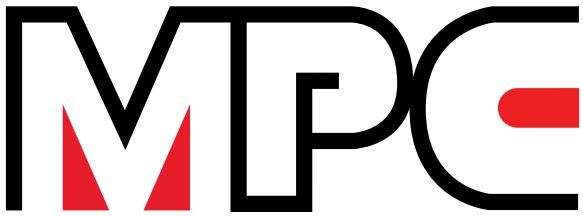
MALAYSIA

PRODUCTIVITY REPORT 2015/2016

MPC

CHALLENGING THE FRONTIER, EMPOWERING PEOPLE

As Malaysia mobilises its efforts to become an important global player in a highly competitive environment, the country has no other alternative but to adopt a holistic and integrated approach in the crucial journey towards greater productivity. This noble endeavour must be supported by all levels of the Government, private sector and non-profit organisations as well as the *Rakyat*.



23rd Productivity Report 2015/2016

ISSN 1394-410X

For further information, please contact:

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

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

STATUTORY STATEMENT

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

CONTENTS

THE WAY FORWARD

APPENDICES 76

LIST OF FIGURES

LIST OF TABLES

MESSAGE FROM THE MINISTER FOR ANNUAL PRODUCTIVITY REPORT 2015

Productivity has been identified as a crucial game-changer especially against the backdrop of the "Fourth Industrial Revolution" – which alters the way we work, live and interact with each other. Other than promoting innovation, raising productivity is high on the Government's agenda amidst the era of rapid change and disruptive technology. Our goal of becoming a high income and developed nation by 2020 is dependent on our ability to raise the labout productivity level.

In 2015, Malaysia's labour productivity growth stood at RM75, 538 – 3.3% increase from the year before, which contributed towards 5% growth in our economy. The average annual productivity growth from 2010 to 2015 was 2%. To achieve the 3.7% annual growth as targeted under the Eleventh Malaysia Plan (11MP), we need to adopt some very radical approaches to ramp up productivity growth. A number of strategic initiatives focusing on productivity and innovation at both national and state levels have been rolled out by the Government under the 11MP.

This Productivity Report 2015/2016, themed "Challenging the Frontier, Empowering People" is consistent with the Government's holistic and integrated approach in strengthening national competitiveness.

As an open economy and trading nation with a limited domestic market, Malaysia's overall productivity is dependent on the changing global economic landscape. The formation of the ASEAN Economic Community (AEC) as well as the signing of the Trans-Pacific Partnership Agreement (TPPA) will open up many new opportunities. It is imperative for private sector to continue playing an important role in making full use of such opportunities.

Ministry of International Trade and Industry, through our agency the Malaysia Productivity Corporation (MPC) as well as other relevant Government agencies will continue to assist the businesses in raising their level of productivity. It must be remembered that strong adherence to the implementation of Good Regulatory Practices (GRP) will also be key towards achieving our overall productivity and economic growth objectives.

Improving the level of productivity in Malaysia is no easy task. This agenda will only be realised if we have a holistic and integrated approach, supported by all Government bodies, industry players and businesses. With the upcoming release of the Malaysia Productivity Blueprint, it is my hope that the spirit of productivity will continue to live and breathe amongst Malaysians and the need to ramp up productivity will become an important national agenda.

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

CHAIRMAN'S STATEMENT

Time is of the essence for Malaysia to achieve its aim of becoming a developed nation and a high-income economy by the end of this decade. It is a target worth racing to as we will create an inclusive and caring society where every Malaysian will have access to a better quality of life regardless of their socio-economic backgrounds. This march towards greater well-being and income means carrying the torch towards greater all-encompassing productivity and competitiveness in our daily lives.

Malaysia Productivity Corporation will continue its role in facilitating the Government's productivity agenda as well as the forthcoming Malaysia Productivity Blueprint. With determination, we can potentially post a productivity growth of 3.7% over the next five years.

As the clock ticks steadily towards 2020, raising higher consciousness on productivity will be the key towards effecting a habit-forming culture among Malaysians. In this regard, we need to highlight and celebrate our productivity champions. This should spur more enterprising firms to spring into action for more visibility and achievements as well as help others in the process, particularly the laggards. In the final analysis, this collective effort may spawn an even larger pool of national champions and eventually lead to a wider circle of passionate productivity advocates.

Having an enabling regulatory environment for businesses and citizens is also key for Malaysia to move up the value chain because a conducive business environment is essential to encourage higher private investment, both foreign and domestic, as well as attract and produce special skills sets and talents. The public sector has to be the enabler to provide Good Regulatory Practice (GRP) to facilitate businesses by doing away with cumbersome rules and regulations. On the private sector's part, this initiative will enable them to exercise greater responsibility to be the main driver of growth by fully adhering to a productivity implementation roadmap.

These are challenging goals but I am confident that we will all rise to the occasion. Raising productivity is also about helping to enhance the quality of life of Malaysians. Improving skill sets and productivity are compelling targets towards improving the real wages of workers, which will consequently benefit their families. Let us tackle various productivity initiatives to make Malaysia a better place for us all. Let us take greater pride and effort to make Malaysia a high productivity nation.

TAN SRI AZMAN HASHIM
Chairman
Malaysia Productivity Corporation

MALAYSIA PRODUCTIVITY CORPORATION

BOARD OF DIRECTORS

CHAIRMAN
YBhg. Tan Sri Azman Hashim
AmBank Group

DEPUTY CHAIRMAN
YBhg. Dato' Nik Rahmat Nik Taib
Ministry of International Trade and Industry

MEMBERS
YBhg. Prof. Tan Sri Dato' Dzulkifli Abdul Razak
Universiti Sains Islam Malaysia

YBhg. Tan Sri Datuk Mustafa Mansur
Itco Niaga Sdn. Bhd.

YBhg. Tan Sri Dato' Azman Shah Dato' Seri Haron
Malaysian Employers Federation

YBhg. Datuk Ag. Buhtamam Ag. Mahmun
Kumpulan Syarikat One Holdings Sdn. Bhd.

YBhg. Datuk Ahmad Loman
Ministry of Agriculture and Agro-Based Industry

YBhg. Datuk Abang Haji Abdul Karim Tun Abang Haji Openg
Brooke Dockyard & Engineering Works Corporation

YBhg. Dato' Sri Adenan Ab. Rahman
Ministry of Human Resource

YBhg. Dato' Prof. Dr. Asma Ismail
Higher Education Department

YBhg. Dato' Dr. Haminnuddin Haji Abd. Hamid
Ideal Healthcare Sdn. Bhd.

YBhg. Dato' Muhamad Noor Yacob
Malaysia Automotive Institute

YBhg. Dato' Mohd Razali Hussain
Malaysia Productivity Corporation

Ms. Roszanina Wahab
Ministry of Finance

Mr. A. Balasubramaniam
Malaysian Trades Union Congress

Ms. Zakiah Jaafar
Economic Planning Unit

MANAGEMENT TEAM

DIRECTOR GENERAL
YBhg. Dato' Mohd Razali Hussain

DEPUTY DIRECTOR GENERAL (PCD)
YBhg. Dato' Abdul Latif Hj. Abu Seman

DEPUTY DIRECTOR GENERAL (QED)
Ab. Rahim Yusoff

SENIOR DIRECTOR
Chan Kum Siew

DIRECTORS
Burhanuddin Saidin
Dr. Daud Talib
Kabir Ahmad Mohd Jamil
Kamaruddin Mohamad
Dr. Rahmat Hj. Md. Smail
Rauzah Zainal Abidin
Dr. Roslina Md. Isa
Sarimah Misman
Zahid Ismail
YBhg. Datin Zainon Bakar

SENIOR MANAGERS
Ahmad Murshid Abu
Azlan Kassim
Dr. Mazrina Mohd. Ibramsah
Md Shubri Ismail
Nik Rosdi Nik Yusoff
Nor Robaayah Mohd. Noor
Omar Othman
Rosmi Abdullah
Roziana Hj. Othman
Sawiah Abdul Samad
Dr. Shaik Roslinah Bux
Sugumar a/l Saminathan
Suhaimi Hamad
Zainudin Hj. Elias
Zulaifah Omar

REGIONAL DIRECTORS
Adnan Abdullah
Dr. M. Sugumaran
Norzirin Ariffin
YM Tengku Azmi Tengku Majid
Mohd. Zaki Ibrahim

MPC CONSULTATIVE PANELS

AGRICULTURE

CHAIRMAN
YBhg. Dato' Ab Rahman Ismail
National Farmers Organisation (NAFAS)

MEMBERS
YBhg. Prof. Datuk Dr. Mad Nasir Shamsudin
Universiti Putra Malaysia

YBhg. Datuk Ahmad Loman
Ministry of Agriculture and Agro-Based Industry Malaysia

YBhg. Datuk Franki Anthony Dass
Sime Darby Plantation Sdn. Bhd.

YBhg. Datuk Haji Othman Walat
Sawit Kinabalu Group

YBhg. Dato' Lee Yeow Chor
IOI Corporation Berhad

YBhg. Dato' Mohd Emir Mavani Abdullah
Felda Global Ventures

YBhg. Dato' Wan Darman Wan Abdullah
Department of Agriculture Malaysia

YBhg. Dato' Zainal Azwar Zainal Aminuddin
Tabung Haji Plantations Berhad

YBhg. Dato' Hj. Aliasak Hj. Ambia
Koperasi Ladang Pekebun-Pekebun Kecil Malaysia

Mr. Hj. Zulkifli Abd Manaf
Malaysian Palm Oil Board

Mr. Abdul Daut
Department of Agriculture Malaysia

Ms. Normah Omar
Malaysian Agricultural Research and Development Institute

CONSTRUCTION

CHAIRMAN
YBhg. Datuk Ag. Buhtamam Ag. Mahmun
Kumpulan Syarikat One Holding Sdn. Bhd.

MEMBERS
YBhg. Dato' Hj. Mokhtar Samad
Malay Contractors Association of Malaysia

YBhg. Prof. Madya Dr. Choong Kok Keong
Universiti Sains Malaysia

YBrs. Ir. Siew Yaw Yen
Institute of Engineers Malaysia

YBrs. Ir. Elias Ismail
Construction Industry Development Board

YBrs. Ir. Wong See Fong
Association of Consulting Engineers Malaysia

YBrs. Ar. Chan Seong Aun
Malaysian Institute of Architects

Ms. Aminah Abd. Rahman
Ministry of Urban Well being, Housing and Local Government

Mr. Mohd Yazid Kasim
Department of Statistics Malaysia

Mr. Ahmad Izram Osman
Jabatan Bomba dan Penyelamat Malaysia

Mr. Liew Hau Seng
IJM Corporation Berhad

Mr. Mattew Tee
Master Builders Association Malaysia

CREATIVITY & INNOVATION

CHAIRMAN
YBhg. Prof. Tan Sri Dato' Dzulkifli Abdul Razak
Universiti Sains Islam Malaysia

MEMBERS
YBhg. Datuk Seri Dr. Khair Mohamad Yusof
Ministry of Education

YBhg. Prof. Madya Dato' Dr. Mohamed Najib Ahmad Dawa
IKIP International College

YBhg. Datuk Ahmad Shukri Tajuddin
Senai Hi-Tech Park Sdn. Bhd.

YBrs. Prof. Dr. Zainul Fadziruddin Zainuddin
Malaysian Technology Development Corporation

YBrs. Dr. Sidney Yee
Exploit Technologies Pte. Ltd.

Mr. Zalaludin Abdullah
Ministry of Science, Technology & Innovation

Mr. Mark Rozario
Agensi Inovasi Malaysia

Mr. Muhammad Aziph Dato' Mustapha
Malaysian Foundation for Innovation

HEALTHCARE

CHAIRMAN
YBhg. Tan Sri Dato' Dr. Abu Bakar Suleiman
International Medical University

MEMBERS
YBhg. Puan Sri Datuk Dr. Suraiya Hani Tun Hussein
Malaysian Society for Quality in Health

YBhg. Prof. Dato' Dr. Syed Mohamed Al-Junid
International Centre for Casemix and Clinical Coding

YBhg. Dato' Amiruddin Abdul Satar
KPJ Healthcare Berhad

YBhg. Dato' Dr. Jacob Thomas
Association of Private Hospitals of Malaysia

YBrs. Prof. Madya Dr. Muhammad Kadar Marikar
Malaysian Society for Quality in Health

YBrs. Dr. H Krishna Kumar
Malaysian Medical Association

YBrs. Dr. Ahmad Razid Salleh
Ministry of Health

Mr. Riduan Abd Rahman
Malaysian Industrial Development Authority

Mr. Mohamad Sabri Ab. Rahman
Malaysia External Trade Development Corporation

TOURISM

CHAIRMAN
YBhg. Tan Sri Dato' Azman Shah Dato' Seri Haron
Antara Holiday Villas

MEMBERS
YBhg. Tan Sri Datuk Seri Utama William Cheng
Malaysia Retailers Association

YBhg. Tan Sri Dr. Ong Hong Peng
Ministry of Tourism and Culture Malaysia

YBhg. Datuk Hj. Hamzah Rahmat
Malaysian Association of Tour and Travel Agents

YBhg. Dato' Anthony K. S. Yeo
Resorts World Berhad

YBhg. Dato' Mirza Mohammad Taiyab
Tourism Malaysia

YBhg. Dato' Mohd. Sahar Darusman
Ministry of Human Resources

YBrs. Prof. Dr. Ghazali Musa
University of Malaya

YBrs. Prof. Madya Zafrul Bin Hj. Isa
Tourism Educators Association of Malaysia

YBrs. Ir. PK Leong
Malaysia Budget Hotel Association

Mr. Shaharuddin Mohamad Saaid
Malaysian Association of Hotel Owners

Mr. Cheah Swee Hee
Malaysian Association of Hotels

Mr. Mazli Mohamed
Rangkaian Hotel Seri Malaysia Sdn. Bhd.

Mr. Jimmy Leong Wie Kong
Malaysian Tourist Guides Council

Mr. Ahmad Faizal Mohamed Noor
Malaysian Franchise Association

MANUFACTURING

CHAIRMAN
YBhg. Dato' Dr. Ir. Andy Seo Kian Haw
Federation of Malaysian Manufacturers

MEMBERS
YBhg. Prof. Datuk Dr. Abd Malik Musharat
FELCRA Livestock & Agriculture Product Sdn. Bhd.

YBhg. Dato' Dr. Ong Eng Long
Malaysian Rubber Products Manufacturing

YBhg. Dato' Ir. Lim Chow Hock
The Institution of Engineers Malaysia

YBhg. Dato' Mohamad Madani Sahari
Malaysia Automotive Institute

YBrs. Prof. Ir. Dr. Sha'ri Mohd Yusof
Universiti Teknologi Malaysia

YBrs. Ir. Chew Shee Fuee
The Electrical and Electronics Association of Malaysia

Mr. Muhammad Razman Abu Samah
Ministry of International Trade and Industry

Mr. Choy Ming Bil
Expertise Resource Association

Mr. N. Gopal Kishnam
Malaysian Trades Union Congress

Ms. Giam Siew Tho
Malaysian Plastics Manufacturing Association

QUALITY OF WORKLIFE

CHAIRMAN
YBhg. Tan Sri Ismail Adam
Hay Group Sdn. Bhd.

MEMBERS
YBhg. Tan Sri Dato' Azman Shah Dato' Seri Haron
Malaysian Employers Federation

YBhg. Datuk Seri Dr. Khair Mohamad Yusof
Ministry of Education

YBhg. Dato' Hafsah Hashim
SME Corporation Malaysia

YBhg. Dato' Sri Adenan Ab Rahman
Ministry of Human Resources

YBrs. Ir. Hj. Mah Lok Abdullah
MEGASAP Sdn. Bhd.

Mr. Khoo Boo Seng
Ministry of International Trade and Industry

Mr. Davies Danavaindran
Federation of Malaysian Manufacturers

ACKNOWLEDGEMENT

Malaysia Productivity Corporation would like to thank the following parties for their contributions in preparing this report:

Brahim's Airline Catering
CTRM Aero Composites Sdn. Bhd.
Darul Khusus Venture Sdn. Bhd.
Fuji Electric (Malaysia) Sdn. Bhd.
Howard Alat Pertanian Sdn. Bhd.
Imperial Garments (M) Sdn. Bhd.
LKL Advanced Metaltech Sdn. Bhd.
Mahkota Medical Centre
Malaysia External Trade Development Corporation (MATRADE)
Method Machine Works Sdn. Bhd.
MIFF Holdings Sdn. Bhd.
Pejabat Kesihatan Wilayah Persekutuan Putrajaya
Perfect Food Manufacturing (M) Sdn. Bhd.
PLUS Malaysia Berhad
Terato Tech Sdn. Bhd.
Universiti Putra Malaysia (UPM)
Zettasoft Sdn. Bhd.


KH TOWER
pacific regency

NATIONAL PRODUCTIVITY PERFORMANCE

The Malaysian economy, with its current stage of development and available resources, will have to zero in on improved productivity to attain its desired level of growth. With the country aspiring to be a developed nation with high income levels for the well being of the *Rakyat* by 2020, it is imperative that higher productivity will be the order of the day. Having better productivity has widespread and all-embracing implications or benefits, either for the country, organisation or individual through higher revenues or incomes, enhanced reputations and less wastage of resources.

PRODUCTIVITY AT A GLANCE

Malaysia's Labour Productivity Growth for the Total Economy

Labour Productivity Growth

Annual change, 2014 to 2015, GDP at constant price 2010 per number of employment

Labour Productivity Level

Annual Productivity Level, 2015, GDP at constant price 2010 per number of employment

Malaysia's Total Factor Productivity (TFP) Growth for the Total Economy

Average Annual Growth 2011 to 2015

Sources: Department of Statistics, Malaysia -Various issues; Annual Bank Negara Report and Economic Report, Ministry of Finance

Under the Eleventh Malaysia Plan (11MP) (2016-2020), productivity is designed as a game changer for future economic growth. While Malaysia will continue to boost private investment and undertake public investment during the 11MP, it will place greater emphasis on increasing productivity to achieve a more sustainable, inclusive and high rate of economic growth.

This is to ensure that institutional structures and policy initiatives are supportive of investments, entrepreneurship and innovation so that economic policies can have a central role in determining the productivity potential of the Malaysian economy.

Malaysia aims to increase its productivity growth at 3% to 4%, double than 2% achieved over the last 10 years.

Given this scenario, Malaysia aims to increase productivity level and sustain productivity growth at 3% to 4%, almost double than 2% achieved over the last 10 years. The country can potentially post a productivity growth of 3.7% in the next five years (2016-2020) as targeted under the 11MP. It will be a challenging goal but raising productivity is critical towards improving the quality of life for all Malaysians. Raising skill sets and productivity are compelling goals towards improving the real wages of workers and the best way forward to help the *Rakyat* currently saddled with low and low medium incomes.

MALAYSIA'S PRODUCTIVITY PERFORMANCE

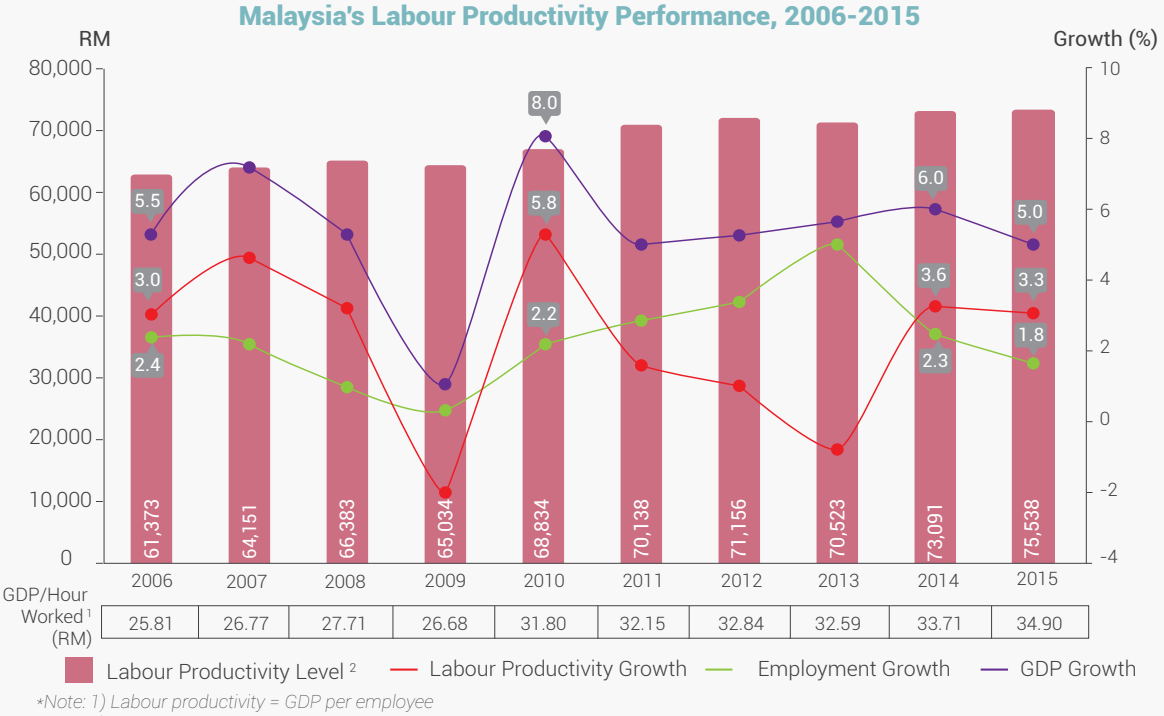
In 2015, Malaysia registered a labour productivity growth of 3.3% at RM75,538 from RM73,091 in 2014. This productivity growth had contributed towards a 5% growth in the Malaysian economy to RM1,062.6 billion in the same year. Productivity was growing at its historical average rate of around 2% per year between 2010 and 2015 meanwhile, labour productivity as measured by GDP per hour worked improved to RM34.90 in 2015 from RM33.71 in 2014 (Figure 1.1).

The key economic sectors that registered the strongest productivity growth in the same year were manufacturing (7.1%), followed by construction (5.5%) and services (3.2%). However, agriculture (-2.4%) and mining (-15%) saw a decline in productivity growth.

The trend in productivity growth is often determined by the three most important factors - investment in machinery and equipment, human capital formation and openness to trade and investment. Each of the factors strengthens productivity growth across the economy by promoting innovation and diffusion of new technologies.

Figure 1.1

Malaysia's Labour Productivity Performance, 2006-2015

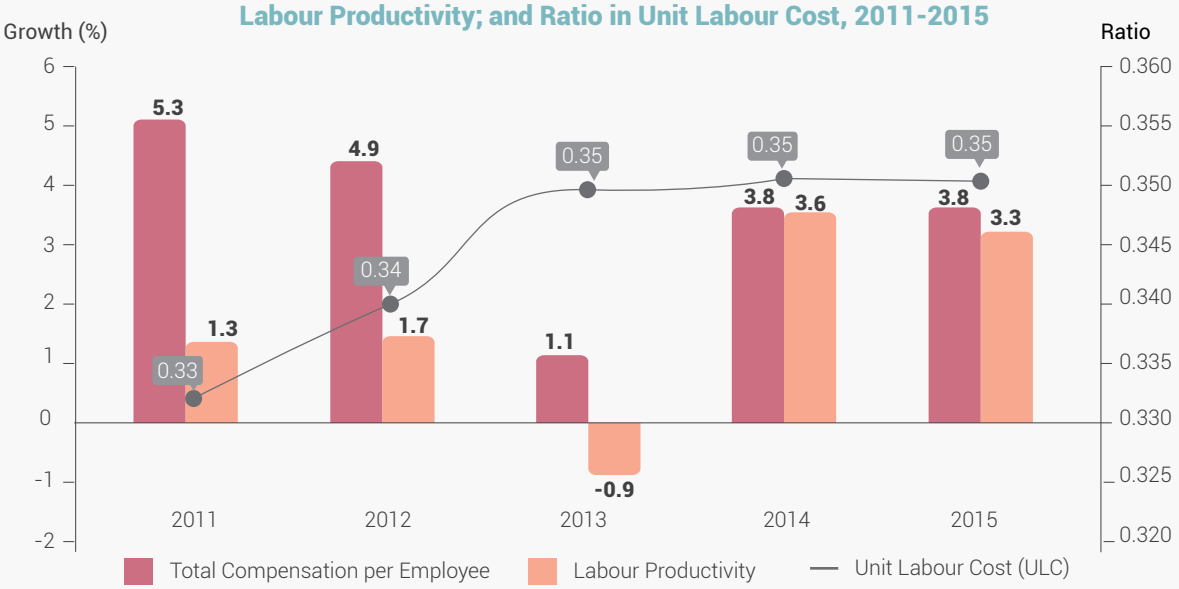


*Note: 1) Labour productivity = GDP per employee
2) Labour productivity = GDP per hour worked

Computed from: Department of Statistics, Malaysia and Economic Report, Ministry of Finance

Figure 1.2

Growth in Total Compensation per Employee and Labour Productivity; and Ratio in Unit Labour Cost, 2011-2015



Note: Compensation includes wages and other components like employer's social contributions and other remuneration in kind

Computed from: Department of Statistics, Malaysia

Malaysia's economic growth for the Tenth Malaysia Plan (10MP) period (2011-2015) showed that the average economic growth of 5.2% came from a strong contribution of employment growth at 3.4% (65%) relative to the labour productivity growth of 1.8% (35%). It also showed that economic growth during the 10MP was primarily contributed by employment rather than labour productivity (Table 1.1).

Table 1.1

Growth and Contribution of Productivity and Employment to GDP

	Growth (%)		Percentage of Contribution	
	9MP	10MP	9MP	10MP
Productivity	2.67	1.82	59.07	34.80
Employment	1.85	3.41	40.93	65.20
GDP	**4.52**	**5.23**	**100**	**100**

Computed from: Department of Statistics, Malaysia and Economic Report, Ministry of Finance

Over the period from 2011-2015, growth in compensation per employee was 3.5%, higher than the labour productivity growth of 1.8% (Figure 1.2). Productivity and compensation per employee have risen together over the past five years but the higher increase in compensation per employee was due to the rise in the number of people employed.

The introduction of minimum wage policy since 2013 has narrowed the gap between compensation per employee and labour productivity. Over the last two years (2014-2015), the gap between compensation per employee and labour productivity ranges between 0.2% to 0.5%.

In comparison to the years before the introduction of minimum wage policy (2011-2012), the gap was between 3.2% to 4%. The growth in labour productivity lagged behind compensation per employee, however labour cost competitiveness measured by Unit Labour Cost (ULC) remains stable.

