurturing Pure-Play Engineering Services	3,495.2	11,550	Perak, Selangor	Operational
	5.6	Developing Malaysia as a Shipbuilding and Repair Hub	3,140.1	2,010		Work In Progress
6.0	**Electrical & Electronics**					
	EPPs					
	6.1	Executing a Smart Follower Strategy for Mature Technology Fabrication	3,632.2	6,400		Work In Progress
	6.2	Developing Assembly and Test Using Advanced Packaging Technology	1,124.3	1,300		Work In Progress
	6.3	Developing Integrated Circuit Design Firms	3,171	2,000		Work In Progress
	6.4	Supporting the Growth of Substrate Manufacturers and Related Industries	2,248.5	3,200		Work In Progress

APPENDIX E: ENTRY POINT PROJECTS *(CON'T)*

No.	National Key Economic Areas (NKEAs)		2020 GNI (millions)	Jobs	Location	Status
6.0	**Electrical & Electronics *(con't)***					
	EPPs					
	6.5	Increasing the Number of Silicon Producers	1,446	20,000		Work In Progress
	6.6	Growing Wafer and Cell Producers	3,290	21,000		Work In Progress
	6.7	Increasing Solar Module Producers	3,290	14,000		Work In Progress
	6.8	Developing LED Front-End Operations	2,681	7,300		Work In Progress
	6.9	Expanding LED Packaging and Equipment	1,385	3,700		Work In Progress
	6.10	Creating Local Solid State Lighting Champions	1,120	2,800		Work In Progress
	6.11	Building a Test and Measurement Hub	1,365	7,468		Work In Progress
	6.12	Expanding Wireless Communications and Radio Frequency Identification (RFID)	1,822	4348		Work In Progress
	6.13	Growing Automation Equipment Manufacturing	126	1,200		Work In Progress
	6.14	Building Transmission and Distribution Companies	351	426		Work In Progress
	6.15	Building an Electrical Home Appliance Manufacturing Hub and International Distribution Network	1,078	17,993		Work In Progress
	6.16	Development of Balance of Systems for Solar Photovoltaic (PV)				Work In Progress
	6.17	Grow the Embedded Systems Industry	7,300	22,500		Work In Progress
	6.18	Enabling Electric Vehicle Component Manufacturing	4,965.3	14,568		Work In Progress
	6.19	Supporting Regional Rail MRO Services Via Electrical and Electronics Component Manufacturing	592.1	200		Not Started
	6.20	Enabling Industries through Nanotechnology	1,247.90	798		Work In Progress
7.0	**Wholesale and Retail**					
	EPPs					
	7.1	Increasing the Number of Large Format Stores	8,514.20	68,574	Nationwide	Operational
	7.2	Modernising via the Small Retailer Transformation Programme (TUKAR)	5,577	51,544	Nationwide	Operational
	7.3	Developing Pasar Komuniti	8,827.60	140,947		Not Started
	7.4	Transforming Automotive Workshops	1,139.10	9,117	Nationwide	Operational
	7.5	Developing Makan Bazaars	226.5	4,205	Johor	Work In Progress
	7.6	Developing 1Malaysia Malls	2,226.80	3,777	International	Not Started
	7.7	Developing a Virtual Mall	823	6,629	Kuala Lumpur	Work In Progress
	7.8	Facilitating Local Businesses to Acquire Stakes in Foreign Retail Businesses	1,031	415	International	Work In Progress
	7.9	Making Malaysia Duty-Free	3,258.30	31,145	Nationwide	Operational
	7.10	Setting Up Wellness Resorts	2,674.90	21,545	Kuala Lumpur	Operational
	7.11	Organising Unified Malaysia Sales	1,776.90	14,312	Nationwide	Operational
	7.12	Transforming KLIA into a Retail Hub	958.2	7,716	Selangor	Not Started
	7.13	Developing Big Box Boulevards	1,222.50	9,609	Nationwide	Not Started
8.0	**Education**					
	EPPs					
	8.1	Scaling Up Private Early Childcare and Education Centres	3,891.60	129,956	Nationwide	Work In Progress
	8.2	Improving Early Child Care and Education (ECCE) training	338.3	370	Nationwide	Work In Progress
	8.3	Scaling Up International Schools	2,644.20	10,371	Nationwide	Work In Progress