Employment Trends

Labour market conditions remained steady in 2015. Unemployment increased slightly to 3.1% (2014: 3%) with a sustained Labour Force Participation Rate (LFPR) of 67.6% (2014: 67.5%). The increase of female employed person contributed to the increase of overall LFPR. Female's LFPR was up by 0.4 percentage points reaching 54.1% in 2015. Female participation in the market was high exceeding 58% for the prime age groups, namely 25-34, 35-44 and 45-54 years.

The overall labour market conditions were steadily reaching 14.07 million persons with a net job gain of 215,100 persons.

There were some signs of softening emerging as evidenced by the slower hiring in the job market. Demand for new hires was more moderate in fourth quarter of 2015 as fewer new job advertisements were posted on Jobstreet.com (54,569 positions; 3Q 2015: 62,100). The moderation was broad-based across all sectors, with notable declines from the oil and gas sector and financial services sub-sector. Recent indications by industry players revealed that hiring intentions remain subdued, with many employers hesitating to expand their workforce given the uncertainties in global and domestic demand conditions.

CONTRIBUTION TO OUTPUT AND INCOME GROWTH

Contribution to Output Growth

Productivity is a measure of efficiency in production. Changes in productivity follow a myriad of developments and operating decisions of businesses, changes in public investment decisions and policies as well as shifts in the global and domestic economic environment.

The outcomes of all these developments determine how productivity will evolve over time and its contribution to improved well being in the longer term through the growth of real output and income. Economic growth, as measured by the Gross Domestic Product (GDP), is jointly determined by changes in population, labour utilisation, labour participation and labour productivity.

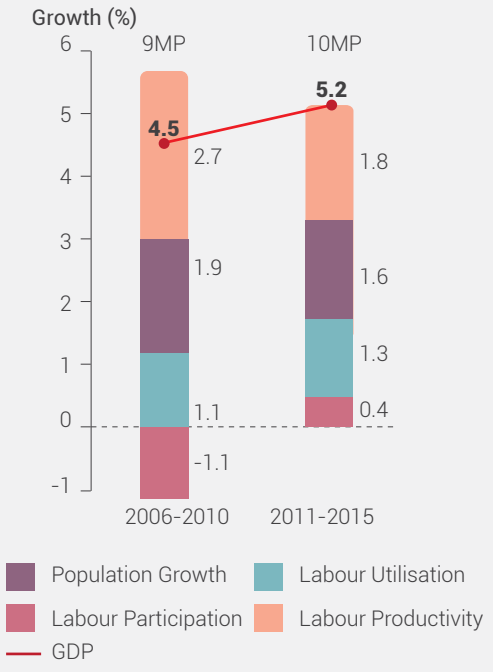
Labour productivity remained the primary contributor in 10MP with a slight increase in labour utilisation (rate of working age population being employed) as compared to 9MP. A combination of high growth in labour productivity and labour utilisation will in future lead to higher GDP growth for the country.

Contribution to Per Capita Income Growth

Income growth depends on growth in population, participation and labour productivity, terms of trade and net foreign income (earnings from Malaysian capital invested abroad less earnings on foreign capital invested in Malaysia). Population has had an important role in increasing the absolute size of the Malaysian economy but population growth by itself cannot increase per capita real output or income. Indeed, all else being equal, population growth without an increase in the working age population will lower the per capita income.

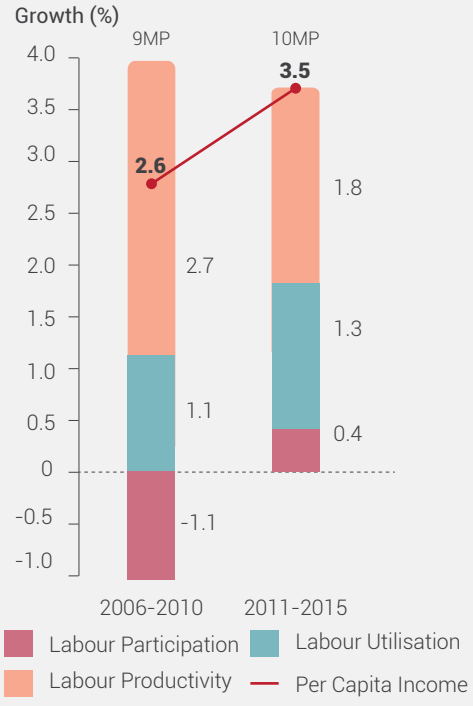
In the five-year period of the 10MP, per capita national income growth had averaged around 3.5% as compared to 2.6% in the previous 9MP. Besides being an important contributor to output, labour productivity has also been the primary driver of per capita national income growth throughout both periods, contributing on average of per capita income at 1.8% and 2.7% respectively. The contribution of labour participation has improved in 10MP to 0.4%. Overall, the contribution of labour utilisation has been modest at 1.3% and 1.1% in the 10MP and 9MP respectively.

Contribution to Output Growth



Computed from: Department of Statistics, Malaysia

Contribution to Per Capita Income Growth



Computed from: Department of Statistics, Malaysia

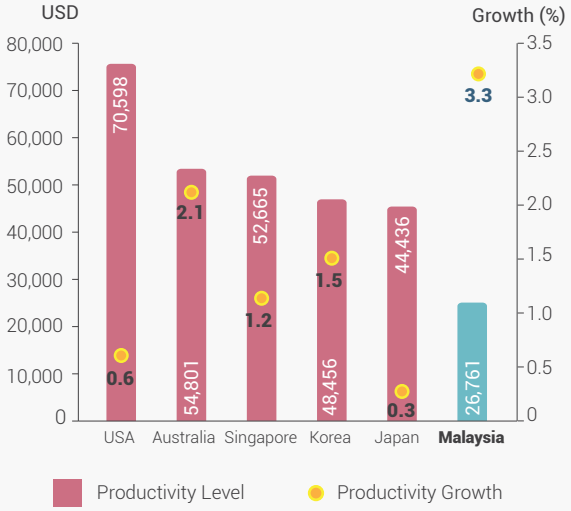
International Productivity

In 2015, global economic activity continued to expand at a moderate pace. The advanced economies registered modest improvements but the pace of growth remained constrained by crisis-related legacies like high indebtedness and labour market weaknesses.

In Asia, economic activity continued to be supported by domestic demand amid the weak export performance. Monetary policy stances experienced a more pronounced divergence, given the differing country-specific domestic challenges which led to the lower labour productivity of workers.

Figure 1.3

Labour Productivity Performance of Selected Developed Countries, 2015

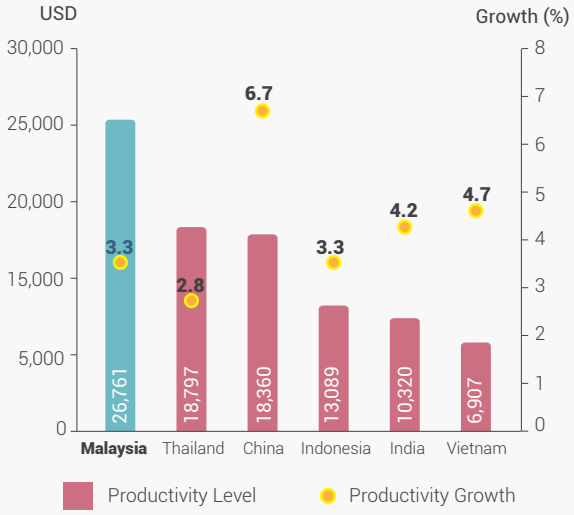


Note: Labour Productivity per person employed in 1990 USD (converted at Geary Khamis PPPs)

Source: Total Economy Database, The Conference Board

Figure 1.4

Labour Productivity Performance of Selected Asian Countries, 2015

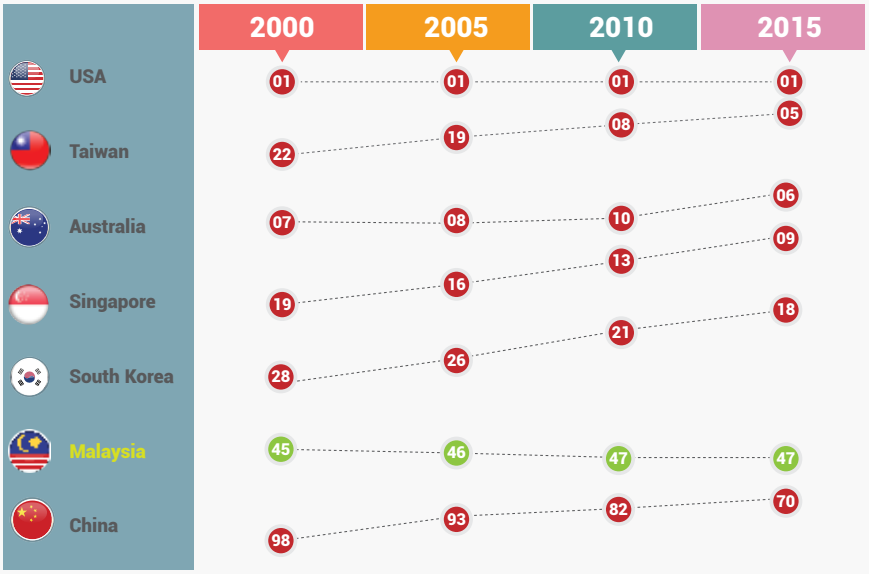


Note: Labour Productivity per person employed in 1990 USD (converted at Geary Khamis PPPs)

Source: Total Economy Database, The Conference Board

Figure 1.5

Labour Productivity Ranking of Selected Economies



Note: 1) Labour productivity per person employed in 1990 USD (converted at Geary Khamis PPPs)
2) The rankings are out of 128 economies

Source: Total Economy Database, The Conference Board

In terms of world productivity rankings, the United States has the reputation as being the world's most consistent productive countries. It has retained its top ranking since 2000. Among selected Asian countries, Malaysia ranked 47th in 2015 and this was also a slide from several places higher since 2000. Singapore (ranked 19th in 2000 to 9th in 2015), Korea (ranked 28th in 2000 to 18th in 2015) and Taiwan (ranked 22nd in 2000 to 5th in 2015) all showed tremendous improvements since 2000. China's reputation as one of the world's fastest growing economies saw increases in labour productivity rankings from 98th in 2000 to 70th in 2015. Australia, on the other hand, managed to record strong improvements in labour productivity to rank 6th in 2015 after falling to 8th position in 2005 and 10th in 2010.

Malaysia's labour productivity grew steadily by 3.3%, the highest growth level in 2015 as compared to selected developed countries, which are Australia (2.1%), Korea (1.5%) and Singapore (1.2%). However, the United States only registered a growth of 0.6% and Japan experienced a marginal growth of 0.3%.

An examination of the labour productivity level in 2015 showed that Malaysia remained ahead of selected emerging and developing countries at USD26,761. In terms of productivity growth, China and India registered higher than Malaysia at 6.7% and 4.2% respectively, but their productivity levels were still lower than Malaysia's. India's high growth performance mainly came from its strong services sector. As for selected ASEAN countries, Thailand and Indonesia saw their labour productivity growth expanding strongly in 2015 to USD18,797 and USD13,089 respectively.

During the 2000-2015 period, it is pertinent to note that many other countries like Singapore, China, Korea and Taiwan have scored higher than Malaysia in terms of productivity. The reasons for this can be attributed to their higher Total Factor Productivity (TFP) although Malaysia's productivity has been aided by strong capital intensity in mega projects and oil exploration. This signals a strong need to look at all areas of productivity determinants like TFP, quality of labour input and employment of better technologies, efficient methodologies and advanced knowledge.

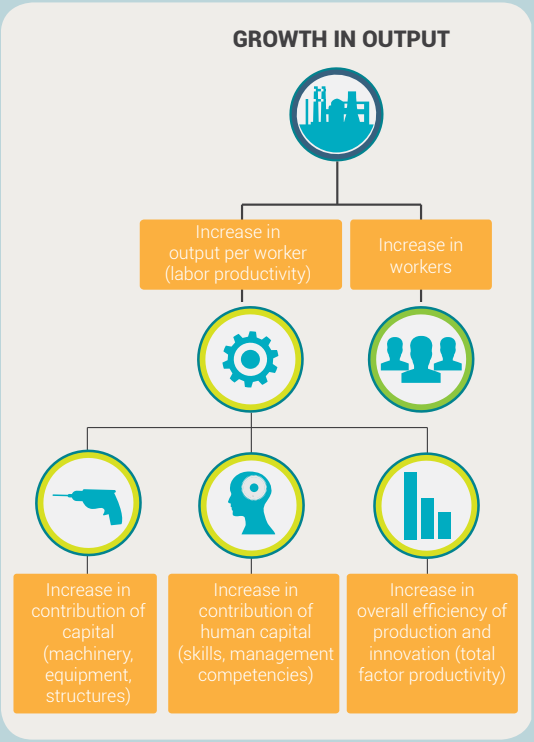
DETERMINANTS OF PRODUCTIVITY

As the key determinant of long-run economic growth, measures of productivity constitute the core economic indicator. Economic growth over the medium to longer term is determined by supply factors like employment and labour productivity growth. The latter is affected by a host of factors such as Total Factor Productivity (TFP) and capital intensity. Productivity growth means that more value is added to products and services which then create more incomes for distribution.

HOW IS PRODUCTIVITY MEASURED?

There are the two generally accepted measures of productivity; labour productivity and total factor productivity (TFP). Labour productivity measures economic output (GDP) per unit of labour whereas TFP relates to output to the combined usage of factor inputs, namely labour and capital.

Labour productivity can be decomposed into three components, namely quality capital, quality labour and TFP. TFP is then a part of output growth that cannot be explained by changes in the quantity or quality of factor inputs. Instead it reflects the changes in technology, knowledge, organisation and efficiency.



Macroeconomic stability and sound institutional arrangements provide the core where individuals and firms can plan and invest. Effective microeconomic policies are also necessary to create a business environment that rewards enterprise and innovation and provides resources and flexibility for firms to identify economic opportunities and take advantage of them.

Productivity growth also determines a nation's future standard of living. This growth depends on several factors such as the quantitative expansion of physical capital per worker (or capital intensity) and TFP growth, which measures improvements in the qualitative aspects of labour and capital inputs, and the efficiency with which these inputs work together.

Capital Intensity

The quality of Malaysia's capital investments also influenced productivity growth in 2015, which saw increased investments in high value-added, high technology, knowledge-intensive and skilled-intensive industries.

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. Decomposing labour productivity growth into capital intensity and TFP growth indicates that the slowdown in labour productivity growth in the 10MP was a result of the slower growth in capital intensity and TFP.

Capital intensity contributed strongly to labour productivity growth and it was larger in the 9MP at 1.4% compared to 0.7% in the 10MP (Figure 1.6). This came about as investment and capital accumulation were quite strong in the 10MP, largely reflecting the rise in the share of resources used by the rapidly expanding and capital intensive investment activities (Table 1.2).

In spite of the high level of investment from industries, there was also a very large increase in labour inputs and slowing down of TFP growth. This suggested that the general slowdown in labour productivity growth was either due to a slowdown in the pace of adoption of productivity-enhancing technological innovations or less rapid improvement in terms of efficiency where capital and labour were employed.

Table 1.2

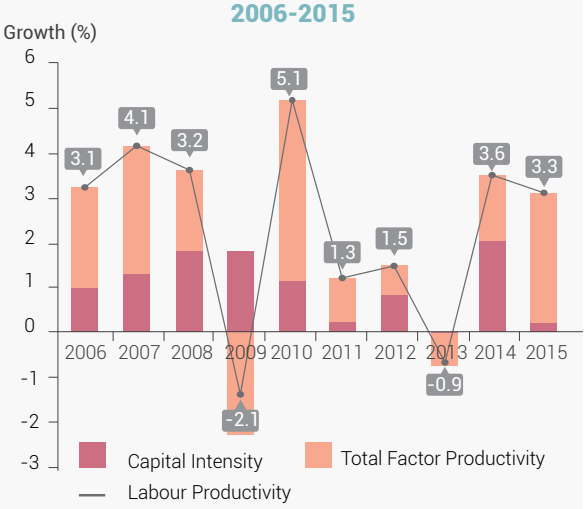
Investment (GFCF) by Type of Assets, 2012-2015

	2012	2013	2014	2015
Gross Fixed Capital Formation (GFCF)	**233,203**	**252,271**	**264,276**	**274,144**
Structure	115,720	128,073	140,698	150,433
Machinery and equipment	95,037	100,335	99,659	99,409
Other asset	22,446	23,863	23,919	24,302

Computed from: Department of Statistics, Malaysia

Figure 1.6

Decomposition of Productivity Growth, 2006-2015



9MP		10MP	
Labour Productivity	: 2.7%	Labour Productivity	: 1.8%
Capital intensity	: 1.4%	Capital intensity	: 0.7%
TFP	: 1.3%	TFP	: 1.1%

Computed from: Department of Statistics, Malaysia

Total Factor Productivity

In Malaysia's aspiration to become a high-income nation by 2020, its future growth strategy has been heavily-skewed towards private sector-led. This should spawn the generation of more high value-added activities with TFP being one of the key factors.

TFP is a measure of efficiency in the utilisation of inputs. Better quality inputs directly result in the generation of more outputs especially when inputs are utilised effectively and efficiently. To effect a higher standard of living in Malaysia, a prerequisite will be high contributions of TFP towards economic growth.

Table 1.3

Contribution and Growth of TFP, Labour and Capital to GDP

	9MP	10MP	2006 - 2015	9MP	10MP	2006 - 2015
	Growth (%)			Percentage of Contribution		
TFP	1.3	1.1	1.2	29.0	20.9	24.7
Labour	0.7	1.2	0.9	15.2	22.2	19.0
Quality	0.1	0.2	0.2	16	18	17
Quantity	0.6	1.0	0.8	84	82	83
Capital	2.5	3.0	2.7	55.8	56.9	56.4
ICT	1.0	1.1	1.0	39	37	38
Non-ICT	1.6	1.9	1.7	61	63	62
GDP	**4.5**	**5.2**	**4.9**	**100**	**100**	**100**

Computed from: Department of Statistics, Malaysia and Economic Report, Ministry of Finance

TFP is one of the sources for higher labour productivity growth as it encompasses the qualitative aspect of capital and labour. Capital inputs in this context are classified as information and communication technologies (ICT) capital and non-ICT capital. ICT capital inputs include ICT-related higher value-added goods and services.

Labour input is divided into two groups termed as labour quantity and quality. Growth of labour quantity represents the economic growth stemming from a change in the total stock of labour. A change in labour quality reflects the change and growth of an economy stemming from improvements in labour skills (and education levels).

During the 10MP, the contribution of TFP to GDP was at 20.9%, triggering a signal that Malaysia was deviating from its productivity-led growth strategy. The high capital contribution of 56.9%, contributed by the investment expansion in non-ICT (63%) and ICT (37%) assets for eventual productivity gains later, led to that assumption (Table 1.3). Non-ICT investments outpaced ICT investments due to the ongoing mega development projects such as transportation-related infrastructure initiatives.

TFP contributed 24.7% to GDP growth over the 10-year period of 2006-2015 while contributions from capital and labour were at 56.4% and 19% respectively (Table 1.3). An analysis for the two five-year intervals revealed that the contribution of TFP to GDP was higher during the 9MP compared to the 10MP. The drop in TFP contribution during the 10MP was due to slower external demand as a result of the global economic slowdown.

TFP was deemed the second important factor contribution towards economic growth in both the periods, contributing 29% and 20.9% respectively.

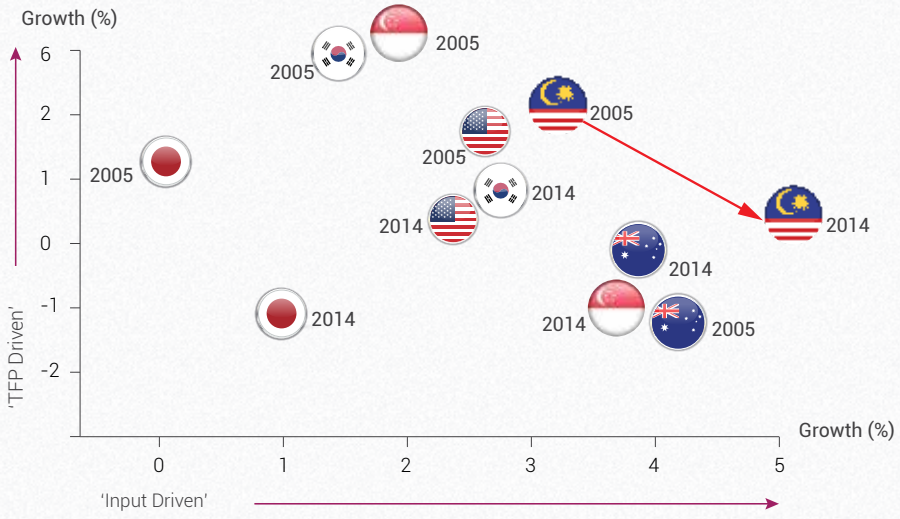
Economic growth was supported mostly by capital growth over the last 10-year period. Capital grew by 2.7% during 2006-2015 and contributed 56.4% to economic growth. Capital growth was supported by investments in both non-ICT and ICT capital that grew by 1.7% and 1% respectively. Throughout the 10MP, the growth of ICT capital improved slightly by 1.1% as compared to 1% in the 9MP. However, the contribution of ICT capital was lower compared to investments in non-ICT capital.

Investments in ICT capital are essential to benefit from ICT advancements. The higher investments in ICT assets such as computer hardware and equipment; computer software and services as well as telecommunication equipment are necessary to increase the contribution of ICT capital. Output for 2006-2015 grew by 4.9% and this was attributed to labour input backed by growth in labour quantity at 0.8% and labour quality at 0.2%. Labour growth was marginally higher during the 10MP at 1.2% compared to 0.7% during the 9MP (Table 1.3).

Growth in labour quality also improved during the 10MP, demonstrating improvements in employee effectiveness. However, this growth in labour quality was still low compared to labour quantity growth. This was a stark reminder that there is a strong need to raise the quality of employees and that the quantity of employees still remained a major contributor to national output growth.

Figure 1.7

Malaysia's Total Factor Productivity Relative to Selected Developed Economies



Source: Total Economy Database, The Conference Board

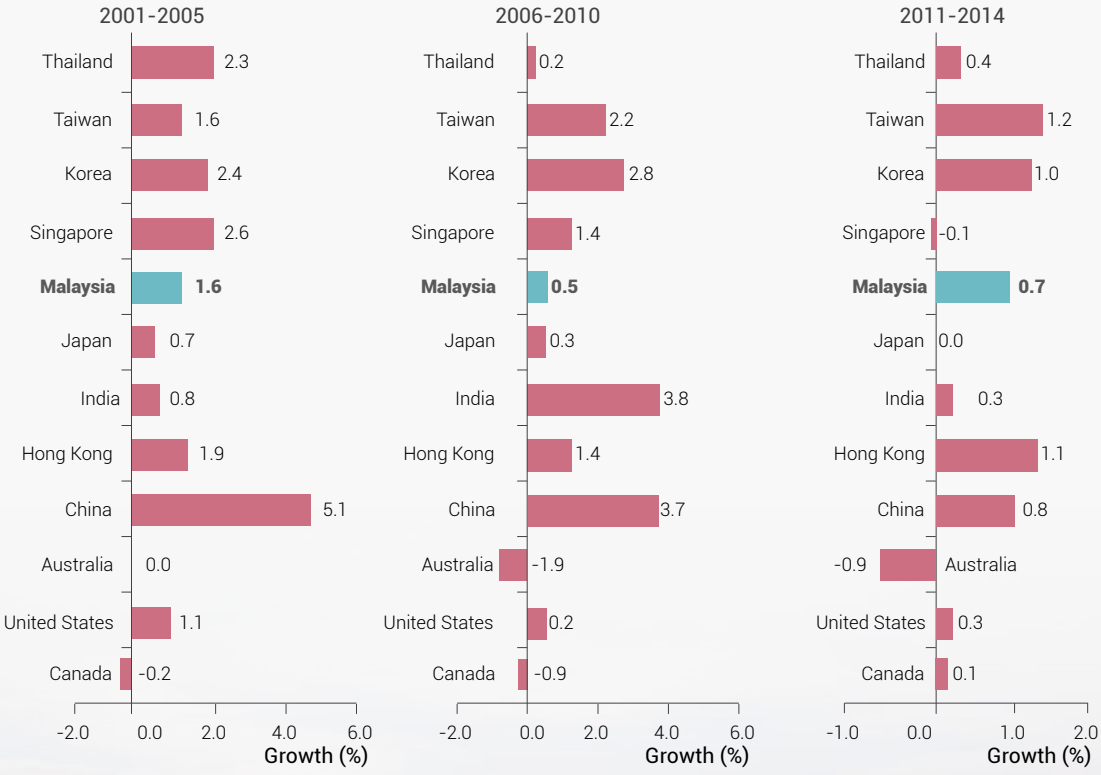
International Comparison of Total Factor Productivity Performance

Malaysia's TFP marginally increased by 0.7% in the period of 2011-2014. This TFP performance was comparable with that of China (0.8%) and Thailand (0.4%) but significantly higher than most selected economies such as the United States (0.3%), Canada (0.1%), Singapore (-0.1%) and Australia (- 0.9%). This also showed that slower global TFP growth in the 2011-2014 period continued until recent times (Figure 1.8).

According to The Conference Board (TCB), the poor TFP appeared to be a result of the slowdown in demand which reduced the output of the global economy and also could be due to lack of implementation of new technologies and innovation. In Europe, slow productivity growth was possibly related to 'structural rigidities' in the labour market where people found it difficult to move from one company to another and where innovative firms could not take on these people without overcoming substantive constraints and unnecessary risks.

Figure 1.8

Total Factor Productivity Growth in Selected Economies



Source: Total Economy Database, The Conference Board

MALAYSIA'S OUTLOOK IN 2016

The Government has targeted that the economy expand between 5% and 6% from 2016 to 2020 under the 11MP, based on sustained domestic demand and increasing contributions from the external sector.

Based on current forecasts and estimates available, the Malaysian economy is expected to achieve a labour productivity growth between 2.5% and 3.5% in 2016 as compared with 3.3% in 2015. Such growth will continue to depend on strong private domestic demand and further improvements in external trade.

For Malaysia to achieve its targeted labour productivity growth, it also depends on the growth performance of the rest of the world. Therefore, it is even more crucial for Malaysia to manage the impact of global challenges by creating greater efficiency from internal resources such as human capital, innovation and operational excellence.

Under the current scenario, the Malaysian economy is still driven by the traditional factors of production, namely capital and labour, which contributed about 70% to GDP growth.

In the 11MP period, strategies on productivity improvements will be focused through enhancing capital efficiency and contributions from TFP. TFP will be the key driver of the nation's economic growth during the 11MP, supported by the soon-to-be formed National Productivity Council (NPC). This council will outline directions and formulate a comprehensive and specific action plan to drive productivity through the proposed five-year Malaysia Productivity Blueprint (MPB).

The MPB is a document to address issues and challenges on productivity in a comprehensive and cohesive manner. It will design and develop improvement strategies, initiatives and programmes at national, industry and enterprise level.

The 11MP targets the contribution of TFP to GDP growth to increase to 40%, while that of capital is expected to reduce to 44% and labour to 16%. Concerted and integrated efforts among the Government, firms and individuals are essential to achieve such a target. The adoption of the state-of-the-art, innovative management practices together with competent human capital will further contribute to increase the TFP.

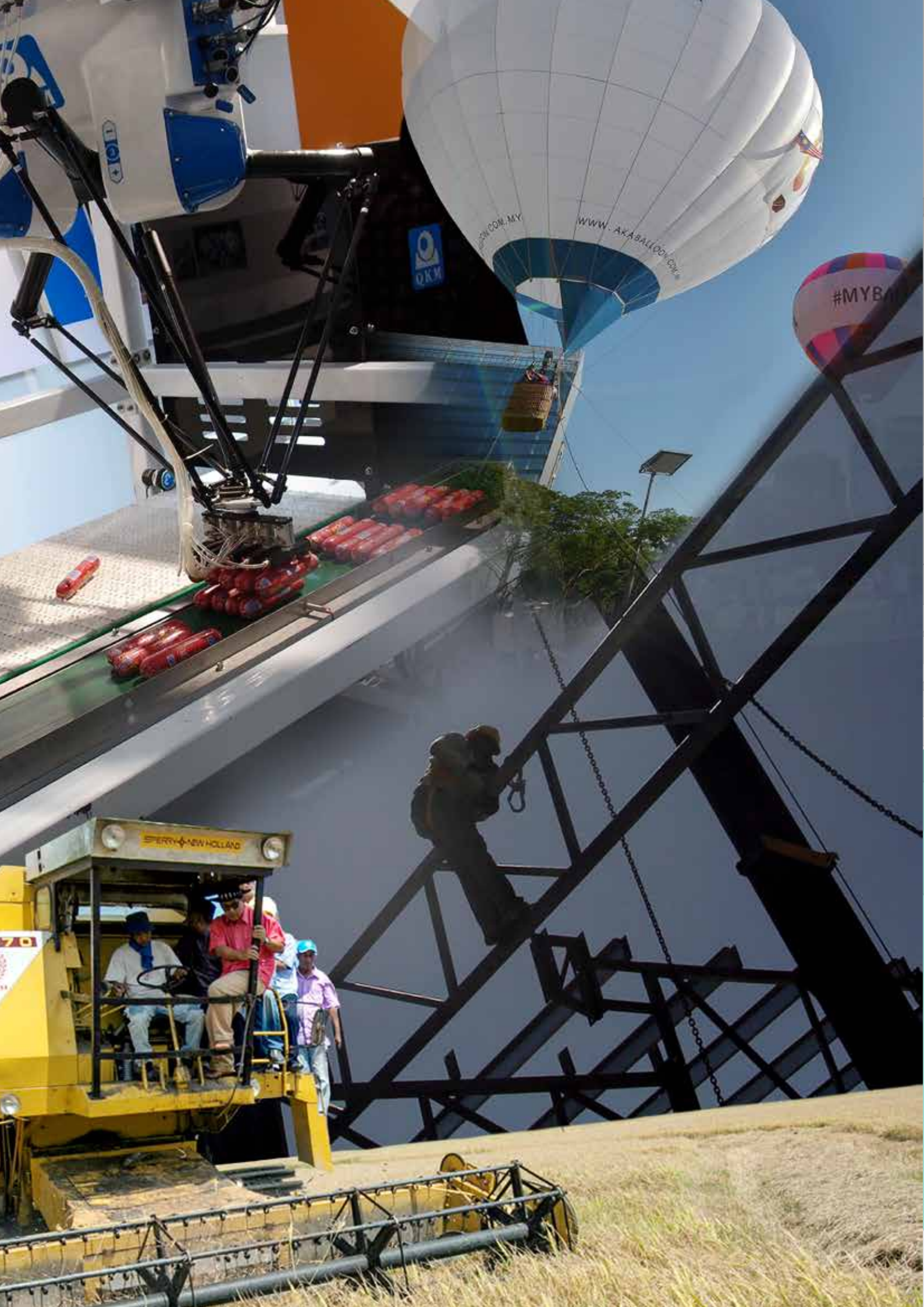
The Government has taken cognisance that the country's external demand often faces challenges and uncertainties from the global economy, particularly from the prospects of lower prices of crude oil and other major commodities.

Therefore, the broad and strategic thrusts of the 11MP are to transform the country's growth strategy to one that is more sustainable, based on innovation and productivity. This will strengthen the country's economic fundamentals to withstand future economic challenges from external and domestic developments.

As guided by the 11MP, various strategies will provide a critical platform for Malaysia to make vital policy shifts and invent new approaches to address new and existing challenges. The initiatives by the Government to enhance productivity across all segments and upgrade the quality of workforce are crucial steps for Malaysia to progress towards becoming an advanced nation with sustainable growth in the long run. With the theme being on people-focused and enhancing productivity, the 11MP has introduced several measures that place greater emphasis on increasing productivity and developing human capital.

At the national level, productivity-linked incentives and performance targets will be introduced and regulatory reforms will be accelerated. At the industry level, productivity enhancement will be placed on industry champions, with industrial leaders acting as role models for their peers by conducting industry-specific productivity initiatives.

Industrial players and individual enterprises are expected to be incentivised with the introduction of productivity based incentives by the Government, prompting them to allocate a greater portion of their investments towards innovation and modernisation of their business operations.


WWW.AKABALLOON.COM
#MYBA
PERRY NEW HOLLAND

SECTORAL PRODUCTIVITY PERFORMANCE

The ability to efficiently utilise the different factors of production or inputs will determine or affect the overall output level or productivity of enterprises and industries. Increased productivity can potentially increase the power of an economy by driving growth and fulfilling the needs with the same amount of resources. Therefore, the benefits of increasing productivity are far-reaching as it benefits all those involved in the entire value chain of the economy.

Malaysia's main economic sectors, namely services, manufacturing, agriculture and construction witnessed positive growth during the 10MP period (2011– 2015) with the services sector taking the lead.

In 2015, services sector remained as the largest contributor to the country's GDP at 53.5% to RM569 billion. It was also the largest employer with 8.6 million people. Contribution of the manufacturing sector remained at 23% to RM244 billion with 2.3 million employees. Agriculture and construction sectors' contribution to GDP were at 8.8% and 4.4% to the value of RM94 billion and RM47 billion respectively. In terms of employment, agriculture employed 1.8 million people while construction employed 1.3 million people.

Manufactured goods exported rose by 6.5% or RM38.29 billion to RM625.46 billion, helping to shore up the performance of the commodities sector in 2015. Manufactured goods formed the lion's share of total exports at 80.2% compared to 76.7% in 2014. With the exception of petroleum products and iron and steel products, the rest of all manufactured goods recorded improvements in overseas sales. Exports of Electrical & Electronics (E&E) products improved by 8.5% or RM24.8 billion to RM277.92 billion, the highest export value since 2007, and accounted for 35.6% of total exports. This major turn around was largely driven by the strong demand for new applications in the Internet of Things (IoT) for wireless communications and wearable devices.

Exports of the services sector grew by 5.1% to RM156 billion with the largest share coming from the transport sub-sector at RM41.5 billion, followed by the travel sub-sector at RM40.8 billion and other business services sub-sector at RM30 billion. On the other hand, total imports of the services sector was at RM135 billion with the top three highest imports being related to travel (RM68.7 billion) followed by other business services (RM22.1 billion) and transport (RM15.8 billion) sub-sectors.

The agriculture sector's external trade for 2015 was valued at RM110 billion, demonstrating an increase of 0.9% as compared to 2014 at RM109 billion. Similarly, the value of imports increased by 7.7% to RM84 billion from RM78 billion in 2014. The sector remained a net exporter for the Malaysian economy, with the balance of trade recorded at RM26 billion for the period under review as compared to RM32 billion for 2014.

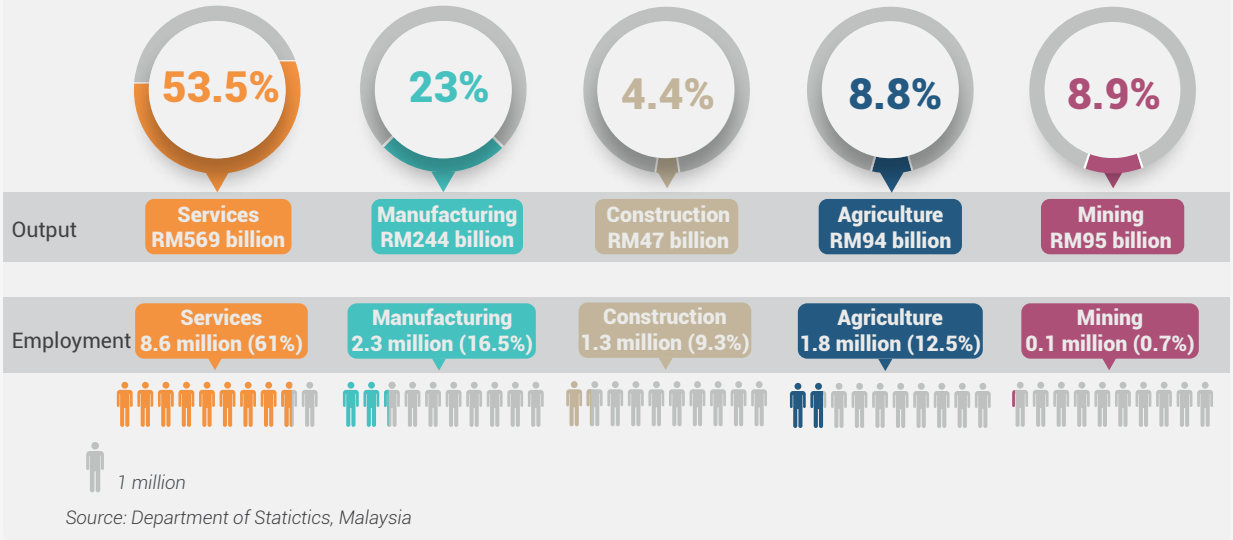
PRODUCTIVITY PERFORMANCE OF THE MAIN ECONOMIC SECTORS

In 2015, manufacturing remained as the sector with the highest productivity level as compared to other economic sectors, besides mining. The manufacturing sector registered a productivity level of RM105,156 followed by services (RM66,346), agriculture (RM53,540) and construction (RM35,673).

Manufacturing productivity growth registered the highest upsurge at 7.1% followed by construction at 5.5% while services only registered 3.2%

Figure 2.1

Share of Output and Employment in Main Economic Sectors, 2015



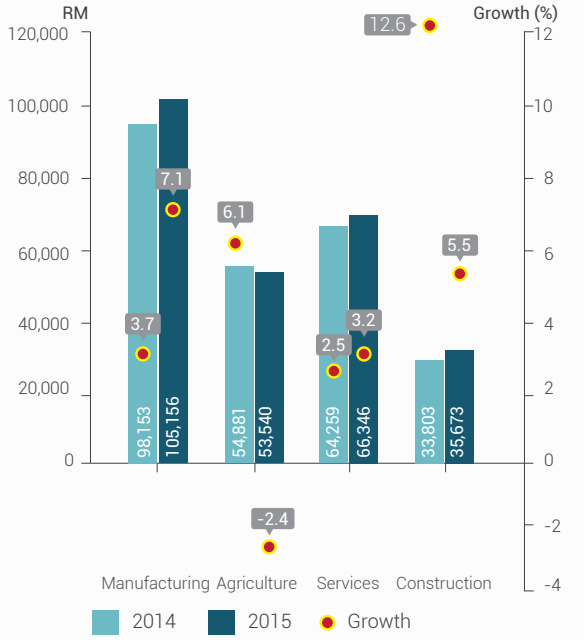
Source: Department of Statictics, Malaysia

In terms of productivity growth, manufacturing registered the highest upsurge at 7.1% followed by construction at 5.5% while services only registered 3.2%. However, agriculture experienced a productivity decline of 2.4% in the same year.

In manufacturing, among the sub-sectors that registered double-digit productivity growth were motor vehicles and transport equipment (23.1%), machinery and equipment (20.5%), rubber and plastic products (20.3%) and E&E (16.8%). The productivity performance of the motor vehicles and transport equipment and E&E sub-sectors were mainly demand-driven, in both the domestic and global markets. The increase in the production of parts and accessories for motor vehicles and motorcycles as well as consumer electronics contributed to the overall substantial performances. In addition, the machinery and equipment sub-sector was continuously driven by technological advances, process specialisation and customer requirements for shorter throughput times, faster delivery and lower costs which also enabled the sub-sector to sell its products at competitive prices.

Figure 2.2

Labour Productivity Performance of the Main Economic Sectors, 2014-2015



Computed from: Department of Statistics, Malaysia

The services sector has been growing substantially as a result of strong domestic consumption, especially in the ICT, utilities and wholesale and retail sub-sectors. The significant growth of ICT sub-sector was mainly driven by the increased use of mobile devices, social media, cloud solutions, e-commerce and Big Data Analytics (BDA), which spurred the growth of the Internet of Things (IoT) in Malaysia. Meanwhile, higher electronic and gas consumption and the increase in demand for consumer water supply had contributed to higher growth of the utilities sub-sector. The relatively lower prices of petrol and diesel and agricultural raw materials contributed to the strong growth in the wholesale and retail trade sub-sector.

Malaysia's emergence as a top shopping destination with its many mega-sale carnivals held throughout the year also helped to sustain the retail trade segment particularly.

On the other hand, the construction sector had the lowest productivity level but demonstrated promising growth. Its low productivity level indicated that industries in this sector needed to be more aggressive in adopting modern technologies and practices to reduce its over-dependence on low-skilled labour.

The productivity level and growth in the agriculture sector needed to improve against a backdrop of high dependence on foreign workers and low-skill sets. Institutional integration and coordination have to be fully addressed to enable synergistic outcomes among the various stakeholders to drive the sector forward to attain a higher value chain. In addition, the low level of dynamic capabilities also forced the sector to remain focused on commodities and restricted its ability to build high-value downstream industries. Modernising the sector can leapfrog its productivity towards positive growth. Specifically, a stronger growth was observed in food commodities comprising livestock, fisheries, paddy, fruits, vegetables, coconuts, tobacco, tea, flowers, pepper, cocoa and pineapples.

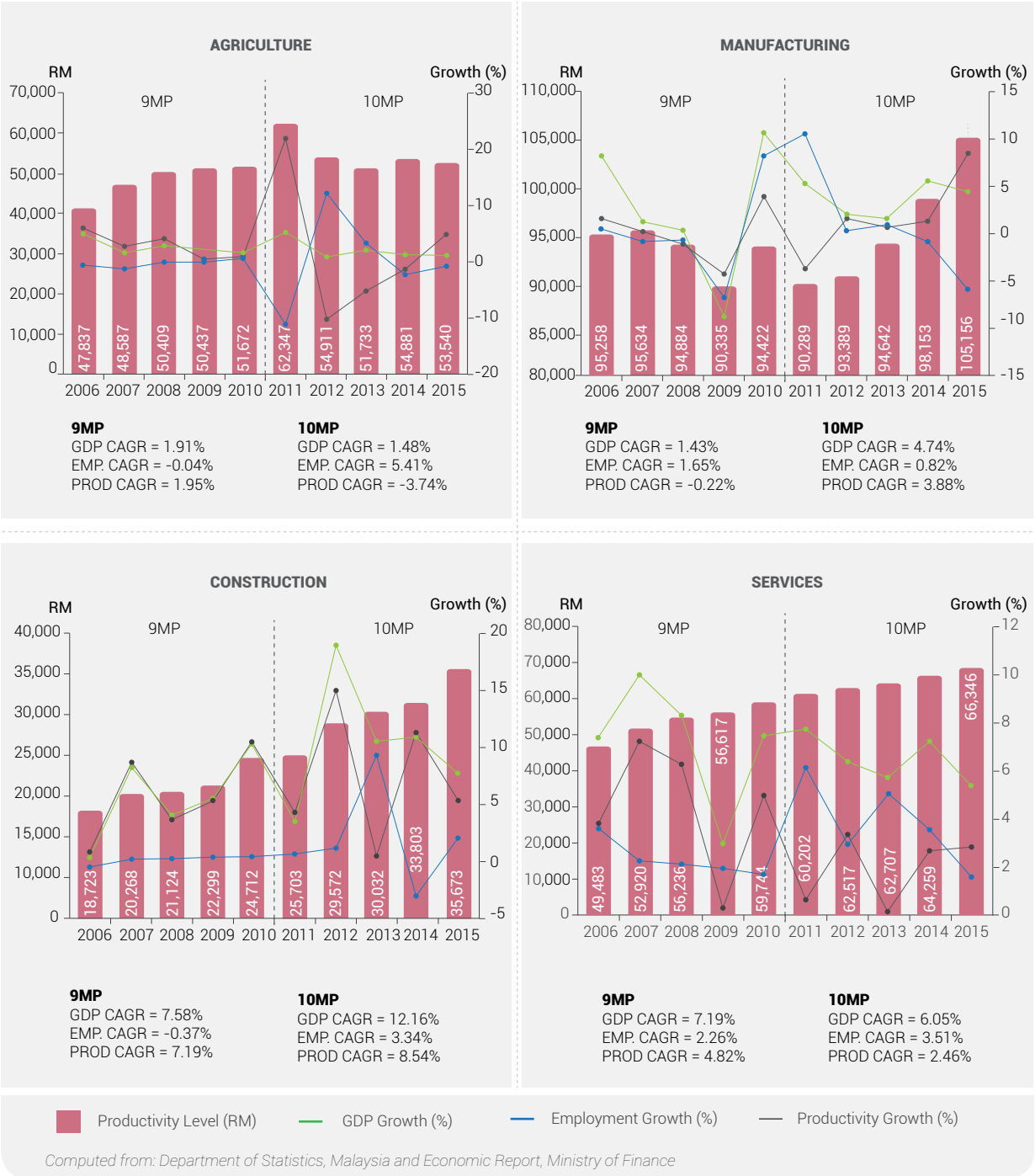
A further analysis of the major economic sectors was carried out based on the country's development plans, namely the Ninth Malaysia Plan (9MP) and Tenth Malaysia Plan (10MP). Findings indicated that during the 9MP, output growth of the main economic sectors except for manufacturing was driven by productivity. The productivity performances of the construction and services sectors demonstrated by a compounded annual growth rate (CAGR) of 7.2% and 4.8%, surpassing its employment growth of -0.4% and 2.3% respectively. In contrast, only the output of the manufacturing sector was driven by employment growth of 1.7% which was higher than its productivity growth. (Figure 2.3).

The agriculture sector registered CAGR in employment and productivity of 5.4% and -3.7% respectively during the 10MP as compared to -0.04% and 1.9% during the 9MP. The services sector recorded CAGR in employment and productivity of 3.5% and 2.5% respectively during the 10MP as compared to 2.3% and 4.8% during the 9MP.

The declining productivity growth provided the impetus for the Government to boost productivity in both the sectors in particular as well as the other economic sectors. The implementation of ETPs and other Government initiatives in these two sectors had undoubtedly created new jobs but had yet to spark off higher productivity levels.

Figure 2.3

Sectoral Productivity Performance, 9MP and 10MP



Computed from: Department of Statistics, Malaysia and Economic Report, Ministry of Finance

The manufacturing sector, on the other hand, displayed a better productivity performance in the 10MP with CAGR of 3.9%. This strong performance was due to strong domestic demand and encouraging exports, especially to the United States and other advanced economies following the global economic recovery.

In addition, the Government's policy to encourage the use of automation, modernisation and digitisation of processes and systems also reduced dependency on low-skilled labour as shown by the slower growth of employment to 0.8% in 10MP as compared to 1.7% in 9MP.

BOOSTING LABOUR PRODUCTIVITY THROUGH TOTAL FACTOR PRODUCTIVITY

There are two determinants of labour productivity, namely total factor productivity (TFP) and capital intensity. TFP brings about technological dynamism while capital intensity refers to the utilisation of capital among the workforce. Investments on capital alone would not reflect higher productivity, but must be complemented with efficient managerial practices and work procedures, advanced machineries and technology and skilled labour.

Capital Intensity

The role of capital input in driving the productivity performance of the main economic sectors is undeniable. All economic sectors experienced a growth in capital intensity during the period of 2006-2015 except for manufacturing (Figure 2.4).

Capital intensity growth in the agriculture sector increased to 3% in 10MP from 2.8% in 9MP. This reflected that the sector has been highly mechanised, particularly in the agriculture plantation segment.

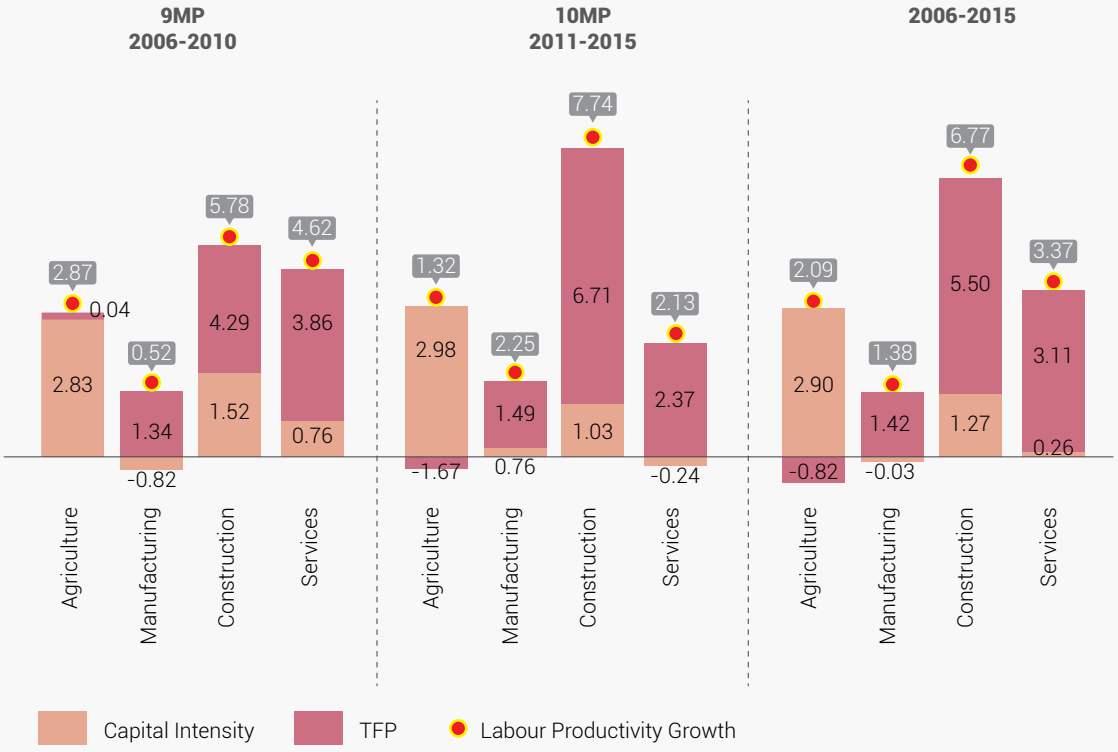
The higher contribution from capital was also associated with Government initiatives to shift the agriculture sector towards higher-value downstream activities such as the establishment of Permanent Food Production Parks (TKPM) and adoption of ICT and modern farming technology.

This was followed by the manufacturing sector with capital growth increase to 0.8% in the 10MP from -0.8% in 9MP. This was due to large investments in advanced machinery for industries such as medical devices, aerospace, and machinery and equipment which were geared towards more capital deepening. With the higher capital investment, particularly in new plants and latest technologies, production capacity can be better utilised.

However, the services sector painted a different picture, where capital intensity recorded a decline of 0.2% in 10MP from a growth of 0.8% in 9MP. Despite this decline, modernisation did take place in this sector with greater use of ICT in transactions and adoption of operational systems that emphasised on quality, speed, reliability and customer satisfaction which consequently enhanced the sector's TFP. A similar pattern was also seen in the construction sector with its capital intensity experiencing a slower growth of 1% in 10MP from 1.5% in 9MP.

Figure 2.4

Capital Intensity, TFP and Labour Productivity Growth of the Main Economic Sectors



Computed from: Department of Statistics, Malaysia

Total Factor Productivity Performance

Statistics show that it is imperative that higher TFP growth is needed in all of Malaysia's economic sectors if the country were to attain its aspiration of a high-income economy. Over the 10-year period (2006-2015), the productivity of all main economic sectors except for agriculture, were mainly TFP-driven.

The highest TFP growth contribution to productivity was in the construction sector and this was mainly due to the demand intensity resulting from mega construction projects nationwide. 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) also contributed to the improved performance in construction.

For the services sector, TFP growth remained the driver of labour productivity during the 9MP and 10MP, contributing a growth of 3.9% and 2.4% respectively. The modernisation of the services sector has gradually taken place with greater use of ICT in transactions and the adoption of operational systems that emphasised quality, speed, reliability and customer satisfaction.

In addition, the Government also formulated the Services Sector Blueprint to facilitate structural adjustments that were needed for the sector to move up the value chain. The blueprint had promised to unleash a host of changes across the sector by the internationalisation of service providers, effective investment incentives, enhancing human capital development and promoting integrated sectoral governance reforms. All these will enhance the efficiency of the services sector to move to greater heights.

As for the manufacturing sector, TFP saw a higher growth of 1.5% in the 10MP as compared to 1.3% in 9MP. The improvement of TFP growth in the 10MP resulted from investments by the manufacturing sector to produce more complex and diverse products, higher investments in advanced machinery and automation to enable industries to be more competitive and resilient to compete in the global market. In addition, the upskilling of the sector's workforce and greater collaboration with research institutions also contributed to the higher TFP growth.

On the other hand, TFP growth for agriculture dropped by 1.7% in the 10MP from 0.04% in the 9MP. The dip in the sector's TFP growth was due to high investments in capital input which were expected to yield greater future gains.

Comparing the TFP performance between the 9MP and 10MP showed that in the earlier period, TFP had driven the productivity of a majority of the economic sectors, mainly construction and followed by services. The scenario was also reflected in the 10MP period as the construction sector's TFP grew to 6.7%, which was the highest among the main economic sectors.

TFP AS THE DRIVER OF TRANSFORMATION

The higher TFP contribution in the construction sector was attributed to the demand and use of modern technology from several mega construction projects in the oil and gas as well as transportation industries. They included the Petronas LNG Complex in Bintulu, Pengerang Deepwater Petroleum terminal with marine facilities and jetty, construction of the Pan-Borneo Highway, road upgrading works, including the Pulau Indah Highway and Bintulu–Samalaju Road, the ongoing Mass Rapid Transit (MRT) project as well as residential and commercial buildings.