APPENDIX E: ENTRY POINT PROJECTS *(CON'T)*

No.	National Key Economic Areas (NKEAs)		2020 GNI (millions)	Jobs	Location	Status
8.0	**Education *(con't)***					
	EPPs					
	8.4	Expanding Private Teacher Training	433.9	434	Nationwide	Work In Progress
	8.5	Scaling up private skills training provision	2,110.80	5,528	Nationwide	Work In Progress
	8.6	International Expansion of Distance Learning	350.5	3,920	Nationwide	Work In Progress
	8.7	Building an Islamic Finance and Business Education Centre	1,189.90	4,365	Nationwide	Work In Progress
	8.8	Building a Health Science Education Discipline Cluster	2,869.90	11,854		Not Started
	8.9	Building an Advanced Engineering, Science and Innovation Discipline Cluster	635.9	4,308	Nationwide	Work In Progress
	8.10	Building a Hospitality and Tourism Cluster	617.9	2,314	Nationwide	Work In Progress
	8.11	Launching EduCity@Iskandar	1,015.70	1,164	Johor	Work In Progress
	8.12	Championing Malaysia's International Education Brand	2,787.70	152,672	Nationwide	Work In Progress
	8.13	Introducing public-private partnerships in basic education	160.2	1,010	Nationwide	Work In Progress
	8.14	Building a Games Development Centre	6	105	Nationwide	Work In Progress
	8.15	Establishment of Branch Campuses For Foreign Universities				Not Started
	8.16	Establishment of Not-For-Profit Education Institutions				Not Started
9.0	**Healthcare**					
	EPPs.					
	9.1	Mandating Private Insurance for Foreign Workers	171.3	N/A	Nationwide	Operational
	9.2	Creating Supportive Ecosystem to Grow Clinical Research	578.4	905	Nationwide	Operational
	9.3	Malaysian Pharmaceuticals – Increasing Local Generic Manufacturing for Exports	13,853.70	12,440	Nationwide	Operational
	9.4	Reinvigorating Healthcare Travel	4,294.40	5,295	Nationwide	Operational
	9.5	Creating a Diagnostic Services Nexus	355.9	281	Nationwide	Not Started
	9.6	Developing a Health Metropolis: A World-Class Campus for Healthcare and Bioscience	986.2	10,400	Selangor	Not Started
	9.7	Upscale Malaysia's In-Vitro Diagnostic (IVD) Industry	760	3,620	Nationwide	Work In Progress
	9.8	Build Malaysian Showcase on Next Generation of Core Single Use Device (SUD) Products	900	5,300	Nationwide	Work In Progress
	9.9	Become the Hub for High-Value Medical Devices Contract Manufacturing	1,850	25,700	Nationwide	Not Started
	9.10	Malaysian Clinical Device Champions	1,400	11,600	Nationwide	Work In Progress
	9.11	Medical Equipment Supply Chain Orchestration	1,020	8,800	Penang	Not Started
	9.12	Medical Refurbishment Hub	190	800	Nationwide	Work In Progress
	9.13	Build Medical Hardware and Furniture Cluster	380	2,900	Nationwide	Not Started
10.0	**Communications Content and Infrastructure**					
	EPPs.					
	10.1	Nurturing Malaysia's creative content industry	3,014.91	10,422	Nationwide	Work In Progress
	10.2	Connecting 1Malaysia	1,783.15	2,056	Nationwide	Work In Progress
	10.3	Establishing e-Learning for students and professional training	1,487.35	800	Nationwide	Work In Progress
	10.4	Launching e-Healthcare	1,402.45	250	Nationwide	Work In Progress
	10.5	Deepening e-Government	1,100.06	1,000	Nationwide	Work In Progress
	10.6	Ensuring broadband for all	1,691.74	5,468	Nationwide	Work In Progress