These mega construction projects required the use of modern technology, with specific emphasis on Building Information Modelling (BIM) and Industrialised Building Systems (IBS). The Government's initiatives to encourage industry players to use modern technology in construction projects will further increase the utilisation rate of IBS, currently estimated at 42%. The launch of the Construction Industry Transformation Programme (CITP) will address current productivity issues affecting the industry and transform it into one that is modern and up-to-date.

CHARTING PRODUCTIVITY OF THE MANUFACTURING SECTOR

The sustained performance of the manufacturing sector in the future will hinge on the catalytic effects of higher productivity by various sub-sectors as highlighted in the 11MP.

The matrix analysis was based on the period of 2010-2012. Refined petroleum, tobacco, chemicals and chemical products as well as E&E sub-sectors were posted in the high productivity and high wages quadrant as compared to the manufacturing sector's average. These sub-sectors enjoyed high wages as compared to other sub-sectors commensurate with the high value added generated (Figure 2.5).

Although the palm oil products sub-sector registered higher productivity than the average, wages received were below the industry average due to the sub-sector's dependency on low-skilled labour.

Others like the transport equipment, automotive, machinery and equipment and basic metal sub-sectors posted below productivity average but were above the average wage. This indicated that these industries employed skilled labour but the wages received did not commensurate with their productivity. The productivity of these sub-sectors would be further enhanced by focusing on productivity initiatives driven by both the public and private sectors.

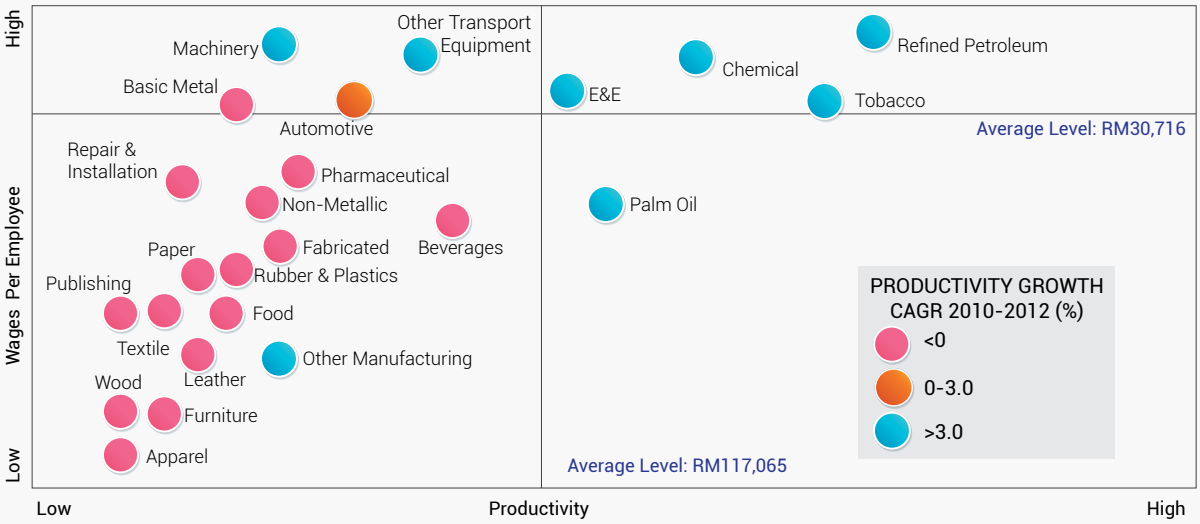
Most of the sub-sectors that attained high level in both the productivity and wages achieved productivity growth of more than 3%. Meanwhile, the machinery and equipment and other transport sub-sectors were positioned at above average wages but below average productivity, and they showed a favourable productivity growth of more than 3%.

The majority of the manufacturing sub-sectors was characterised by low productivity and wages for the period of 2010-2012. A further analysis indicated that these sub-sectors were mostly domestic-oriented industries except for rubber, textiles, wearing apparels, furniture and wood. Although these sub-sectors were export-oriented, they were labour-intensive and operated at the lower end of the value chain.

Greater initiatives are needed to push the potential sub-sectors, namely machinery and equipment, basic metals, automotive and other transport equipment which are already enjoying high wages to further improve their productivity performances by expanding their markets into the global value chain. Industries in these sub-sectors should uplift their capability to adopt existing technologies, improve processes and to ensure that their products and services are cost-effective.

Figure 2.5

Productivity vs. Wages for Manufacturing Sub-Sectors, 2010-2012



Note: 1) Colour of bubbles indicate the magnitude of productivity growth
2) Position of the bubbles represent productivity level and wages per employee, which are based on 2012 data as compared to manufacturing sector average

Computed from: Department of Statistics, Malaysia

ELEVATING EFFICIENCY OF THE MACHINERY AND EQUIPMENT INDUSTRY

The machinery and equipment sub-sector provides important contributions to other major manufacturing sub-sectors and produces a wide variety of machinery and equipment for power generation, specific industry processing, metalworking and general industrial activities. It supports a large number of small and medium enterprises (SMEs) that produce machinery and equipment for both domestic and export markets, and is in turn supported by a wide range of important engineering services mainly provided by other SMEs.

These engineering services cover machining; metal casting; sheet metal working; heat treatment; general fabrication; design, development and prototyping; and testing and certification services. Exports of machinery, appliances and parts continued to post double digit growth of 14.3% in January-August 2015 (January-August 2014: 15.6%) to the value of RM23 billion from RM20 billion previously.

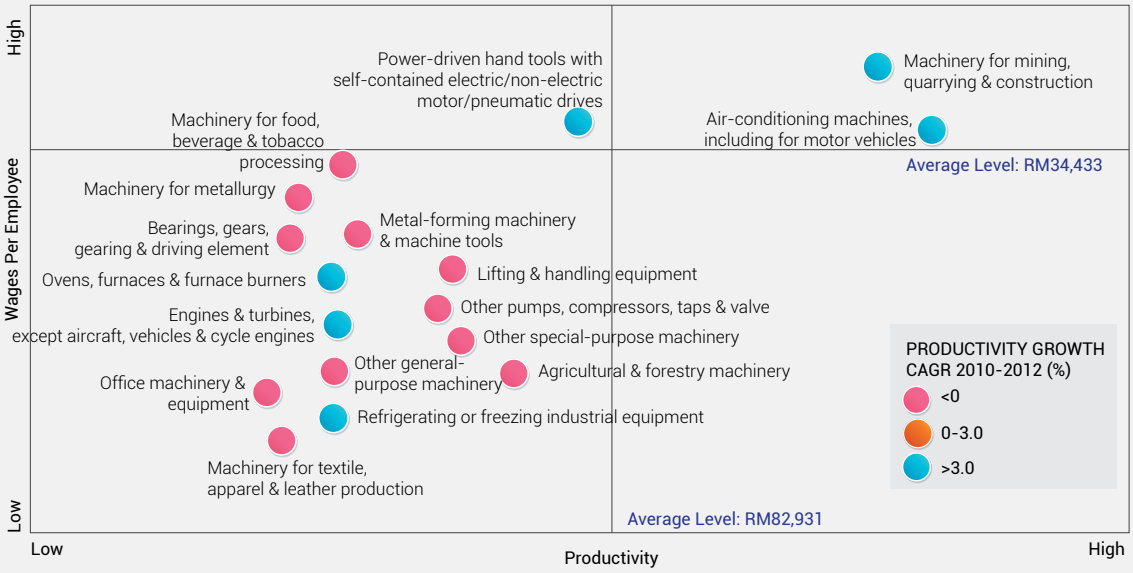
It was driven largely by specialised machinery for specific industries, particularly for civil engineering as well as the manufacture of semiconductors and parts. In addition, higher demand was also generated from general industrial machinery and equipment, particularly heating and cooling equipment as well as pumps, compressors, fans and parts. Key export destinations for machinery, appliances and parts were Singapore, Thailand, the United States, China and Vietnam.

A similar pattern was observed in the machinery and equipment sub-sector where a majority of the industries still lagged in productivity, hence their low wages. Most of the industries were SMEs producing simple machinery at the lower segment of the product market which did not require high technology and highly- skilled labour but very much focused on cost-effectiveness. Government support in terms of policy, programmes and incentives should spur greater productivity improvements in this sub-sector.

There are huge opportunities for the industries to shift into high productivity and the high wage quadrant if they focus on high-end products that require skill upgrading. In addition, rebranding their nature of '3D' (dangerous, dirty, difficult) jobs into safe, clean and attractive ones will encourage more local employees to the new working environment and potentially higher wages.

Innovation would accelerate the industry's productivity and sustainability in order to thrive in the competitive market worldwide. Otherwise, the firms will be pushed aside or become irrelevant from the industry. Research and Development (R&D) play a critical role in the innovation process. It is essential for high investment in technology and future capabilities to transform into new products and services. Thus, collaboration among the industry players, research institutions, associations, technology providers and Government entities will help to realise these objectives. As innovation requires a lot of investments, effort and time, industries must protect their inventions through patents and trademarks to enhance their branding.

Productivity vs. Wages for Machinery & Equipment Industries, 2010-2012



Note: 1) Colour of bubbles indicate the magnitude of productivity growth
2) Position of the bubbles represent productivity level and wages per employee, which are based on 2012 data as compared to sub-sector average

Computed from: Department of Statistics, Malaysia

PRODUCTIVITY IN LIBERALISED SERVICES SECTOR

The liberalisation of services can bring potential gains in productivity in the services sector that are subject to technology transfers and economies of scale. As the services sector remains the largest contributor to the country's GDP, comprehensive reforms in the services sector are recommended in order to boost its productivity towards a high income economy. Moreover, the liberalisation of trade in services may result in improved productivity in other sectors, including manufacturing from a broader variety, better quality, and lower cost of inputs.

Figure 2.6 exhibits the mixed impact of liberalisation in the services sub-sectors. It showed that activities under the information and communication sub-sector, which were among the sub-sectors that had been liberalised earlier, demonstrated outstanding performances as compared to other sub-sectors. In particular, the 2011 to 2015 period (after the implementation of the second phase of liberalisation) saw the ICT sub-sector recording the highest CAGR of 7.8%. This high productivity performance was due to the higher growth in output relative to the slower growth in employment. Statistics also showed that the sub-sector's productivity could grow further if industries and businesses increased their ICT usage and access.

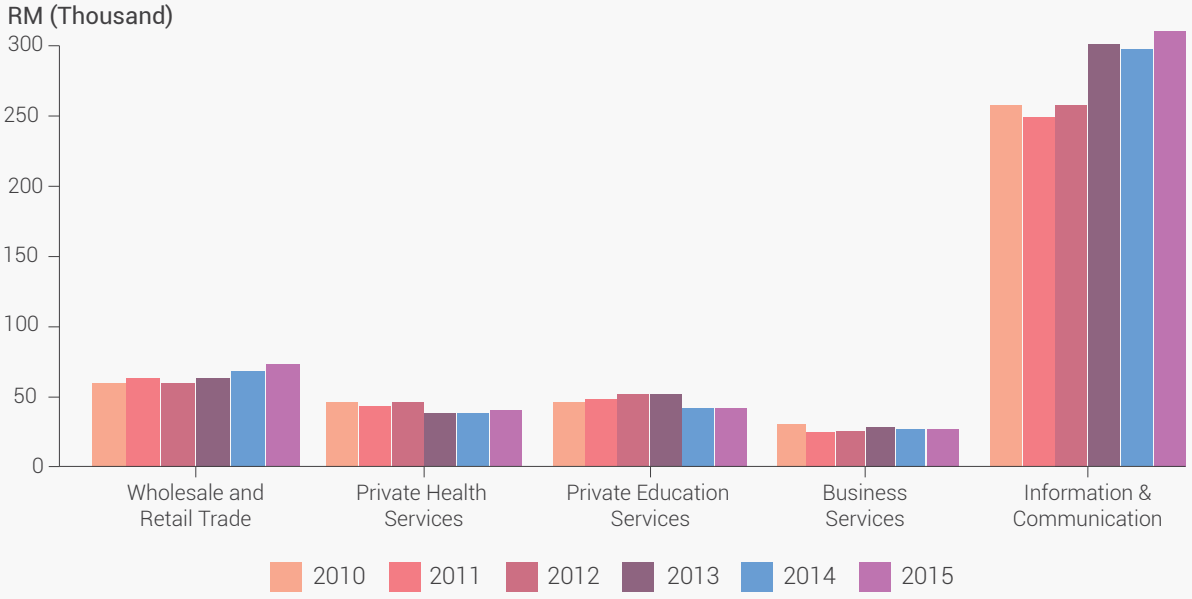
The CAGR productivity growth of the other two sub-sectors that had been liberalised, namely private education services and business services were relatively small at 2.4% and 2% respectively. For private education services, the growth came from the upskilling of people and collaboration from both public and private institutions to strengthen their marketing initiatives to attract more foreign and local students.

In contrast, the productivity of the private health services sub-sector experienced a decline of 2.8%. This was due to the upsurge in employment by 10% while output rose by 7%. Productivity levels at both the private health services and business services sub-sectors can be enhanced with greater usage of ICT beyond basic tasks and upskilling their personnel.

Meanwhile, the wholesale and retail sub-sector which was not liberalised, experienced only a small increase in productivity performance during the 2011-2015 period with a CAGR of 2.7%. Productivity for this sub-sector can be enhanced further by greater adoption of ICT across the entire value chain of activities, including regional distribution centres, international procurement centres, technical testing and analysis services, and management consulting services in Malaysia.

Figure 2.6

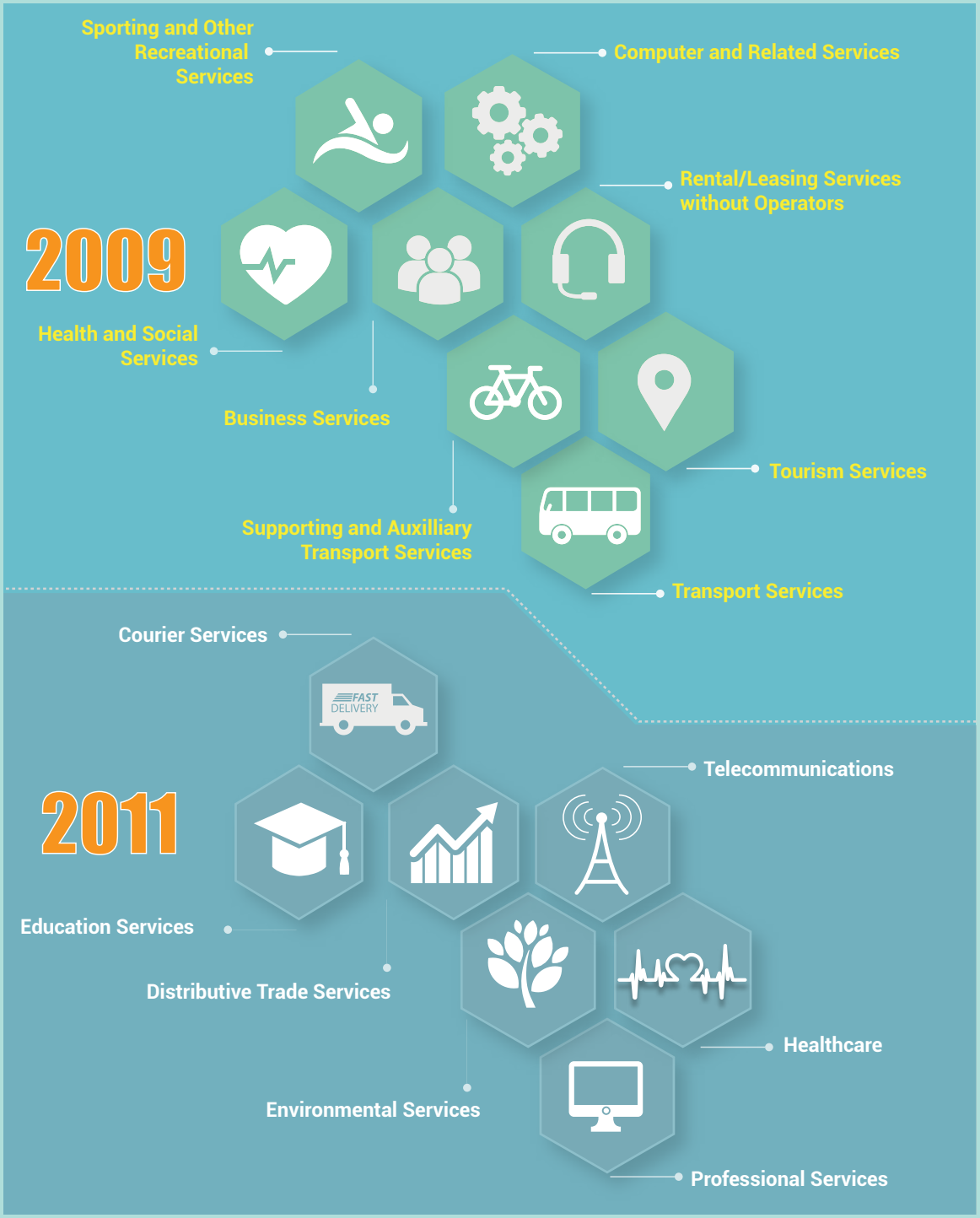
Productivity Performance of the Selected Services Sub-Sector, 2010-2015



Computed from: Department of Statistics, Malaysia

SERVICES SUB-SECTORS FOR LIBERALISATION

In 2009, the Government had liberalised the services sector to attract more foreign investments and bring more professionals and technology besides strengthening the competitiveness of the sector. By recognising the growth potential of the services sector, the Government had immediately liberalised 27 services sub-sectors, with no equity conditions imposed. These sub-sectors were in health and social services, tourism services, transport services, business services and computer and related services. In 2011, an additional 18 services sub-sectors were liberalised, which allowed for up to 100% foreign equity participation in phases. Currently 45 services sub-sectors have been liberalised to help unleash their potential towards spearheading growth in services.



Note: Details of the liberalised services sub-sectors can be referred to Appendix C:1 and C:2

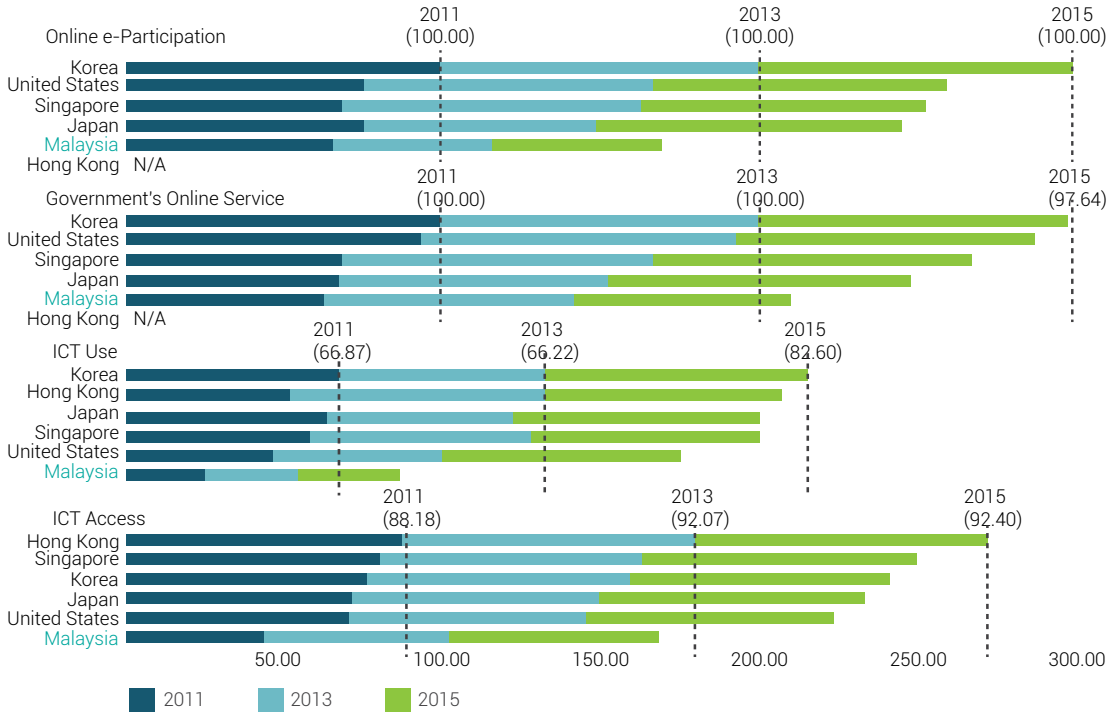
Source: http://www.mida.gov.my/home/liberalisation-of-the-services-sector/posts/

MALAYSIA'S PERFORMANCE IN ICT, GLOBAL INNOVATION INDEX 2011-2015

According to the Global Innovation Index (GII), Malaysia saw improvements in ICT access and usage, government's online services and e-participation from 2011 to 2015. However, Singapore and Korea remained far ahead of Malaysia in these areas.

Malaysia's performance still lagged far behind Korea as a benchmark in terms of online participation and ICT use in 2013. But in 2015, the Malaysian Government's online services had closed the gap set by Korea. It has been discerned, however, that Malaysia's performance had not reached the frontier set by Hong Kong in 2013 where the latter now leads in terms of ICT access.

Hong Kong's pre-eminent position in ICT online services has been due to the Government's vigorous outreach since 2011 for an inclusive knowledge-based society involving government departments, businesses, academia and ordinary residents including the elderly and disabled. It has been made possible through an efficient public sector information services, personalised e-government services and using ICT to enhance the territory's trading and economic competitiveness.



Source: The Global Innovation Index, Various Years

MODERNISING THE AGRICULTURE SECTOR TOWARDS HIGHER PRODUCTIVITY

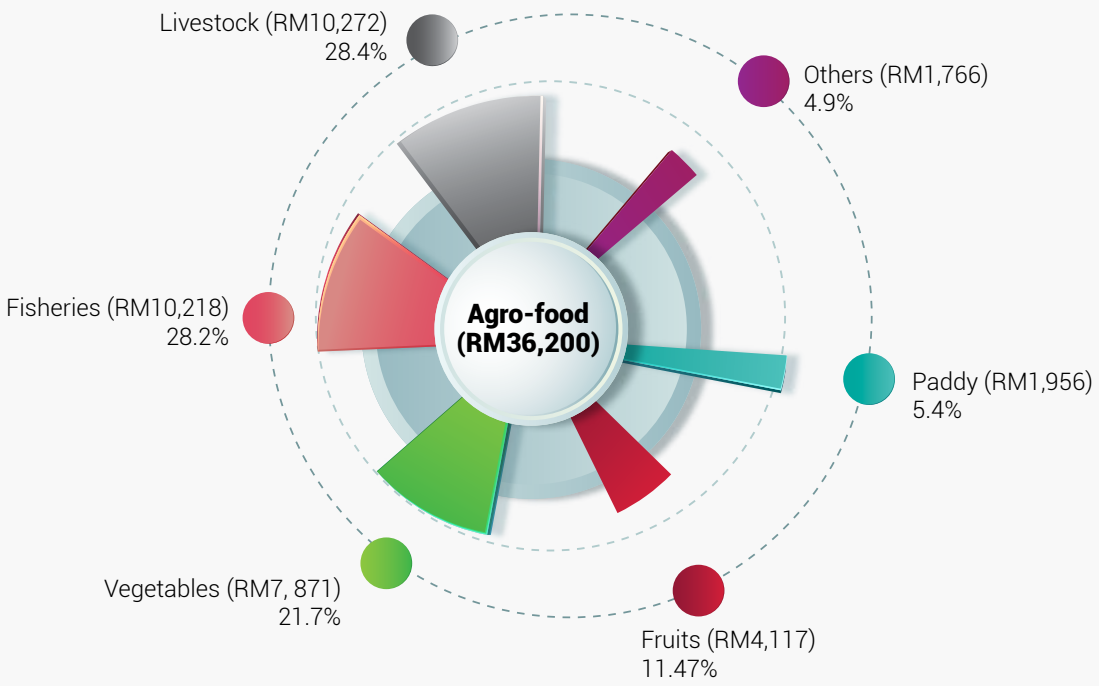
The agriculture sector has been persistently associated as being input-driven and regarded as a traditional sector. Many factors have been cited for its low productivity growth such as the unpredictable weather, quality of soil and seeds, low adoption of new technologies, dependency on low-skilled labour as well as the inadequate and poorly maintained agricultural infrastructure. In addition, the outbreak of diseases was also another contributory factor, which had been caused by a lack of biosecurity measures, including poor pest and disease management as well as the absence of an early detection and warning system.

The agriculture sector productivity registered a decline in growth of 2.4% in 2015 compared to 2014 at 6.1%. This was mainly due to lower production of crude palm oil (CPO), which was caused by lower global demand, pressure from prices of competing soybean oil and rapeseed oil and the fall in crude palm oil prices.

Food commodities have been projected to grow further on account of higher demand from households. The livestock sub-sector is expected to expand as a result of the higher output of poultry in tandem with the stronger demand from poultry-related downstream activities. As for the agro-food sub-sector, livestock, fisheries and vegetables had registered high value added at RM10,272 million, RM10,218 million and RM7,871 million respectively. Moreover, livestock and fisheries also demonstrated double-digit contributions to the agriculture sector's GDP (Figure 2.7).

Figure 2.7

Added Value of Agro-Food (RM million), 2015



Computed from: Department of Statistics, Malaysia

Malaysia's agriculture sector productivity can be uplifted through the adoption of modern farming technology and ICT. These will improve efficiency and reduce labour dependency. ICT-based applications, integrated pest and disease management as well as improved product features are initiatives that can ensure higher yields and productivity.

Besides modernising the sector, it is crucial to intensify R&D as well as commercialisation to produce high quality seeds, breeds and fish fry through collaboration among research institutions, universities and the private sector.

Several programmes have been identified to encourage greater mechanisation and automation in order to increase farm productivity and to reduce dependency on low-skilled foreign labour. To support these initiatives, skills training on the use and maintenance of farm machinery and equipment will be provided to accelerate greater farm mechanisation.

In today's competitive international markets, it is crucial to empower and strengthen the capacity of cooperatives and associations in the area of management, finance, investment and marketing as well as to create new business opportunities along the supply chain. Building successful cooperatives can bring together independent and smallholder farmers to gain larger market share. This will ensure sustainable incomes for farmers through secured demand contracts, better farm gate prices and profit sharing from processing activities.

CHALLENGES OF THE LOCAL POULTRY FEED INDUSTRY

Malaysia's animal feed industry is rather well-established as it produces feed predominantly for animals used in the production of food. The country's feed industry is also predominantly skewed towards the poultry sector as the local poultry industry is highly developed due to rising domestic demand for poultry-related products. Domestic demand for poultry products has been on a major upswing since 1999, owing both to the improved capability of families to purchase and consume meat and the population boom in the country.

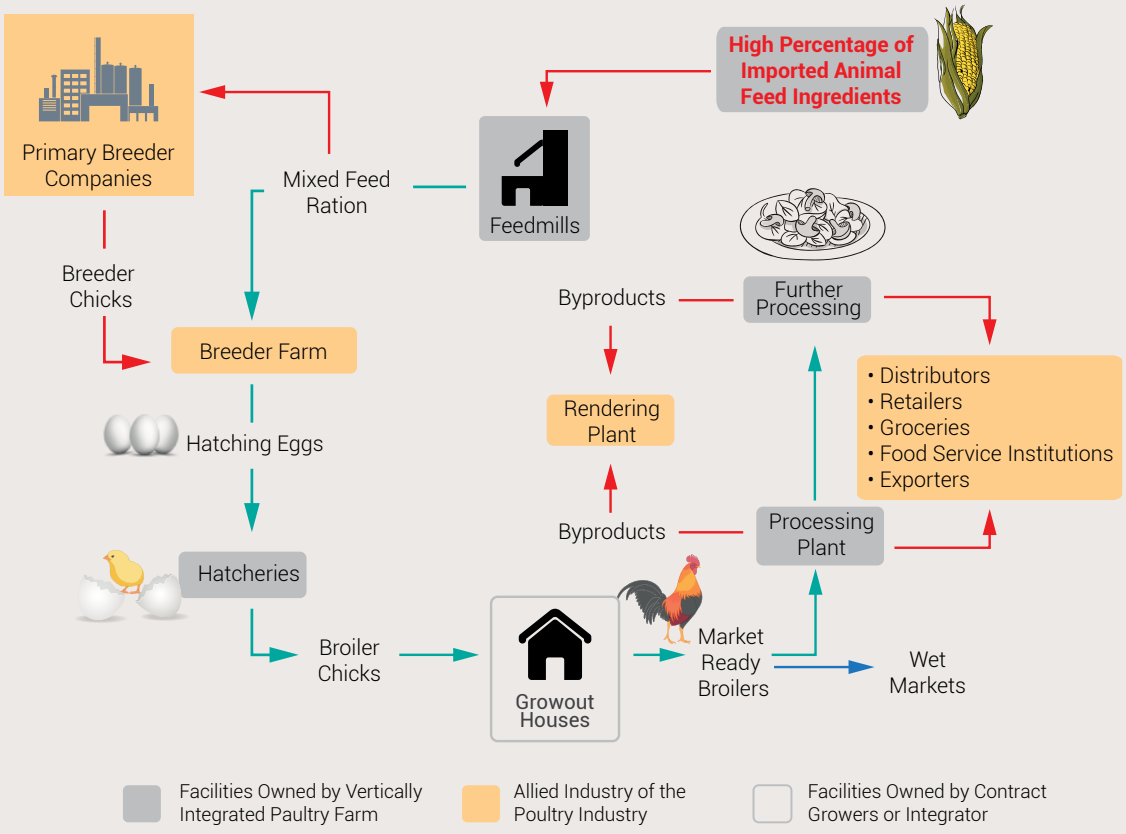
Malaysia's population has grown by about 30% over the past 10 years to 30 million in 2014 from 23 million in 2004. Domestic consumption of chicken meat rose in tandem from 0.9 million tonnes in 2004 to 1.5 million tonnes in 2014. In view of the rising population as well as demand for chicken, there is a need to upgrade the local poultry industry and it requires continuous supply of animal feed.

Animal feed within Malaysia is primarily made up of imported grains, with nearly 75% comprising 50% maize and 25% soy meal although the ratio may vary slightly. The remaining 25% can comprise other types of grains and meals depending on their availability. Rice can be a substitute for maize as it can be grown locally but local human consumption of rice now far exceeds local production.

The high cost of rice and rising demand also makes rice unsuitable as a replacement for maize in local animal feed production. Most of Malaysia's imported maize is sourced from South American countries like Argentina and Brazil. In the past, maize could be purchased from nearby countries like India and Pakistan but in recent years increased domestic demand in those countries had resulted in less availability for purchases by Malaysian feed millers.

Soybean meal is mainly sourced from Argentina. With these raw materials hinging on global commodity prices and quoted in USD, it has also meant that although prices for these commodities may be low, the slide in the Malaysian ringgit in 2015-2016 had also impacted on import prices. However, local feed millers had been cushioned from the impact of the higher value of the USD following the downtrend of commodity prices since 2012. If commodity prices went on an uptrend over the long term, local feed millers would be affected. To ensure the sustainability of the animal feed industry over the long term, support and initiatives to wean local feed millers away from imported materials would have to be undertaken.

The Importance of Animal Feed in the Integrated Poultry Supply Chain



Source: Universiti Putra Malaysia

PUSHING THE CONSTRUCTION SECTOR FOR HIGHER PRODUCTIVITY

Low productivity is one of the biggest challenges faced by the local construction sector. Generally, the majority of construction works were driven by the private sector, which amounted to RM20.5 billion as compared to the public sector of RM9.7 billion in the fourth quarter of 2015 (Figure 2.8).

The lack of interest to undertake IBS, especially among private sector project owners, dampened productivity growth of the sector. It has been strongly recommended that the use of IBS be made compulsory to both public and private projects to spur greater productivity growth and ultimately reduce construction costs.

The Construction Industry Transformation Programme (CITP) highlights three key drivers to promote productivity in the construction sector, namely workforce, technology and processes. The workforce driver relates to human capital improvements to increase output per worker. The technology driver relates to how technology can increase the production frontier and raise efficiency while the processes driver relates to how processes can be made more efficient and effective through better planning and management. At the firm level, several productivity initiatives to boost efficiency have been recommended, including LEAN management such as efficient materials management, time optimisation and workforce planning. Becoming a LEAN firm means eliminating non-value added activities along the value stream to have a more efficient system of production that eliminates waste, reduces delays and costs that improves quality.

Table 2.1

Performance of the Construction Sector

Period	No. of Projects	Value of Construction Work Done (RM million)	Percentage Charge (%)	
			QoQ	YoY
4Q/2015	10,230	30,129	4.5	11.2
3Q/2015	9,883	28,834	5.9	14.0
4Q/2014	10,000	27,099	7.1	9.7

Source: Department of Statistics, Malaysia

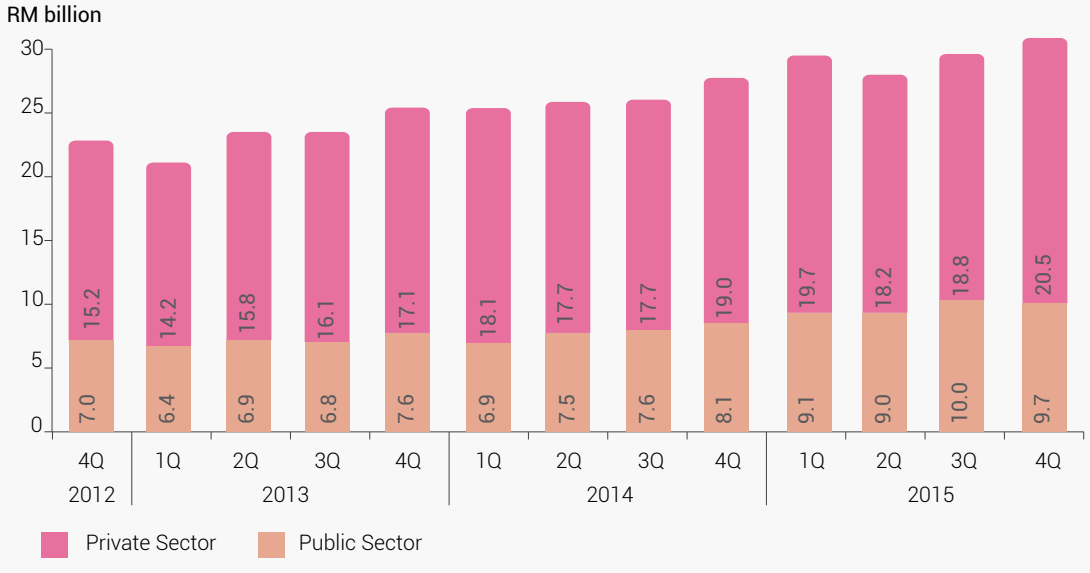
SPURRING THE ADOPTION OF INDUSTRIALISED BUILDING SYSTEM

In Japan and Finland, IBS has marked the transition of the construction industry from being labour-intensive to technology-intensive. This transition will bring about reduced cost in advanced building methods, better wages for workers and safer work environment. By using conventional building methods, it takes roughly 400 workers to build a typical 30-storey building. Armed with IBS and automation systems, however, the same building could be built by a crew of 70 workers in a shorter time-frame, all of whom would receive better wages and work conditions.

With an IBS project, building components are pre-fabricated in bulk at specialised IBS component manufacturing plants before being transported to building sites for assembly and installation. IBS manufacturers can therefore seek economies of scale, quality improvements and yield efficiency gains that will positively benefit customers in the long run.

Figure 2.8

Value of Construction Work Done by Project Owner



Source: Department of Statistics, Malaysia

LEAN MANAGEMENT FOR CONSTRUCTION SECTOR

For LEAN Management to help maximise the value of construction input, the construction manager (CM) should be brought on board soon after the architect and engineer have been hired, and with some of the major trades brought on soon after the CM's appointment during the Design Development phase. Downstream players, like suppliers, should also be brought into the process to exploit opportunities to increase value in every phase of the project.

Current technology for information sharing has greatly facilitated the collaboration required in lean design and construction. Building Information Modelling (BIM) and shifting detailed design to fabricators and installers are good examples of how better solutions can be conceived and delivered.

The master schedule is useful to develop key milestones and understand sequencing of events and long lead items. Phase schedules, accompanied by lean production control systems that allow front-line personnel to make real-time decisions on work commitments and look ahead (pull process), are vital for minimising waste from downtime and rework.

These systems constantly track work so that corrective measures can be made to correct issues before they impact on the project schedule. A collaborative approach assures that everyone involved understands and supports the schedule and works together to implement solutions to correct variances before they have major project impact.

Construction projects have often been compared to a three-legged stool, with the legs being represented by cost, schedule, and quality. Despite the importance of these three factors to be harmonised in any construction project, often times it is not the case. Moving forward, LEAN management is an attempt to balance all these factors. In addition, the application of LEAN best practices will also yield the benefits of a safer project, with higher satisfaction for all parties involved and a higher level of sustainability.

TRANSFORMING SECTORAL PRODUCTIVITY

It is imperative that productivity has to be the crucial driver for all sectors to move towards better performances. Against a backdrop of probable capital or funding limitations, productivity holds the key for any significant economic improvement. When viewed from a perspective of emerging neighbouring countries stepping up their manufacturing capabilities, Malaysia has no alternative but to boost its productivity just to have an edge. This is because Malaysia may not be able to compete on labour costs from now on while productivity holds the key for improved profitability and income levels.

Similarly, in agriculture, a rise in productivity would enable the country to compete on cost in a number of sub-sectors and migrate towards higher value crops as well as livestock and fishery products. It will also help minimise wastage due to advancements of forward and backward linkages to bring products to market faster.

As for construction, productivity can rise multifold if the players in the sector changed their mindsets on short term gains and shift towards long term sustainability. It can also help lower costs and quicken construction time. The question now is: When greater private sector investments for productivity will be put in place?

All sectors need to adopt technologies and innovation, better management and organisational excellence practices. A holistic approach by the public and private sectors is crucial to strengthen the eco-system towards a sustainable economic environment.


KPKT

IMPROVING PRODUCTIVITY OF FIRMS

Firms remain the nucleus for the nation's productivity growth supported by a skilled work force, conducive business environment and effective management. Firms need to go beyond efficiency by leveraging on the available opportunities to reach the global frontier position. Firms also must create autonomy to harness the people's flexibility and agility, combined with creativity and problem-solving techniques as well as the effective use of technology to accelerate their overall productivity.

The productivity of firms is important for economic growth as it is the catalyst for greater income equity at all levels and the best hedge against future economic instability. Therefore, a firm's individual performance is crucial to determine the overall impact on the country's productivity growth. Spurring the productivity of individual firms will provide the basis for sustained economic development, create new economic opportunities and ensure the continued well-being and prosperity of the nation.

HAVING A CONDUCIVE BUSINESS ENVIRONMENT FOR HIGHER PRODUCTIVITY

A move towards robust global-level productivity growth must start with decisions made by individual firms to raise their respective productivity performance. Economic challenges such as entry and exit policies, resource allocation, environmental factors, labour force and management practices must be addressed by firms. Additionally, the on-going intense competition requires firms, specifically small and medium enterprises (SMEs), to be more innovative and efficient or otherwise be pushed aside by new and more competitive firms.

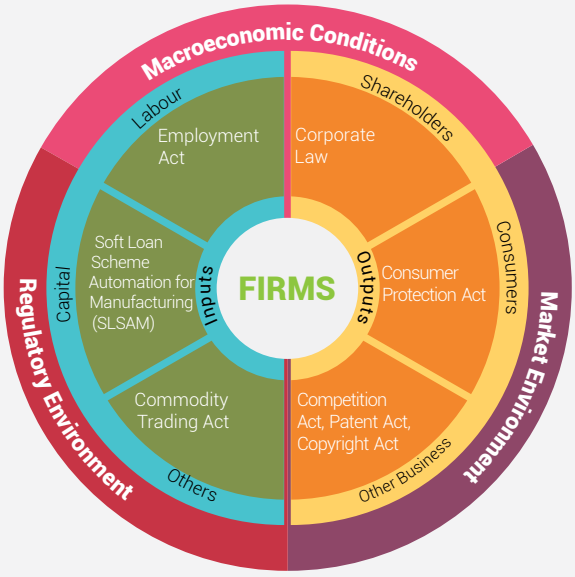
The productivity of firms reflects how it brings together labour, capital and other inputs in order to produce goods and services. However, the business environment influenced by macroeconomic conditions, markets and the regulatory environment have a profound effect on the firms' productivity. A range of external factors such as the Employment Act and Government incentives do affect macroeconomic conditions and consequently influence the firms' efficiency in managing resources and investment in technology. A market environment with efficient and effective infrastructure investments can reduce cost and enhance global connectedness. In addition, a conducive regulatory environment with provisions such as the Consumer Protection Act, Competition Act and Patent Act are essential to promote innovation and productivity in a competitive setting among firms (Figure 3.1).

Business efficiency in a market enables the measurement of the extent or limit in which the national environment encourages firms to perform in an innovative, profitable and responsible manner. Additionally, the level of business sophistication is also a measure of the quality of a country's overall business networks and individual firms, operations and strategies.

Economies with high scores in business efficiency (BE) and business sophistication (BS) that demonstrated high productivity levels are Luxembourg, Singapore, the United States, Hong Kong and Switzerland. In the context of Malaysia, it is noted that its business efficiency and business sophistication have improved over the time. However, in terms of overall productivity (PPP), Malaysia was ranked 41st among 61 economies in 2015. Malaysia needs to enhance its productivity performance to catch up with the top benchmarked economies.

Figure 3.1

Productivity Framework of Firms



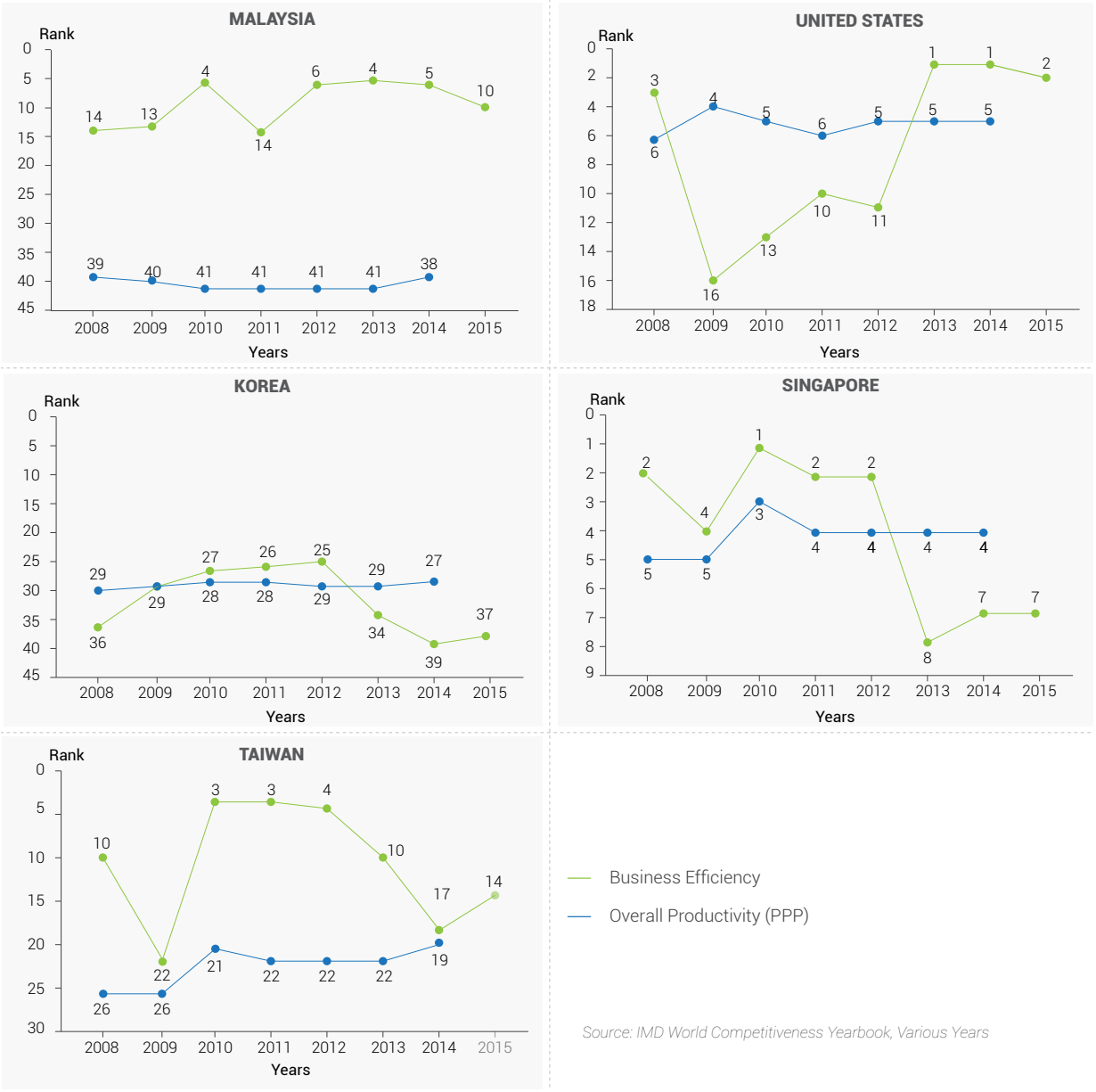
Business Efficiency and Productivity

Malaysia was among the top 10 for the past four years in business efficiency ranking of the World Competitiveness Yearbook (WCY) and has improved continuously since 2008. In comparison with the four other economies selected for this benchmark, the business efficiency of Singapore (7th), Taiwan (17th), Korea (39th), was lower than Malaysia which ranked fifth except for the United States, which topped the rankings at number one. The productivity of these economies -- Singapore (4th), the United States (5th), Taiwan (19th) and Korea (27th) all ranked higher than Malaysia, which was ranked 38th (Figure 3.2).

Based on Figure 3.2, all the economies were reducing the gap between productivity and business efficiency. It was observed that Taiwan has successfully narrowed the gap while Singapore's productivity has gone beyond its business efficiency. This indicates that much needs to be done to bridge the gap between business efficiency and productivity performance. Firms need to leverage on government incentives and supports to enhance their efficiency to produce higher value added products and services.

Figure 3.2

Business Efficiency vs Overall Productivity (PPP) for Selected Economies



Source: IMD World Competitiveness Yearbook, Various Years

Business Sophistication and Productivity

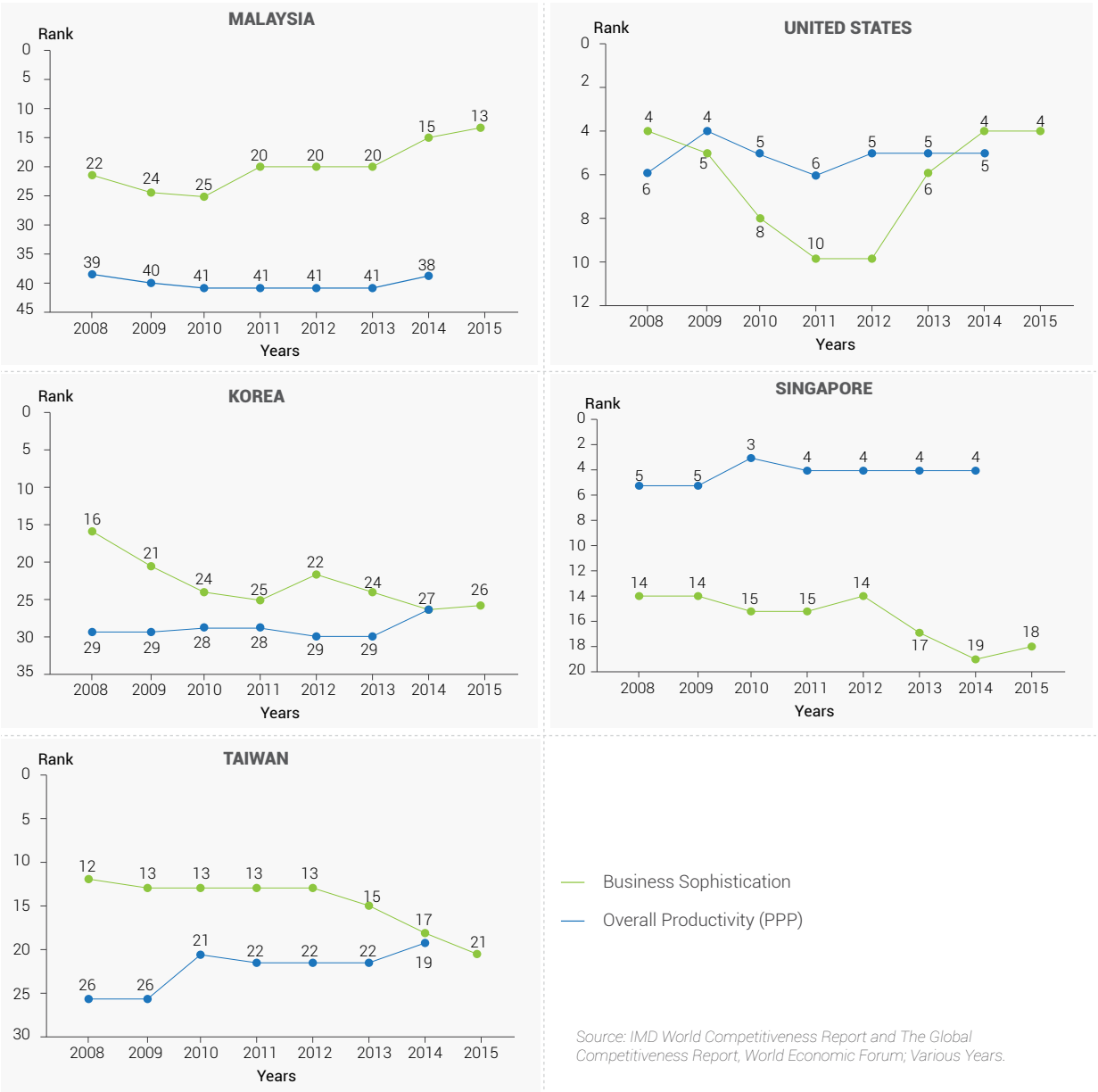
An analysis on business sophistication over the period of 2010-2015 showed that Malaysia has been performing very well with its ranking improving significantly from 22nd position (2008) to 15th (2014). Except for the United States (4th), all the other selected economies like Taiwan (17th), Singapore (19th) and Korea (27th) were ranked lower than Malaysia. Similarly, for Malaysia, there is still a huge gap between business sophistication and productivity performance (Figure 3.3).

Malaysia was ranked favourably in the following business sophistication indicators such as well developed and deep clusters (geographic concentration of firms, suppliers, producers of related products and services and specialised institutions in a particular field), high number of local suppliers and the companies used sophisticated marketing tools and techniques (Table 3.1).

However, to further enhance productivity performance, Malaysian firms need to shift towards high technology, knowledge-intensive production process, increase their investments in R&D and improve the quality of local suppliers. A concerted effort at the national industry level is crucial for firms to compete at the global frontier to raise hi-tech exports and meet the buyers' high sophistication (Table 3.2).

Figure 3.3

Business Sophistication vs Overall Productivity (PPP) for Selected Economies



Source: IMD World Competitiveness Report and The Global Competitiveness Report, World Economic Forum; Various Years.

Table 3.1

Selected Indicators of Business Sophistication, 2015

Indicators	Malaysia		Singapore		Korea		Taiwan		USA	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Local Supplier Quality	6	5.3	71	5.1	24	5.1	13	5.3	7	5.5
Local Supplier Quantity	19	5.4	26	4.5	27	5.0	20	5.2	10	5.4
Extent of Marketing	6	5.5	18	5.3	33	4.8	22	5.1	1	6.0

Source: Global Competitiveness Report 2015-2016, World Economic Forum

Table 3.2

Outcomes of Business Sophistication, 2015

Indicators	Malaysia		Singapore		Korea		Taiwan		USA	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Total Expenditure on R&D (USD)	34	3,368	28	6,046	6	54,163	18	15,280	1	453,544
High-Tech Export (USD)	11	60,372	4	135,602	5	130,460	8	79,368	3	147,833
Buyer Sophistication	4	5	7	4.6	8	4.6	1.9	4.3	14	4.5

Source: Global Competitiveness Report 2015-2016, World Economic Forum

FACTORS SHAPING AGGREGATE PRODUCTIVITY

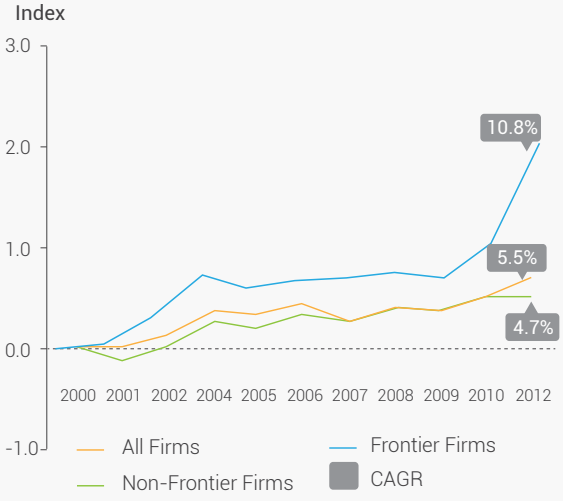
The country's productivity is driven by the accumulation of firms' productivity. They can be categorised as frontier or laggard firms. In general, global frontier firms are not only more productive than laggard firms but are also more capital and patent-intensive, have larger sales, more profitable and are more likely to be part of a multinational group. In this report, frontier firms are the most productive firms in the manufacturing sector in terms of labour productivity.