APPENDIX E: ENTRY POINT PROJECTS *(CON'T)*

No.	National Key Economic Areas (NKEAs)		2020 GNI (millions)	Jobs	Location	Status
10.0	**Communications Content and Infrastructure *(con't)***					
	EPPs.					
	10.7	Extending reach	2,406.54	2,090	Nationwide	Work In Progress
	10.8	Offering a smart network	847.67	1,950	Nationwide	Work In Progress
	10.9	Extending the regional network	2,289.78	1,220	International	Work In Progress
	10.10	Track and trace	183.22	384	Nationwide	Work In Progress
11.0	**Agriculture**					
	EPPs					
	11.1	High-Value Herbal Products	2,213.90	1,822		Not Started
	11.2	Edible Bird's Nest Swiftlet Farming	4,541.20	20,800		Operational
	11.3	Mini-Estate Farming for Seaweed	1,410.60	12,700		Work In Progress
	11.4	Integrated Cage Farming	1,383	10,100		Not Started
	11.5	Cattle Integration in Oil Palm Estates	150	3,600		Work In Progress
	11.6	Replicating Integrated Zone for Aquaculture Model (IZAQs) to Tap Market for Premium Shrimp	1,383	11,800		Not Started
	11.7	Premium Fruits and Vegetables	1,571.50	9,075		Not Started
	11.8	Food Park	884.3	4,928		Operational
	11.9	Introducing fragrant rice variety for non-irrigated areas	221.7	563		Operational
	11.10	Strengthening Productivity of Paddy Farming in MADA	1,033.60	(14880)		Operational
	11.11	Scaling up and strengthening of paddy farming in other irrigated areas	1,370.30	(9618)		Not Started
	11.12	Expansion of Cattle in Feedlots	182.9	2,000		Work In Progress
	11.13	Dairy Clusters	326.3	761		Operational
	11.14	Seed Industry Development	466.6	5,390		Operational
	11.15	Participation of MNCs	819.9	1,208		Not Started
	11.16	Overseas Acquisition/Joint Venture of Cattle Farms	116.5	-		Operational
	11.17	Pasar Komuniti (PAKAR)	8,827.60	140,947		Not Started
12.0	**Greater Kuala Lumpur/Klang Valley**					
	EPPs					
	12.1	Attracting 100 Of the World's Most Dynamic Firms within Priority Sectors	41,440.50	234,001	Kuala Lumpur, Selangor	Work In Progress
	12.2	Attracting Internal and External Talent	118,212.10	560	Kuala Lumpur, Selangor	Work In Progress
	12.3	High-Speed Rail Connection to Singapore	6,223.80	28,700	Kuala Lumpur, Selangor	Work In Progress
	12.4	Building an Integrated Urban Mass Rapid Transit System	24,630.28	20,000	Kuala Lumpur, Selangor	Work In Progress
	12.5	Revitalising the Klang River into a Heritage and Commercial Centre	4,280.50	17,041	Kuala Lumpur, Selangor	Work In Progress
	12.6	Greener Kuala Lumpur	991.5	2,817	Kuala Lumpur, Selangor	Work In Progress
	12.7	Creating Iconic Places and Attractions	460	13,500	Kuala Lumpur, Selangor	Work In Progress
	12.8	Creating a Comprehensive Pedestrian Network	6.4	279	Kuala Lumpur, Selangor	Work In Progress
	12.9	Developing an Efficient Solid Waste Management System	156.5	N/A	Kuala Lumpur, Selangor	Work In Progress