The firms at the frontier showed an increasing productivity trend over the period of 2000-2012, recording a growth in labour productivity of 10.8% compared to an average growth of 4.7% for non-frontier firms (Figure 3.4). Non-frontier firms should improve their operational efficiency through employing the best practices of frontier firms while national frontier firms should also innovate and use more technology to be at the global frontier.

Malaysia's businesses are dominated by SMEs comprising 97% of the total, whereby 77% are micros, 20% are small and 3% are medium but a study in Canada showed that neither size nor sector has a significant impact on productivity. What matters are productive firms.

Figure 3.4

Productivity Index of Firms in the Manufacturing Sector



Note: Productivity index is based on year 2000=0

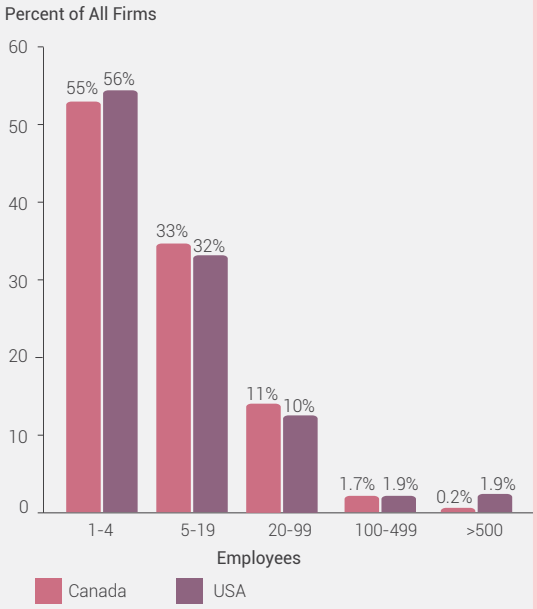
Computed from: Department of Statistics, Malaysia

SIZE DOES NOT MATTER

The United States and Canada have a large proportion of small firms, employing less than 100 workers each and they account for 98% of the total number of companies. In Canada, 55% of the firms engaged less than five workers, 33% fewer than 20 and 11% less than 100. In the United States, 56% employ less than 5, 32% fewer than 20, and 10% less than 100. A similar structural make-up of firms was also observed for Malaysia. However, both the United States and Canada recorded productivity levels that were 2.3 and 1.7 times higher than Malaysia respectively.

Malaysia registered a productivity level at USD47,491 relative to the United States at USD107,608 and Canada at USD80,293 in 2010. This indicates that firm size does not matter in achieving high productivity for a nation.

Distribution of Canadian and American Firms by Size, 2010



Note: The definition of firm varies slightly between Canada and the United States. In Canada, it measures individual business locations while the United States measures enterprises (which may have multiple locations). A true comparison of the American and Canadian enterprises can be expected to have a smaller gap in the medium and large firm segments.

Source: Clear Choices for a Competetive Canada, The Future of Productivity, 2012

UPLIFTING FIRMS' EFFICIENCY AND PRODUCTIVITY

Productivity gains at the firm level will directly contribute to national economic growth, which in turn helps to improve quality of life and benefits the *Rakyat* at large.

The objective of the firms is to maximise returns or profits within the constraints of the environment they operate in. However, to meet the objective, profitability should be linked to productivity because a firm's profits are affected by its productivity improvement efforts. The productivity of firms can be boosted through efficiency in managing resources at the optimum level to maximise output, minimise cost or design strategies to explore opportunities for growth.

Productivity is measured by the ratio of output to input. At the firm level, output is measured in terms of added value while input can be referred to as employees, fixed assets or intermediate inputs or known as Bought-in Materials and Services (BIMS). BIMS comprises all materials and services purchased by the firm from external suppliers. To compute added value, BIMS is deducted from the total output.

For firms to generate higher added value, they need to manage their BIMS efficiently. Based on a study conducted on selected manufacturing firms, it shows that on average, the firms' contributions of BIMS to total output is 80%, thus leading to low added value creation. Material cost constitutes 78% of the total BIMS. This is in line with the average industry standard whereby 84% of BIMS is material cost (Figure 3.5).

Figure 3.5

Decomposition of Total Output in Selected Firms, 2014

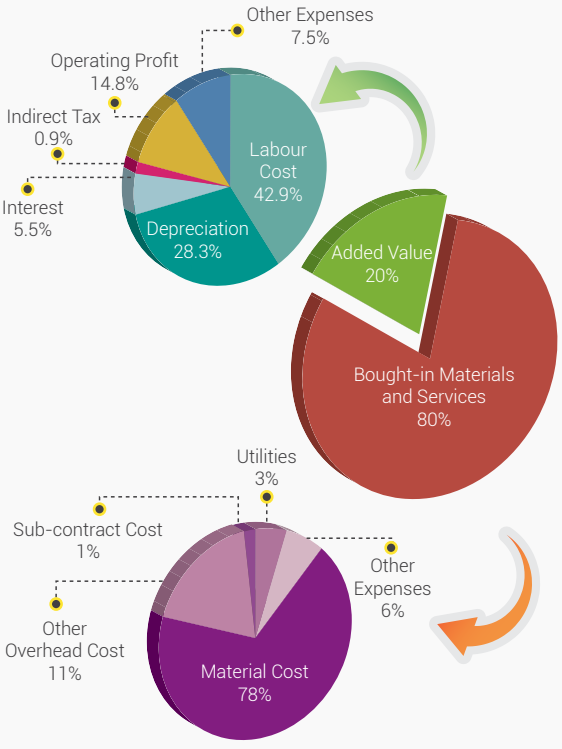
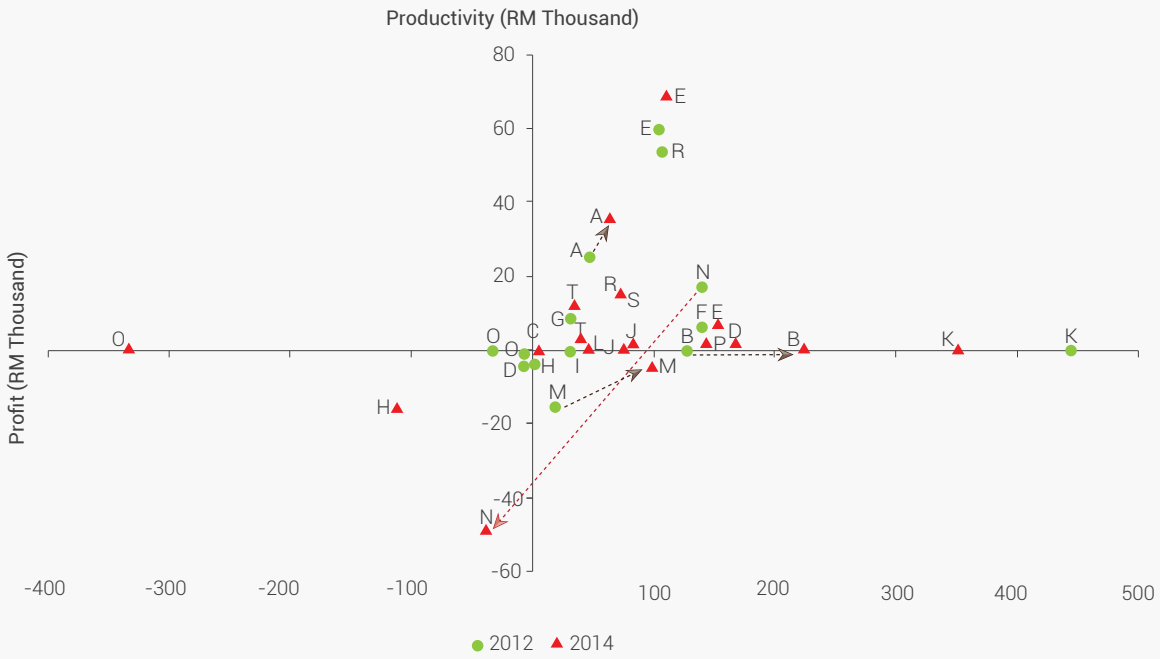


Figure 3.6

Productivity and Profitability Linkage, 2012-2014



The profitability of firms is affected by their productivity performance (Figure 3.6). Firms with low productivity also have low profitability. Based on the analysis of the study, the performance of the firms over a two-year period (2012-2014) illustrates the following pattern:

Firm A	Productivity and profitability improved
Firm B	Profitability remained constant, while productivity improved
Firm M	Productivity and profitability improved, but still unable to recover its loss
Firm N	Productivity and profitability declined

Overall, the majority of the firms that improved in productivity showed gains in profitability. The small gains in profitability of some firms was a result of only marginal improvements in productivity. The nature of a manufacturing firm's operation, which was very much dependent on the high utilisation of BIMS, limited the capacity of the firm to have a quantum leap for higher productivity. Thus, firms need to adopt practices in excellence to enable them to plan strategically. These will develop a firm's capacity and capability to optimise its resources and innovate to attain the global frontier position.

Effective Material Management

Materials play a key role in firms as they represent the major component of costs and profitability. Effective materials management would be able to help integrate the entire material and supply chain work processes.

The same study showed that there was a significant increase in the firm's profitability as a result of effective materials management. Profitability is also aided by inter-departmental coordination or cross-functional activities in small group activities, using state-of-the-art facilities such as Material Resource Planning (MRP) and innovative approaches like LEAN Management.

LEAN management is a long-term approach to run an organisation to support the concept of continuous improvement that systematically seeks to achieve small incremental changes in processes in order to improve efficiency and quality.

The Small Group Activity (SGA) is a platform for problem-solving in teams, encourage collaboration and leads to valuable innovation in workplace productivity and product improvement. Companies can use inter-departmental coordination through the Innovative and Creative Circle (ICC) approach to identify solutions to optimise raw material utilisation.

BRAHIM'S AIRLINE CATERING

LEANer Croissants

Brahim's Airline Catering (BAC), a halal premium catering company, promotes the LEAN approach to identify the real cost of wastages and material losses. Setting a target for food cost savings at 35% annually and using the Kaizen improvement method to address wastage in the supply of croissants, BAC discovered that wastage normally occurred in the initial stage of dough moulding and packaging activities.

With strenuous efforts in applying LEAN in BAC, an 11.16% savings was seen in eliminating an over-supply of croissants at RM2,842.39 per month. There was also savings to RM40,271.10 in a month in terms of purchasing raw materials such as flour. In a year, BAC managed to reduce wastage on the over-supply of croissants and spending on raw materials totalling RM576,601.

Matrix Before and After LEAN Project

Description	Before	After	Cost Saving
Cost savings on left over dough/ raw materials (RM per month) • Flour • Butter	 78,758.80 73,080.00	 40,271.10 66,360.00	 38,487.70 6,720.00
Over supply of croissants (RM)	2,842.39	0	2,842.39
Total savings (RM per month)	-	-	48,050.09
Total savings (RM per year)	-	-	576,601.08

CTRM AERO COMPOSITES SDN. BHD.

Optimising Ply Design through ICC

CTRM Aero Composites Sdn. Bhd. (CTRM AC), a manufacturer of composites components for aerospace segment, practices flexibility in meeting international scales and standards and demonstrates uncompromising safety obligations. CTRM AC has used the ICC approach in solving the problem of oversized plies due to incorrect ply design which led to under- optimisation of raw material utilisation.

Developing new ply design:

01 Making use of the state of the art CATIA CD3 flat patterning programme (never been used in CTRM before)

02 Material properties used to drive fine-tuning process (instead of trial-and-error fine-tuning)

03 Incorporating ply orientation optimisation (new discovery in nesting programme)

In terms of cost savings, CTRM AC managed to save a total of RM475,212 annually from the reduction of raw material utilisation, man-hours cost and machine utilisation as well as environmental-friendly initiatives by reducing wastes for disposal into landfills. Moving forward, this new procedure of ply design will be included in the existing Standard Operating Procedure (SOP) for all ply development in CTRM AC, to prevent the production of oversized plies resulting in high material cost.

ICC Initiatives in Ply Design	Impact	
	Before	After
Eliminate manual trimming process by reducing total cycle time	843 minutes	480 minutes
Improve lay-up circle time by reducing man-hours per year; an improvement of 44.5%	8,102 man-hours	4,496 man-hours
Improve work processes by reducing raw material usage; amounting to 29.2% reduction in material usage	10,569m^2	7,479m^2
Improve machine utilisation per year	62.6 hours	55.8 hours

Strategies to Explore Opportunities for Growth

Firms must inculcate excellence practices in their organisational structure in order to be global players. Research indicates that firms with a business excellence approach usually obtain significant benefits beyond improvements in financial indicators. They include enhanced innovation and idea generation, increased customer satisfaction, organisational growth (employees), increased employee satisfaction and involvement, improved efficiency and effectiveness and product reliability.

Adopting a business excellence framework is also appropriate for addressing macro challenges at the micro level in a firm's strategy. The challenges are addressed through business excellence as it provides a strategic framework for dealing with such issues. Through its emphasis on benchmarking and business excellence practices, they encourage firms to progress. The Malaysia Business Excellence Framework (MBEF) provides firms with tools to strengthen their management systems and capabilities in achieving sustainability and competitiveness. Worldwide, more than 96 countries have adopted similar framework to drive organisational sustainability (Figure 3.7).

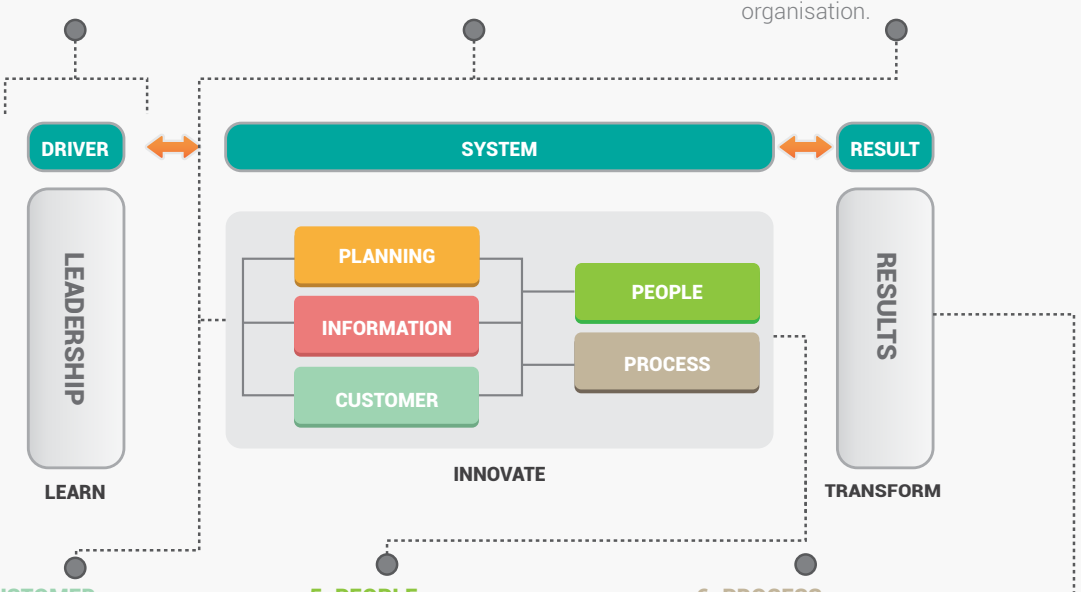
Figure 3.7

The Malaysia Business Excellence Framework

1. LEADERSHIP
Leadership addresses how leaders develop and facilitate the achievement of the mission, vision and develop values required for long term success.

2. PLANNING
Planning focuses on the organisation's establishment of strategic objective and action plans, deployment of plans and plans changed if circumstances require a change; and how progress is measured and sustained.

3. INFORMATION
Information relies on management of information that is essential for promoting organisational improvements and innovations to create unique values, knowledge and the use of comparative data to support decision-making and improvements at all levels of the organisation.



4. CUSTOMER
Customer emphasises on customer engagement as an important outcome of an overall learning and performance of execellent strategy, determines customer and market requirements, builds relationships with customers and determines their satisfaction.

5. PEOPLE
People highlights how the organisation manages, develops and releases the knowledge and full potential of its people at an individual, team based and organisation-wide level. How it plans these activities in order to support its policy and strategy and the effective operation of its processes.

6. PROCESS
Process directs how the organisation designs, manages and improves its processes in order to support its policy and strategy and fully satisfy and generate increasing value for its customers and other stakeholders. A process can be further defined as a bound set of inter realated work activities, each having prescribed inputs and outputs.

7. RESULT
These criteria encompass what an organisation has achieved and is achieving. An organisation uses a number of key parameters to measure its performance.

Extent of Marketing

The heart of business success lies in its marketing. Marketing is a process by which a product or service is introduced and promoted to potential customers. Business may offer the best products or services in the industry, but without marketing, none of the potential customers would know about it.

Today's businesses demand an increasingly market focus. If organisations are to serve the needs of their customers well, they need a marketing plan that identifies and meets customer requirements. In the current business scenario, organisations need to align their organisational structure with the targeted markets.

PERFECT FOOD MANUFACTURING (M) SDN. BHD.

Incoming Buying Mission and "Share the Love"

Since its inception, Perfect Food Manufacturing, which is noted for its Julie's biscuit products, has been adopting unconventional marketing strategies. In 2010, the company arranged for an all-expense paid trip for a group of potential clients from China. With the belief that when these clients see for themselves that Julie's biscuits are indeed baked with love and care, they will want to distribute them in their own markets. True enough, the company managed to close a very lucrative deal with these clients from China. To date, many existing and potential clients, including those from Taiwan, Vietnam, Indonesia, Singapore, Thailand and the United States, Cambodia, the Philippines, Brunei and Japan have visited Perfect Food's factories.

In addition, the company has been organising the "Share the Love" movement in which the core message is simply to inspire and engage society with love and gratitude. The company has distributed many of its biscuits to the needy around Malaysia. Taking this movement to another level, its distributors and outlets in overseas branches have also been inspired to do the same. Besides this, the company actively participates in events organised by the Lion's Club of Malaysia and Harvest Centre, an independent organisation that assists refugees and children with no identification or means to live independently.

Source: From Zero to Hero, MATRADE

FUJI ELECTRIC (MALAYSIA) SDN. BHD.

Customer-centric Strategy

Fuji Electric (Malaysia) Sdn. Bhd. (FEM) has a combination of semiconductor chip production and insulated gate bipolar transistors (IGBT) modules assembly production. The chips produced by FEM are widely used in inverters, industrial robots, high speed elevators and windmills. Using customer feedback to improve the work processes, FEM modifies the dynamic test (DT) temperature from 125°C to 150°C based on the latest market trend of power module.

Action Taken

- Process optimisation by relocating thermal resistance test to be performed before dynamic test
- Redesigning of new ribbon to ensure the label can withstand high temperature
- The AXR8 ribbon completes a series of testing and is qualified to be used in mass production
- Installing sleeve tube on pin contractor at DT Jig
  - Sleeve tube is easy to be installed, cheap and is able to resolve the issue of bent pin and spark

Matrix Before and After ICC Project

Description	Before	After
Productivity (pieces/hour/line/headcount)	20	25
Number of defect cases (bent pin)	1,200	600
Number of defect cases (spark)	1,000	200
Number of pin contractors	900	240
Grand total cost saving (RM per month)	0	3,070,824

Through these improvements, FEM managed to eliminate bent pin and spark defects which brought a significant increase in productivity. The company is making a breakthrough in the market as it has surpassed customer satisfaction as well as significantly increased its profit margin. With the ICC initiative, non-value added activities have been eliminated and FEM is able to have total cost savings of RM3 million simultaneously. This has also enhanced customer experience and confidence towards FEM and for the firm to expand into a larger market to fulfill customer demands.

Capacity to Innovate

Innovation is the process of taking new ideas effectively, profitably and it is essential for firms to progress, expand and penetrate new market. Firms must put innovation at the centre of business to be more productive, responsive and inclusive. In view of this, firms need to leverage on their resources to demonstrate creativity and generate more ideas, strategic business alliances and optimising the use of big data and build a strong R&D culture as a pre-requisite among employees.

TERATO TECH SDN. BHD.

Harnessing the Intelligence of Employees

From a humble beginning of a two-man operation in 2008, Terato Tech has now grown into a company with 40 young talents. In 2009, the company was granted MSC-status. It also has received numerous awards such as the 2011 Frost and Sullivan Most Innovative Service Provider, 2011 Best of Startup APICTA (merit) and listed as a finalist in Red Herring Asia 2013. The company provides a conducive workplace environment to foster innovation among employees by treating them like family members in providing free breakfast and lunch. It also allows for a flexible dress code as employees are from the younger generation and are more casual and relaxed in their dressing styles.

To add value to their job functions, the company also conducts sharing sessions and provides mentorship in computer programming. This gives employees an opportunity to enhance their skills in computer programming and computer coding. There are also other rewards to help generate incentives for long-term employment and improve product innovation.

With just a tablet in hand, Terato Tech has transformed the restaurant business into one that is hi-tech and appeals to all generations. It is the first company to develop a product called "SLURP" by utilising available technology in the market, thus making it cheap and affordable to restaurants.

It is an innovative design that maximises point of sale response time to improve efficiency. Outlet settings, items and process can be controlled and monitored from the headquarters. Its Remote Ordering Technology enables customers to place orders on their own without hassle. This also optimises the business with on demand sales analytics on the cloud. Data does not go missing and there is a 24/7 backup. Real time data synchronisation is the essence whereby sales reports can be accessed anywhere.

IMPERIAL GARMENTS (M) SDN. BHD.

Sharing the Wealth to Foster Innovation

Imperial Garments provides a workplace environment to foster innovation among employees by wealth sharing practices. The wealth sharing is through the Productivity-Linked Wage System (PLWS), a productivity-based performance measure to ensure that wage increases commensurate with higher productivity increases as well as to ensure that employees obtain a fair share from productivity growth and performance improvement. The company implements two major basic components in their wage system -- fixed components and variable components.

Imperial Garments' PLWS is designed for its manufacturing system to increase efficiency from conventional manufacturing to that of modular manufacturing. In the modular manufacturing system, the work station is restructured to form a dynamic line and workers are regrouped based on their efficiency level. This restructuring of integrated layout with process flow and sequences has balanced the workload among workers and also created a flexible layout. The company's effort has been rewarded with an increase in output of 67% as well as higher take home pay for its workers of about 74%.

Fix Components	Variable Components
Basic salary (RM36.10/day) Meal allowance (RM1.20/day) Attendance allowance (RM1.50/day)	Piece Work Earning (PWE) which is based on the output produced by each modular team *PWE = $\frac{\text{Output x SMV}}{\text{Working minute}}$ x Yield Rate • Standard Minute Value (SMV): standard time needed for one worker to complete the work • Yield Rate: one standard price set by employer based on the difficulty and complexity for each work • Working minute: duration for normal working days in minutes • Output: quantity that can be produced in one day by one modular group

Benefits of PLWS

Individual (Taken home pay)	Conventional Manufacturing	Modular Manufacturing
Output	300 pcs	500 pcs
SMV	1.2 min (tie needed to sew one pair of front pockets for pants)	35 min (time needed to sew one complete garment in a team)
Yield rate	RM32	RM32
Working minute	500 per worker	14,000 min (500 min x 28 workers)
*PWE	RM23.04	RM40.00

Company	Impact	
Cost savings-average piece rate (RM/Dz)	RM1.50	11%
Time savings-1st batch throughput time	Reduced 2 days	67%
Wastage reduction • Sewing works in progress (WIP) • Attendance rate	 • Reduced 1.5 days • Improved	 • 43% • 4%

PLUS MALAYSIA BERHAD

From Ideas to Reality

PLUS Malaysia Berhad (PLUS), the largest toll expressway operator in Malaysia, emphasises on three crucial elements for its service delivery; market place, community and environment. This is to ensure that the facilities provided by PLUS are always in their best condition for the safety of road users while minimising the environmental impact to society.

The high incidence of missing cases of maintenance service doors* for street lighting due to vandalism compelled PLUS to implement the ICC tool and technique to reduce time wastages, maintenance costs and electricity. The idea from the ICC findings brought about the development of a new screw, which is known as the R5o6 screw, to prevent vandalism. The installation of this new screw on 2,103 street lights along its highway had helped PLUS to save RM336,480 annually and to achieve zero-rate vandalism. Additionally, the R5o6 screw is now in the process of being patented for commercialisation.

Matrix Before and After ICC Project

Description	Before	After
Cost of maintaining street lightings along the Gelang Patah Interchange highway (RM)	399,570	63,090
Cost saving using R5o6 screws along the Gelang Patah Interchange highway (RM)	0	336,480
Number of customer complaints	7	0
Number of vandalism cases of street lighting	80	0

** Note: The maintenance service door is the metal plate that covers the internal electrical fittings (fuse, cable and termination box) attached to street lights*

MAHKOTA MEDICAL CENTRE

Strategic Business Alliances

Leveraging on the health tourism industry, Mahkota Medical Centre has established strategic business alliances and networks with hotel groups, budget airlines, taxi companies and insurance services. Among the initiatives are discount cards for patient's family members, a one-stop service centre for patients and their families to purchase air tickets from budget airlines, taxi services and insurance services.

The hospital has also set up offices abroad to attract patients who need specialised treatment by offering short-term treatment packages which include the cost of surgery, hospital accommodation and medicine.

Mahkota Medical Centre has been able to attract patients from nearby countries, namely Indonesia and Singapore. It attends to about 300,000 patients a year and 30% of its patients are from abroad.

LKL ADVANCED METALTECH SDN. BHD.

Innovate to Exceeding Customers Expectation

LKL Advanced Metaltech, a wholly owned subsidiary of LKL International Berhad, is a home-grown Malaysian company producing medical and healthcare beds, peripherals and accessories for the healthcare sector since 1996. It specialises in medical beds, patient transport trolleys, medical carts, instrument trolleys, examination tables and other medical peripherals and accessories. Its products are recognised for their outstanding quality and complemented by excellent after sales service. This has enable the company to gain the trust and confidence of healthcare providers locally and globally.

In pursuit of satisfying its customer, LKL gathers feedback from customers during servicing and maintenance sessions. The information is then extended to the R&D team for them to re-engineer and innovate LKL's products for better solutions. Having advanced technology in place, it was one of the first local companies in its industry to acquire the use of a robotic welding system in its production processes. LKL has invested in R&D facilities with the R&D team comprising qualified and experienced engineers. R&D activities are carried out with the assistance of 2D and 3D computer-aided design and drafting software applications, thus improving the precision manufacturing process.

Another feature in exceeding customer expectations was the invention of the Longitudinal Patient Transfer Trolley (LPTT) system. Modified from lateral patient transfer trolley system, the LPPT system increases the convenience of transferring a patient by way of downwards sliding from one trolley to another trolley or bed to cater for narrow hospital corridors and tight spaces. LKL focuses on the need to raise the overall quality of patient care in healthcare institutions by enhancing the aesthetics of the innovations for a comfortable and hassle-free hospital stay for patients and caregivers alike.

STRENGTHENING FIRMS BEYOND EFFICIENCY

Highly innovative firms can be high growth firms in terms of the magnitude of their output, employment and productivity.

The question is: Are our frontier firms innovative, or are they high growth firms?

Innovation is the key to technology adoption and creation as well as designing policies to enhance growth and development. Therefore, studying the determinants of innovation is a crucial first step in understanding how firms catch up to the technology frontier.

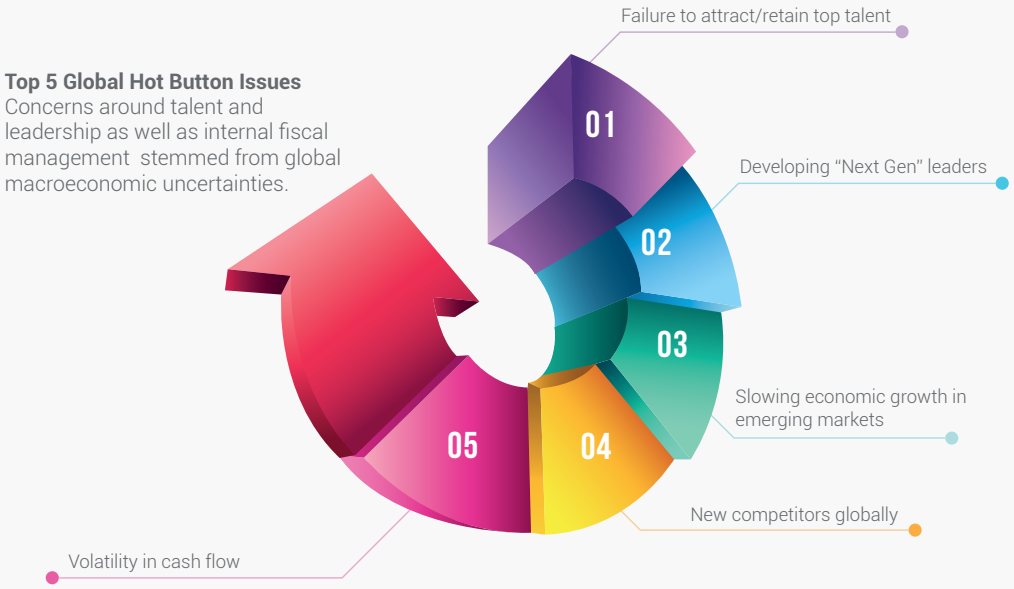
A firm's capacity for innovation is shaped by many factors, including access to finance, competitive environment, and market demand. Besides close collaboration with universities and research institutions, the firm's ability to innovate ultimately depends on having people with the right skills, attitudes and behaviours. In addition to job-specifications, technical and employability skills, individuals need to have "innovation skills" in order to contribute successfully to corporate innovation performance. This includes skills for creativity, problem-solving, risk-taking, relationship-building and implementation.

In managing new business complexities, business leaders need to create an environment in which employees are able to exercise both their autonomy and working together. Creating autonomy harnesses the people's flexibility and agility while cooperation intensifies the effect of efforts through synergy. These combined with digital technology will accelerate the firm's productivity. However, Malaysian firms are facing challenges in identifying, nurturing and engaging their current talents as well as grooming new leaders to ensure their future success. This is also in recognition of The Conference Board (TCB) CEO Challenge 2016 survey where global business leaders had highlighted their concerns on talent and leadership as the top two challenges stemming from uncertainties in the global macroeconomic landscape.

Global business leaders highlighted strategies to address the business challenges to improve organisational capabilities to inspire innovation. This is made possible by using a wide variety of strategies across organisational functions. They range from improving performance management to raising employee engagement to providing employee training and skill development to create a consumer-centric and innovation-focused culture. This will support organisational agility and strengthen the process improvement and cost management. It is imperative to build a strong firm culture to drive performance, from operational efficiency to better customer service, greater talent attraction and retention, higher levels of business performance and breakthroughs in innovation.

Figure 3.8

Global Hot Button Issues of CEO Challenge 2016



Source: CEO Challenge 2016, The Conference Board

ENHANCING PRODUCTIVITY THROUGH BETTER GOVERNANCE

It is often said that government has no business in business but should facilitate businesses to thrive by providing a conducive environment. The challenge for government is to create economic dynamism and productivity growth in all spheres and sectors. This calls for the introduction of appropriate strategies for productivity growth in private sector development and the creation of a well-trained and skilled workforce to meet the demands of businesses.

Malaysia aims to achieve developed nation status by 2020 and is undertaking various initiatives to enhance its competitiveness while having sustainable development and inclusive growth. Under the 11MP, Malaysia needs an average growth of 2.7% in real public investment for it to attain its visionary aspirations. Hence, the importance of an enabling regulatory environment for businesses and the Rakyat is a key priority for the Government. Implementing good regulatory practices is seen as central in improving the regulatory environment.

A conducive business environment is essential to encourage higher public investment. Thus, the role of the Government as an enabler to provide Good Regulatory Practice (GRP) to facilitate businesses for the ease of doing business.

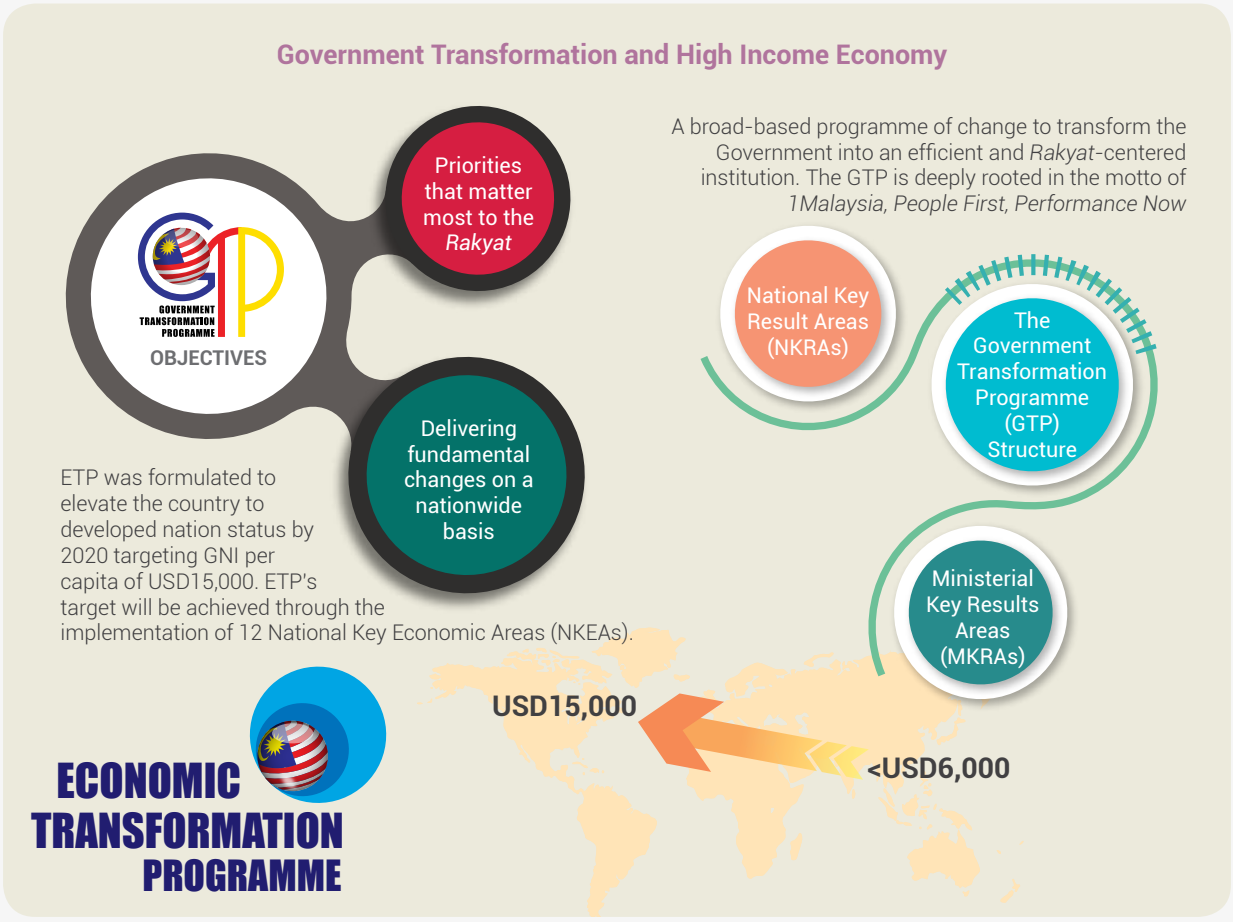
Malaysia, upon realising the potential of reforms through GRP principles as evidenced by the improvements by Organisation for Economic Co-operation and Development (OECD) members in the last 30 years, has embarked on its own regulatory reforms since 2011 to enhance economic growth and competitiveness. Although the private sector has been targeted to spearhead the country's economic growth, the Government will play a pivotal role to facilitate a regulatory environment that promotes greater productivity and competitiveness.

WHY DOES MALAYSIA NEED GRP?

Malaysia needs GRP to have an ecosystem where all regulations are effectively addressing the desired policy objectives and serving the needs of the country in a balanced, equitable and transparent manner. It is to reaffirm that the rule-making process will continuously be improved to ensure that cumbersome regulations that affect businesses and discourage competition can be reduced or avoided.

GRP is needed:

- To address gaps in the management system for regulations;
- To standardise regulatory and rule-making processes with emphasis on public consultation and measurement;
- To be consistent with international development on regulatory coherence; and
- To adhere to the World Bank's recommendation that Malaysia has to have GRP embedded in its regulatory development process.



By implementing GRP for businesses and other applications affecting the *Rakyat* , this will bring about greater consciousness to improving the quality of existing regulations. This will serve to enhance Malaysia's competitiveness in a sustainable and inclusive manner besides improving the environment for the well being of Malaysians. External economic challenges also make it imperative for the country to rigorously pursue measures to eliminate inefficiencies and wastages. In this context, maintaining an enabling and responsive regulatory environment for businesses as well as greater cooperation and coordination among various ministries and agencies for an improved regulatory environment is of utmost priority for the Government.

GRP is aimed at transforming the rule-making process within the Government and ultimately modernises business regulations to ensure the quality of new regulations as emphasised under the 10MP (2011-2015) and the Economic Transformation Programme (ETP).

The Government is continuously striving to maintain and enhance the efficiency and competitiveness of the private sector to generate people-centric growth. GRP has proven to be effective in harnessing national efforts and resources for sustaining economic growth. MPC has been mandated to spearhead a comprehensive review of business regulations and improve regulatory processes and procedures in the country.

The objective is to increase productivity and competitiveness under various National Key Economic Areas (NKEAs) as defined in the ETP. MPC will review and recommend changes to existing regulations and policies with a view to removing or reducing unnecessary regulatory burdens and ease the way of doing business.

GRP will transform the rule-making process within the Government to bring about a conducive business environment for greater productivity and economic growth.

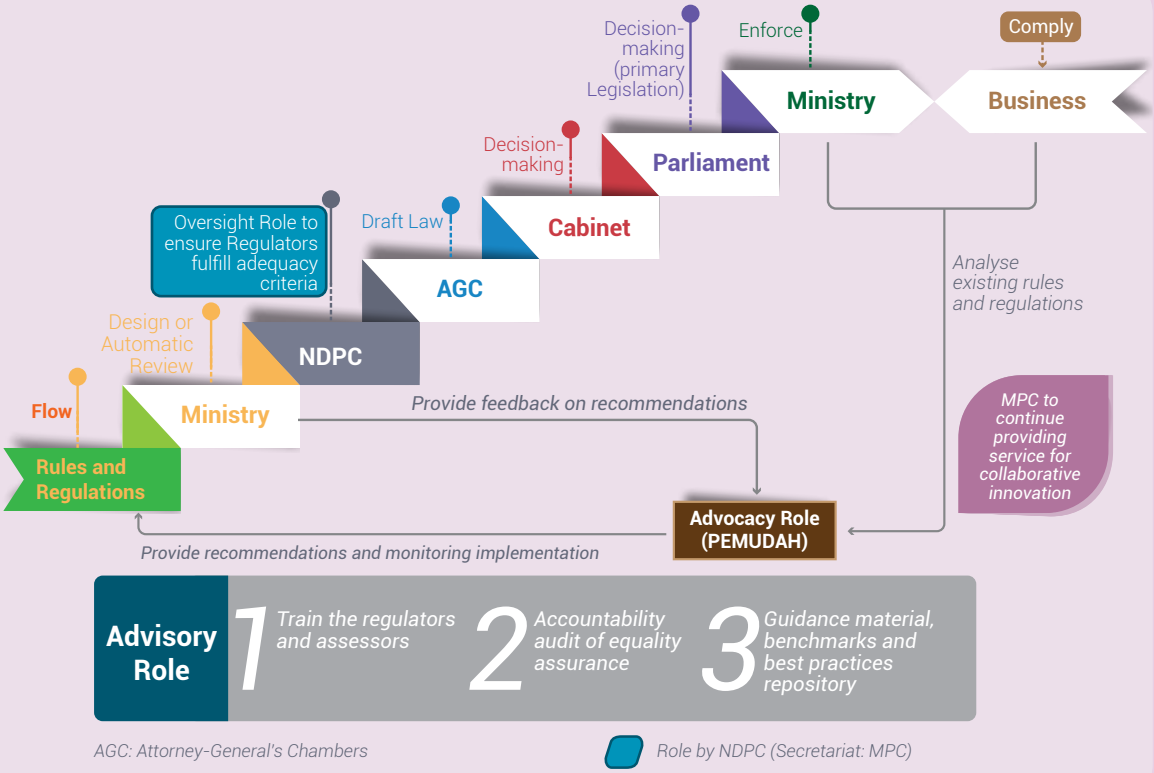
The National Policy on the Development and Implementation of Regulations (NPDIR) sets out the policy and principles for the management of the regulatory environment through the Quality Regulatory Management System (QRMS). Hence, QRMS introduces the 'oversight' role of the National Development Planning Committee (NDPC) to assess the adequacy of compliance to GRP as outlined in NPDIR.

NDPC is a high-level planning coordination committee chaired by the Chief Secretary to the Government. Another critical feature of NPDIR is the requirement to undertake Regulatory Impact Analysis (RIA) and the preparation of Regulatory Impact Statement (RIS) in regulatory development. Regulators are required to submit the RIS to policy makers to assist them in decision-making. Before submission to the decision makers, the RIS must be submitted for adequacy assessment by NDPC.

The need to maintain a system to manage the regulatory process is important. This can be done by reviewing and recommending changes to existing regulations and policy with a new to remove unnecessary rules and compliance costs and improves the speed and ease of delivery.

QRMS was reviewed to give attention to both the ex-ante or forecast impact assessment and ex-post or actual impact evaluation of regulations as part of an evidence-based approach to decision-making and in line with the 'Recommendation of the OECD on Regulatory Policy and Governance'.

FRAMEWORK ON QUALITY REGULATORY MANAGEMENT SYSTEM (QRMS)



Roles and Functions of the Key Entities in Rule Making Process

Various entities are needed to coordinate and implement improvements in the rule-making process. They include the Special Task Force to Facilitate Business (PEMUDAH), National Development Planning Committee (NDPC), Attorney-General's Chambers (AGC) and the National Institute of Public Administration (INTAN). The key functions of these entities include analysing the regulatory environment, developing new business regulations, offering legal advice and training public servants respectively for better service delivery for the benefit of the *Rakyat*.

Entities Related	Roles and Functions
Special Task Force to Facilitate Business (PEMUDAH)	Reviews the status of the public and private service delivery system in terms of processes, procedures, legislation and human resources and to propose new policies for improvements.
National Development Planning Committee (NDPC)	Entrusted to assume the role of gatekeeper for improving the process and quality of developing new business regulations and examine RIS for adequacy.
Attorney General's Chamber (AGC)	Responsibles for offering legal advice on the matter to the Cabinet or any Minister. Advice relates to matters concerning the regulatory quality of the proposal detailed in RIS, especially in relation to legal compliance on constitutional matters.
National Institute of Public Administration (INTAN)	Responsible for providing training on RIA

MODERNISING BUSINESS REGULATIONS

Modernising Business Regulations (MBR) aims to increase productivity and market growth as well as generate compliance cost savings of up to RM1 billion annually by eliminating unnecessary rules and procedures. In line with this aspiration, improving the quality of existing regulations and ensuring good quality regulations are much needed by the business environment (Figure 4.1).

In MBR, a comprehensive review of business regulations, including improving licensing processes and procedures was developed. Various key initiatives have been introduced including launching of NPDIR, Reducing Unnecessary Regulatory Burden (RURB), initiatives on Ease of Doing Business, promoting Business Enabling Framework and conducting comprehensive scanning of Business Licensing (Figure 4.2).

Figure 4.1

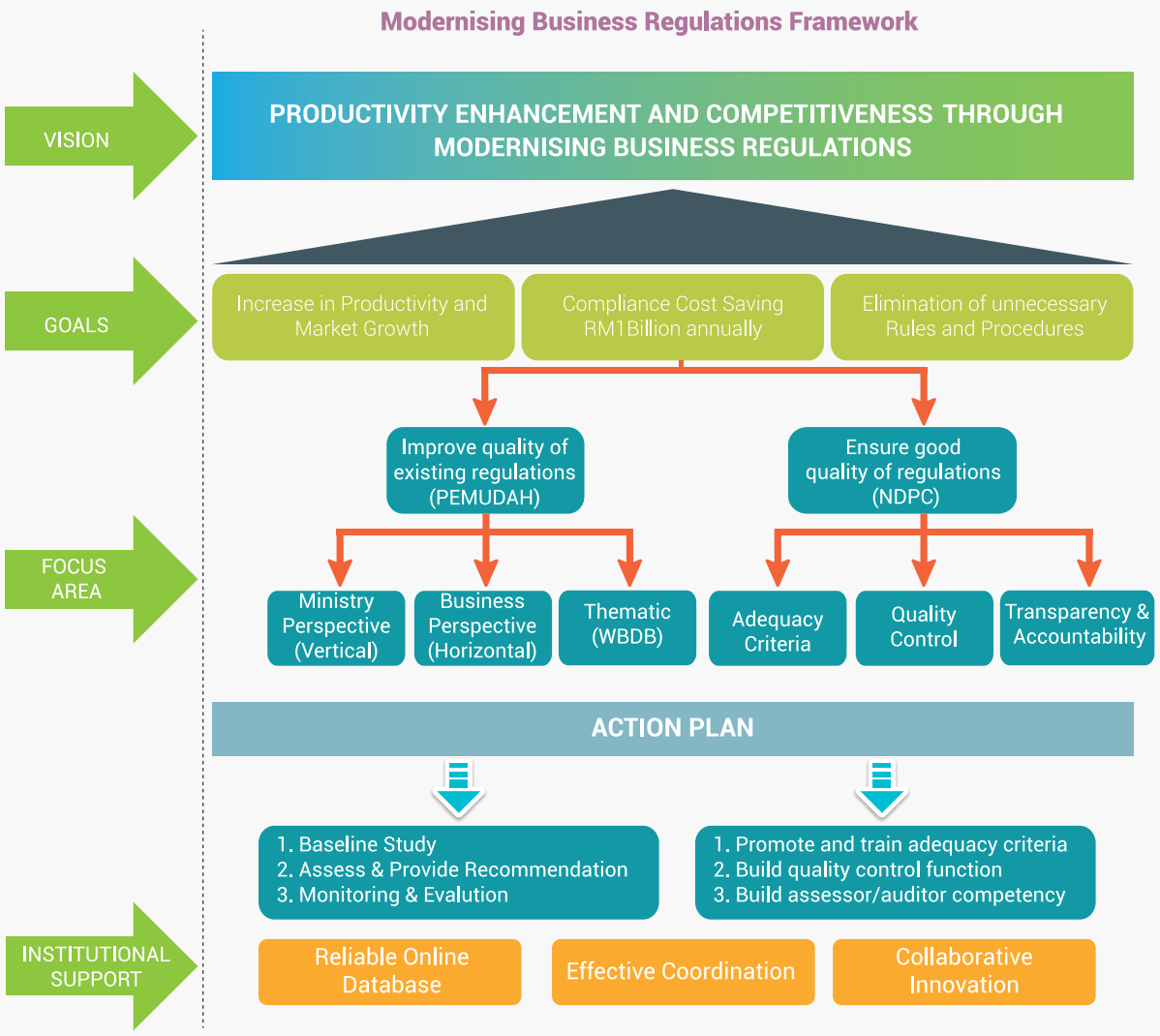
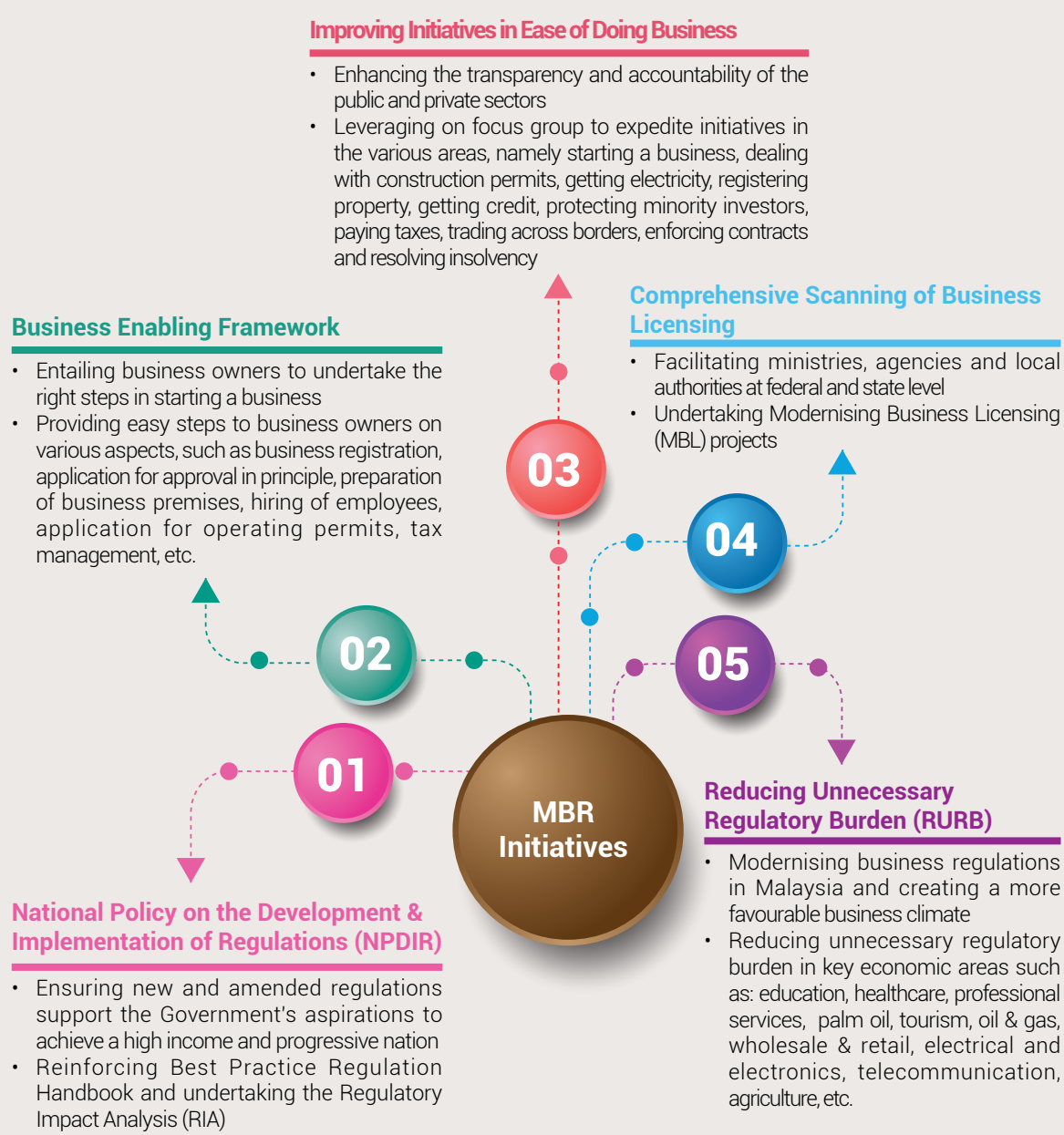


Figure 4.2

Modernising Business Regulations Initiatives in Malaysia



IMPROVING EXISTING REGULATIONS

As the country aspires to be a developed country under Vision 2020, there has been increasing awareness to review present set of regulations to further improve business environment in Malaysia. As such, the Government initiated various measures namely, Reducing Unnecessary Regulatory Burden (RURB) and Modernising Business Licensing (MBL), to improve existing regulations that govern all kinds of business activity in the country.

Reducing Unnecessary Regulatory Burden

Unnecessary regulatory burden happens when there are inefficiencies in the regulatory regime. These are prevalent in cases where the regulation is poorly designed or written, and/or obsolete.

Taking cognisance of the public's interest in the Approved Permit (an import and export licence based on the Customs Act 1967) for the import of cars, the Government decided to initiate a review of the entire process to make the application less cumbersome.