ACRONYMS AND ABBREVIATIONS

10MP	Tenth Malaysia Plan
7MP	Seventh Malaysia Plan
9MP	Ninth Malaysia Plan
AIM	Agensi Innovasi Malaysia (Malaysian Innovation Agency)
BEF	Business Excellence Framework
BGM	Brain Gain Malaysia
BIM	Building Information Modelling
BIMS	Bought-In Materials and Services
BPO	Business Process Outsourcing
BR1M	Bantuan Rakyat 1Malaysia (1Malaysia People's Aid)
BYOD	Bring Your Own Device
CADD	Computer-Aided Drafting and Design
CEO	Chief Executive Officer
CPO	Crude Palm Oil
CVET	Continuing Vocational Education Training
E&E	Electrical and Electronics
EPM	Employment Programme for the Middle-aged
EPP	Entry Point Projects
ERB	Employees Retraining Board
ETP	Economic Transformation Programme
FAMA	Federal Agricultural and Marketing Authority
FELCRA	Federal Land Consolidation and Rehabilitation Authority
FELDA	Federal Land Development Authority
FFB	Fresh Fruit Bunch
FQC	Fish Quality Certification
GAP	Good Agriculture Practices
GBI	Green Building Index
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GNI	Gross National Income
GTCI	Global Talent Competitiveness Index
HCD	Human Capital Development
HRDF	Human Resource Development Fund
IBS	Industrialised Building System
I-CAGE	Integrated Cage Farming
ICT	Information and Communications Technology
IP	Intellectual Property
IPR	Intellectual Property Rights
ITE	Institute of Technical Education
IZAQ	Integrated Zone for Aquaculture Model
JCI	Joint Commission International
JIT	Just In Time
KEMAS	Jabatan Kemajuan Masyarakat (Community Development Department)
LFP	Labour Force Participation
LSP	Logistics Service Providers
M&E	Machinery and Equipment
MADA	Muda Agricultural Development Authority
MATRADE	Malaysia External Trade Development Corporation
MICE	Meeting, Incentive, Conference and Exhibition
MKMF	My Kampong My Future
MMCCI	Malaysia Cloud Computing Initiatives
MNC	Multinational Company
MRP	Material Requirement Planning
NEM	New Economic Model
NGO	Non-Governmental Organisation
NKEA	National Key Economic Areas
NKRA	National Key Result Area
O&G	Oil and Gas
OECD	Organisation for Economic Cooperation and Development
OER	Oil Extraction Rate
OS&H	Occupational Safety and Health
PACT	Partnership for Capability Transformation
PIC	Productivity and Innovation Credit
POIC	Palm Oil Industrial Cluster
PST	Professional, Scientific and Technical
R&D	Research and Development
REP	Returning Expert Programme
RFID	Radio Frequency Identification
RP-T	Residence Pass-Talent
RTC	Rural Transformation Centres
SAAB	Sijil Amalan Akuakultur Baik (Good Aquaculture Practices Certificate)
SALT	Skim Akreditasi Ladang Ternakan (Livestock Farm Accreditation Scheme)
SDFC	Skill Development Fund Corp
SIRIM	Standards and Industrial Research Institute of Malaysia
SL1M	Skim Latihan 1Malaysia (1Malaysia Training Scheme)
SME	Small and Medium Enterprise
SMU	Saemaul Undong (New Village Movement)
SMW	Statutory Minimum Wage
SPLAM	Skim Pensijilan Ladang Akuakultur Malaysia (Malaysian Aquaculture Farm Certification Scheme)

ACRONYMS AND ABBREVIATIONS *(CON'T)*

SPV	Special Purpose Vehicle
SSO	Shared Services and Outsourcing
STAR	Scholarship Talent Attraction and Retention
TEVT	Technical Education and Vocational Training
TFP	Total Factor Productivity
TKPM	Taman Kekal Pengeluaran Makanan (Permanent Food Production Programme)
TQM	Total Quality Management
TUKAR	Small Retailer Transformation Programme
UPT	Urban Public Transport
USD	United States Dollars
UTC	Urban Transformation Centres
WCS	Wage Credit Scheme
WCY	World Competitiveness Yearbook
WEF	World Economic Forum
WIPO	World Intellectual Property Organization
WOPS	Work Orientation and Placement Scheme
YPTP	Youth Pre-employment Training Programme
YWETS	Youth Work Experience and Training Scheme

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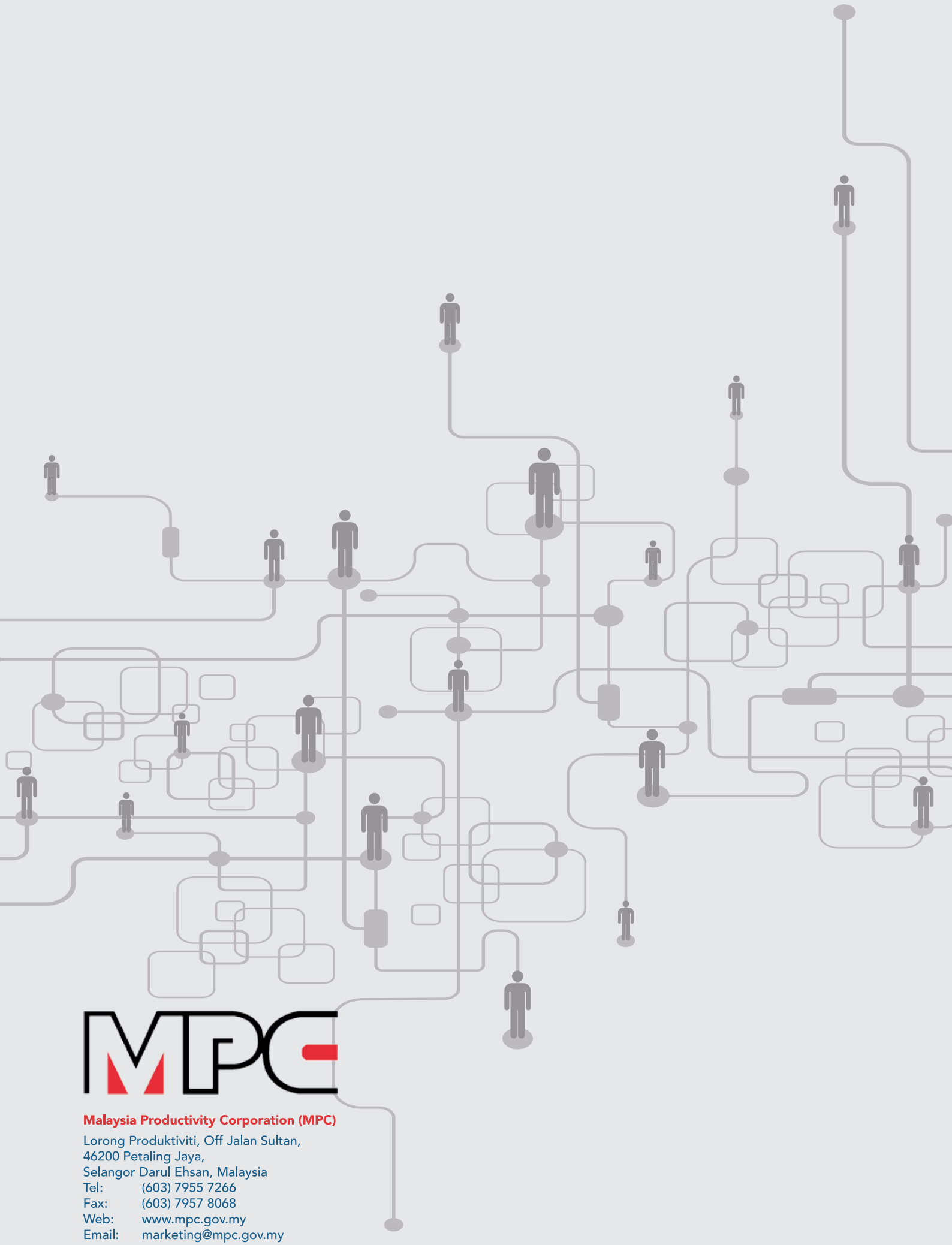

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