TYPES OF UNNECESSARY REGULATORY BURDENS

1. Excessive coverage by a regulation which affects more economic activities than intended or required to achieve its objective (includes 'regulatory creep')
2. Subject specific regulation that overlaps other generic regulations
3. Prescriptive regulation that unduly limits flexibility such as preventing businesses from:
   - using the best technology or adopting better practices;
   - making product changes to better meet consumer's demand; and
   - meeting the underlying objectives of regulation in different ways.
4. Overly complex regulation
5. Unwieldy licence application and approval processes, excessive time delays in obtaining responses and decisions from regulators
6. Unnecessary requests to provide more information than needed
7. Unnecessary requests to provide the same information more than once or already available with other authorities
8. Rules or enforcement approaches that inadvertently result in businesses operating in less efficient ways
9. Unnecessarily invasive regulator behaviour, such as overly frequent inspections or irrelevant or duplicating information requests

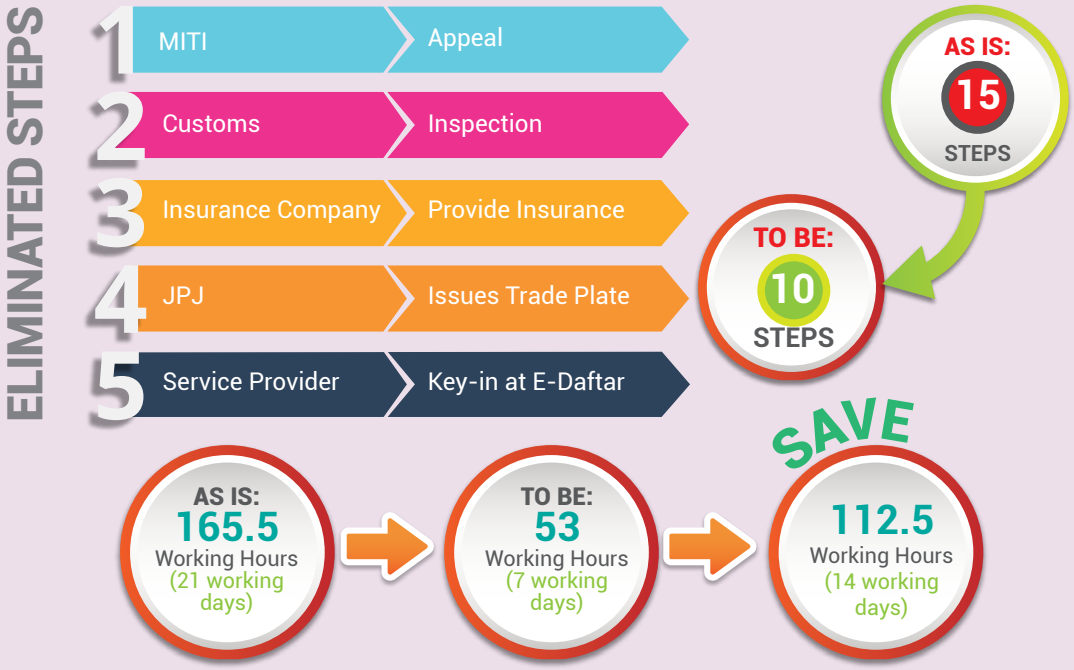
PROCESS IMPROVEMENT THROUGH RURB ON INDIVIDUAL VEHICLE APPROVED PERMIT

A study on Process and Procedure for Individual Vehicle Approved Permit (AP), the Government policy on private APs is such that they can be considered for Malaysians working or studying abroad, on a full-time basis, to assist them to bring back their privately-owned vehicles that were used throughout their overseas stay.

A private AP is not an incentive or the right of all Malaysians but is given according to conditions set forth by the Ministry of International Trade and Industry (MITI). Among the objectives of the project is to review the process and procedures involved when the vehicle arrives at the port until it is on the road. It is also intended to address several issues related to individual vehicle regulations which hinder efficiency and productivity. This process chain involves several main agencies, MITI (AP application), Customs (excise duty evaluation), PUSPAKOM (inspection) and JPJ (registration).

Throughout the project, a series of consultations, meetings and workshops with the main stakeholders were carried out to understand the process and suggest new ways to process applications for individual vehicle APs that are better, easier, faster, and cost effective. The project team agreed to propose a new work process with an estimated compliance cost savings of RM5.4 million annually.

Process Improvement through RURB on Individual Vehicle AP



Note: Detailed current and proposed process flow of individual vehicle AP process can be referred to Appendix D.1 and D.2

Modernising Business Licensing

PEMUDAH was tasked with the responsibility to enhance the performance in the public delivery system and to facilitate business investments, initiated the Modernising Business Licensing (MBL) in March 2011. This was through the establishment of a Focus Group on Business Process Re-engineering (FGBPR). FGBPR has been working with 23 ministries, including two departments in the Prime Minister's Department – Islamic Development Department of Malaysia (JAKIM) and Land Transport Commission of Malaysia (SPAD); and 13 state governments to review all procedures related to the application of business related licences. The objective of MBL is to make the business environment more efficient and conducive by reducing regulatory burden and enabling increased productivity for businesses and the economy as a whole.

The FGBPR in Business Licensing, addresses the need to step up efforts to reduce obstacles in doing business by removing unnecessary rules and compliance costs, and to create new value-added services through changing the mind-set among federal and state authorities towards expediting the delivery system.

Figure 4.3

Key Actions Under the Modernising Business Licensing Programme

1. Reducing the stock and reviewing the process and procedure in approving of business licenses
2. Reviewing the relevancy of the licenses, thus improving the quality of new licences
3. Reducing unnecessary regulatory burden, thus eliminating red tape
4. Delivering productivity benefits and real measurable savings to the business community
5. Facilitating feedback and comments to provide a platform for the business community
6. Demonstrating better transparency of the government's rule-making process and licensing administration

In addition, the Master Plan for Small and Medium Enterprises (SMEs) 2012-2020 highlighted the integration of business registration and licensing as one of the six High Impact Programmes (HIP) to spur the transformation of SMEs. In line with this, FGBPR has undertaken several initiatives in 2015 to streamline and make business licences applications and processing more efficient at local authorities (Figure 4.3).

The Government has re-aligned its functions to meet the objectives of the 11MP. FGBPR will focus on expanding the adoption of the NPDIR and conduct regular regulatory reviews on ministries and agencies. FGBPR will also publish best practices documents and a business regulatory review guidebook to help the business community to be actively involved in this initiative. Along with that, FGBPR's communication action plan will also involve public education programmes through workshops, seminars and public engagements and consultations with related stakeholders.

Figure 4.4

Streamlining Licence Application

- Improving coordination by eliminating overlapping or conflicting requirements by different licensing bodies
- Gathering information and understanding about the varying impact of licences to find out how different businesses comply with regulatory requirements
- Using online portals to improve the information provided by approval or licensing authorities regarding compliance
- Providing businesses with more lenient regulatory treatment or exemptions
- Improving work systems to reduce work cycle, eliminating non value-added activity and standardising procedures
- Developing a composite form based on three categories of the proposed licence, namely the Business Premises and Advertising Licence, Hawker Licence and Businesses Permit

BUSINESS LICENSING HIGH IMPACT PROJECT

The process of streamlining and simplifying licences undertaken jointly by MPC. MAMPU and Implementation Coordination Unit (ICU) shall ensure that all business licences are made available online through Business Licensing Electronic Support System (BLESS). The MBL initiative was incorporated into the Business Licensing High Impact Project for SMEs in 2015.

The objective of this project was to create a single registration point and business licensing application by interfacing the current National Business Registration System and the BLESS application. This move further simplifies the procedures and reduces time and costs of conducting business, especially for SMEs in Malaysia.

BLESS is a portal that provides information and facilitates companies to apply for licences or permits to operate businesses in Malaysia.

It is a virtual One-Stop Service Centre that assists companies to obtain business licences in a timely and organised manner. BLESS is administered by the ICU of the Prime Minister's Department of Malaysia.

BLESS facilitates an applicant to select the relevant licences, complete and submit the application online and track the progress of the application until the notification of the result. At the same time, BLESS provides an online platform for the licensing agencies to communicate directly with the applicant for any clarification and justification on the licence application. BLESS has proven to be an effective platform which saves time and resources for both parties.

National Business Registration System and BLESS Integration

BLESS
Business Licensing Electronic Support System
Business Made Simple

- Business Licensing Information Portal
- On-line Business Registration

A key activity under MBL is a comprehensive scanning or stock-take of all business licences in Malaysia with the aim of reducing the stock of business licences. This was undertaken through phased reviews of regulations by Government ministries and agencies.

Other actions include initiatives focused on improving the quality of new licences and in enhancing the government-business interface. MBL adds value and integrity to the public delivery system by introducing more simplified business licensing procedures and making them easier, more transparent and cost effective when dealing with the Government in line with the ETP.

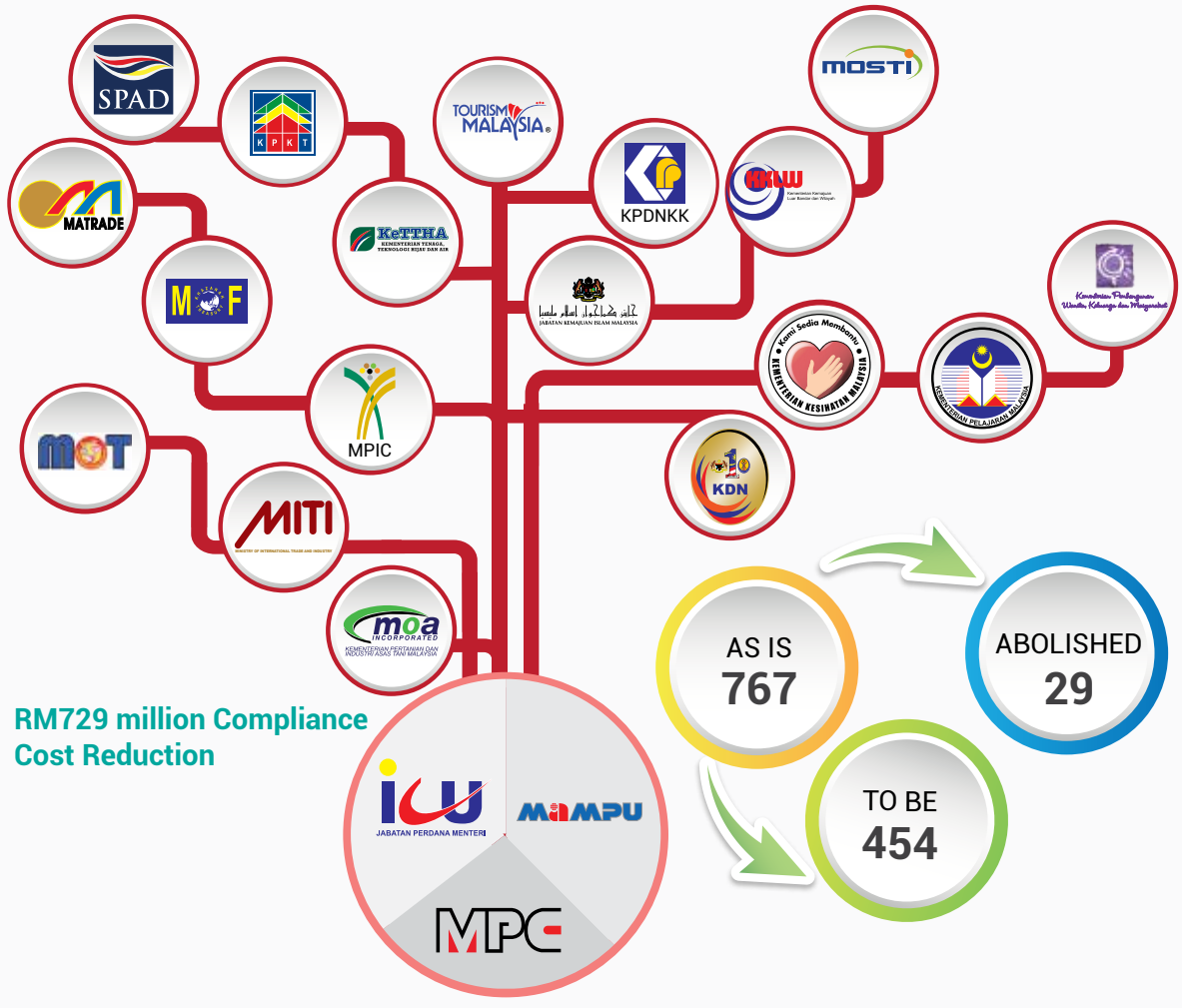
The first review of regulations and business process re-engineering (BPR) related to the application of business-related licences at ministries and agencies of the Federal Government was carried out from 2011 to 2014.

The review resulted in 454 of 767 licences being identified for elimination and simplification while 29 licences were abolished (Figure 4.4). It is expected that the MBL initiative at the federal level will generate a reduction of an estimated RM729 million in business licence compliance costs. The simplified licences will be automated or integrated into the BLESS portal.

The MBL project demonstrates the will and capacity of the Government to undertake necessary reforms to sustain Malaysia's attractiveness for domestic and foreign investors. It also reflects the Government's commitment to provide a conducive environment for businesses to enhance their competitiveness and economic growth.

Figure 4.5

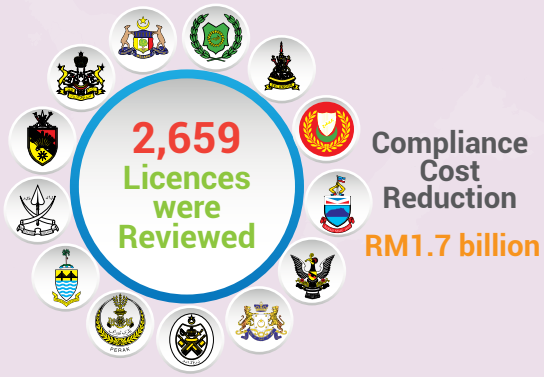
Regulations and Business Process Re-Engineering at Federal Level, 2011-2014



ACHIEVEMENT OF MODERNISING BUSINESS LICENSING AT STATE LEVEL

The structural reforms underlined under the GTP include improvements in the public service delivery system. This initiative is also aimed at accelerating the business licensing processes by adopting a clear governance structure to ensure efficient execution and effective compliance, thus reducing redundancies and overlaps.

Reviews carried out at the state Government level involved 13 states, namely Pahang, Negeri Sembilan, Melaka, Johor, Perak, Selangor, Pulau Pinang, Kedah, Perlis, Kelantan, Terengganu, Sarawak and Sabah. A total of 2,659 licences were reviewed, re-engineered and reduced to 1,915 composite licences involving an estimated compliance cost savings of RM1.7 billion.



The MBL project was pioneered by the state of Pahang in 2014 and involved the cooperation of 16 organisations, namely 11 local authorities and five state departments, including the Land and Mines Department, Pahang Forestry Department, *Jabatan Agama Islam Pahang* and Water Regulatory Authority of Pahang. The implementation started with a survey to identify and categorise unnecessary licences, permits, registrations and inspections. A total of 214 was reviewed with 60% of these re-engineered.The review team also assessed the application processes, rules and guidelines, need for supporting documents as well as appropriateness of the application forms. More than 200 business licences under the jurisdiction of the state local authorities were composited into three main categories.

An example of the MBL project in Pahang is the Raub District Council (Majlis Daerah Raub - MDR) which is the local authority administering the town of Raub, Pahang. MDR responsibilities include public health, town planning and economic development of the town. The implementation of MBL at MDR began with a baseline study to obtain its licensing profile and the processing of licences.

A common problem faced by the business community in Raub was the long waiting time for approval of business licences. An MDR officer was required to conduct on-site inspection to validate information provided by the applicants.

The applications also required feedbacks from other technical agencies related to their respective areas of responsibility or jurisdiction. Finally, a committee chaired by the President (Yang di-Pertua) of MDR will meet to review the applications.

MDR has simplified and improved its business licensing system by adopting more streamlined procedures, having licensing approval based on a risk-based approach, redesigning the application form and strengthening rules and compliance. As a result, the lead time for the approval of licences was reduced to 20 minutes from 30 days previously.

By implementing the MBL initiative, MDR was able to improve on service delivery, increase customer satisfaction, reduce operational cost and increase revenue collection.

Businesses, especially SMEs, often have to deal with numerous rules and regulations imposed by Government agencies and departments. Compliance with these rules generally entails added costs where compliance costs refer to all costs incurred by them to comply with licensing procedures. The high impact business licensing project in Pahang is estimated to have induced cost savings of about RM150 million for the business community.

Modernising Business Licensing

Business Premise Licence and Advertising

1. Business Premise Licence
2. Scrap Items Business Licence
3. Laundry Licence
4. Food/Restaurant Establishment Licence
5. Entertainment Licence
6. Industrial Licence
7. Advertisement Licence
8. Beauty and Traditional Massage Centre Licence
9. Hotel/Resort/Guest House Licence
10. Petrol Station Licence
11. Nursery/Care Centre Licence
12. Barber Shop Licence
13. Car Workshop Licence
14. Warehousing/Storage Licence

Hawker Licence

15. Stall/Market Licence
16. Hawker Licence – Hawker/Static Hawker/Itinerant Hawker/Push-cart Hawker/Night Market Vendor/Farmers Market
17. Night Market Licence

Business Permit

18. Temporary Business/Seasonal Fruit Permit
19. One Day Market/Night Market Permit
20. Entertainment/Expo/Carnival Permit
21. Sidewalk Permit
22. Festive/Ramadhan Permit
23. Advertisement/Banner/Bunting Permit

ENSURING GOOD QUALITY REGULATIONS

Having good quality regulations is necessary for complementing a whole list of pragmatic economic policies initiated by a country. To achieve good quality regulations, all regulations must be reviewed using Regulatory Impact Analysis (RIA).

Regulatory Impact Analysis

RIA is a regulatory tool that examines and evaluates the likely benefits, costs and effects of regulations. It is a systematic process of questioning regulatory processes at the beginning and producing an analytical report that can be used to increase the understanding of the problems, evaluate alternatives, identify possible indirect impacts of governmental action and to ensure that the action is justified and appropriate. It is a key requirement under the NPDIR that aims to support the increased effectiveness and coherence of regulations.

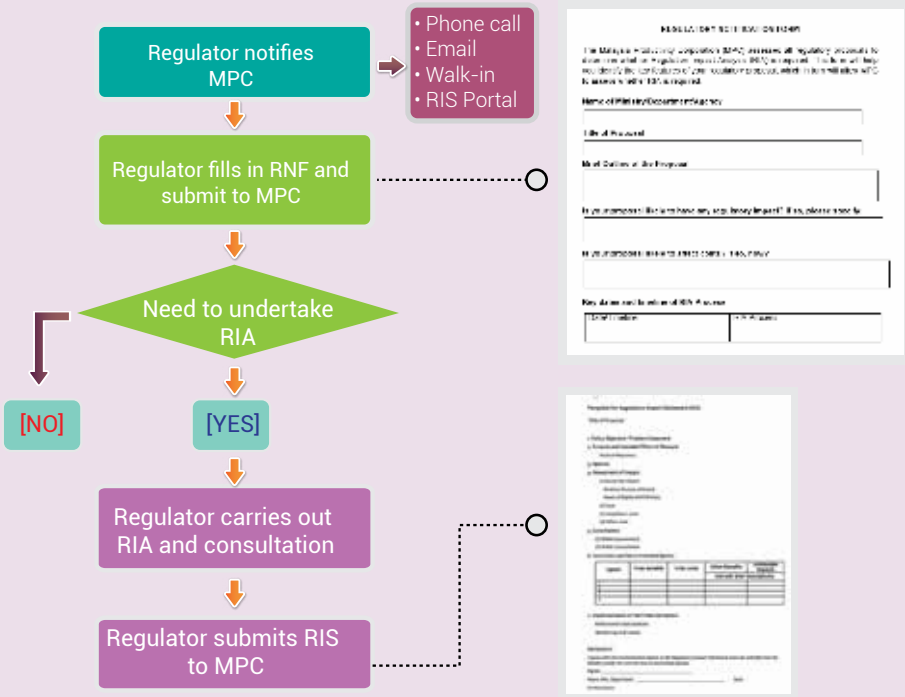
It is best used as a guide to improve the quality of political and administrative decision-making while also serving the important values of openness, public involvement and accountability. RIA is applicable to all policy formulations by the Government that are likely to have an impact on businesses. In order to identify the need for RIA in their regulations, regulatory bodies are advised to submit their enquiries to MPC.

ASSESSING THE NEEDS FOR REGULATORY IMPACT ANALYSIS

In order for regulators to determine the need for RIA in developing new or reviewing existing regulations, there is a need for regulators to notify MPC and submit the Regulatory Notification Form (RNF) to MPC. MPC will then assess the submission and validate the need for RIA.

In cases when RIA is required, the regulators have to carry out RIA and in consultation with the support facilitated by Regulator Coordinators (RCs) and MPC. Subsequently, regulators need to submit their Regulatory Impact Statement (RIS) to MPC.

MPC will assess the RIS and table to NDPC for endorsement. After a decision has been officially announced, the RIS will be published by MPC and posted in the GRP portal (www.grp.mpc.gov.my).



Note:
1) RNF and RIS can be downloaded from GRP Portal (www.grp.mpc.gov.my)
2) Regulator – an authority, usually a department within a ministry or a statutory body established by an Act of Parliament. The regulator has the authority to develop, review and maintain the regulations that it enforces.
3) Regulatory Coordinators (RC) are officers appointed by a Ministry or a Regulator under the requirements of the National Policy on the Development and Implementation of Regulations (NPDIR). They act as the focal points for the Ministry or Regulator to oversee the implementation of NPDIR.

SEVEN ELEMENTS OF THE REGULATORY IMPACT ANALYSIS: A CASE STUDY OF THE SAFE DRINKING WATER ACT

Safe drinking water is a vital element of public health and social well being. As a result, the National Drinking Water Quality Surveillance Programme (NDWQSP) was established to protect the public against health hazards and to improve living conditions by rationally managing the quality and level of hygiene of drinking water coming from all drinking water systems. The RIA on this altogether included seven elements: a problem statement; objectives; options; impact analysis; consultation; conclusion and recommendations; and implementation of the preferred option.

Starting from the problem statement, it was found that there was no subsidiary regulation on minimum drinking water quality standards and that the minimum drinking water quality standard currently being adopted and used cannot be enforced as a mandatory compliance.

There has also been no enforcement taken on any violation. Hence, it was decided that there was a need to have an Act on safe drinking water for the protection of public health and to ensure that water purveyors are obligated to take necessary remedial actions.

It was also clear that the objective for this was to protect the public against health hazards through the provision of safe drinking water. This would entail prescribing a Minimum Drinking Water Quality Standard to ensure a continuous drinking water quality improvement towards achieving 100% compliance to the Drinking Water Quality Standard. This would also lead to ensuring the sustainable performance of drinking water supply systems and to ensure the 100% effectiveness of remedial actions taken by water purveyors and distributors.

Altogether, four options were proposed and examined. Following an impact analysis of the cost benefits, it was determined that Option 4 was the best and preferred option. Option 4 entailed adopting the proposed Safe Drinking Water Act (SDWA) to harmonise with the current regulatory environment and optimise with promotional campaign activities on best practices to ensure the provision of safe drinking water. Option 4 was also chosen because the cost needed to comply with the option is less than the other options. Additional cost in terms of human capital and changes in the water supply management were required when Option 4 was implemented but it would be worth the exercise and effort if it guaranteed a better and systematic protection of the public against health hazards through the provision of safe drinking water.

OPTION	COST-BENEFIT ANALYSIS
1	The cost of both qualitative and quantitative impact for Option 1 outweigh the benefits.
2	The cost of both qualitative and quantitative impact for Option 2 outweigh the benefits.
3	The benefits of both qualitative and quantitative impact for Option 3 outweigh the costs.
4	The benefits of both qualitative and quantitative impact for Option 4 outweigh the costs. (BEST AND PREFERRED OPTION)

Under the consultation phase, there was a visit to Sarawak related to the drafting of the Safe Drinking Water Bill, a briefing and announcement of the Safe Drinking Water Bill to the water industry in Peninsular Malaysia, a public announcement of Safe Drinking Water Bill to all parties involved in the water industry from all over Malaysia, carried out from the middle to the end of 2011; implementation of an Online Public Engagement of Safe Drinking Water Bill on the official website of the Ministry of Health (MOH) in December 2013, and publicising the compilation of feedback from the Online Public Engagement of the Safe Drinking Water Bill on the official website of the MOH in January 2014.

It was finally recommended that the best option for the Government to guarantee safe drinking water supply to the general public should be Option 4 by adopting the proposed SDWA and harmonising it with current regulations and optimising the promotional campaign activities on best practices to ensure the provision of safe drinking water under the administration of MOH.

By enhancing SDWA through the use of promotional campaign activities, SDWA can easily be implemented and enforced effectively because of the strong support it has received in terms of better awareness and broad acceptance among water purveyors, relevant stakeholders and consumers.

The strategy for implementation of the SDWA in accordance with Option 4 consisted of five main elements for regulatory action in having: a communication plan for ensuring the affected parties are well-informed on the regulation and implementation plans; mechanisms to be adopted to ensure compliance; a compliance and enforcement strategy; means to detect non-compliance; and a monitoring and evaluation plan.

Compliance with Regulatory Process Management Requirements

In 2013, the Government's regulatory reform initiative took a significant step forward with the introduction of the policy and guidelines for implementing GRP. A circular on the NPDIR was issued by the Chief Secretary to the Government on 15 July 2013 requiring all federal ministries and agencies to undertake GRP and RIA processes in developing new and amended regulations.

With the implementation of NPDIR, the Government has sought to reinforce the key elements of accountability, transparency and evidence-based informed decision-making in the rule-making process. This is to ensure all-round regulatory quality, which addresses the concerns of all stakeholders in an effective and equitable manner. It is also to promote and preserve a regulatory environment that is business-friendly and supports the Government's overall development goals.

The Annual Report on Modernisation of Regulations (ARMR) is an effort to inform stakeholders of the improvements that had taken place in the regulatory environment as well as the progress in implementing the NPDIR. The publication of Annual Regulatory Plan in the report also encourages all stakeholders to assume their proper responsibility in the rule-making process. The publication of the ARMR also encourages the greater adoption of GRP to ensure a quality regulatory environment that supports a more responsive and dynamic economic development in Malaysia. The NPDIR seeks to improve the regulatory management system by embedding GRP in the policy decision-making processes of the Government. A summary of the achievements and progress undertaken during 2014-2015 are in table below:

Table 4.1

Status of RIA Activities, 2014-2015

No.	Activities	2014	2015	Total
1	RNF Received	41	54	95
2	Proposal Undertaking RIA Process	27	35	62
3	Exemption (RIA is not required)	8	15	23
4	RNF Under Processing	5	2	7
5	RNF Withdrawn	1	2	3
6	RIS Submission	5	7	12
7	Regulatory Coordinators Registered	297	22	319
8	Number of Regulators Submitted RNF	17	11	28

Out of 95 RNF received from 28 regulators in 2014-2015, 62 proposals underwent the RIA process, 23 were exempted from RIA, seven were under processing for modifications and improvements and three were withdrawn by the regulators. Exemption was given when RIA was not required as the amendments had a minor impact on the business community and were merely administrative in nature, which would not substantially alter the existing regulatory arrangements.

During 2014-2015, 12 RIS were submitted by seven ministries in which five RIS were adequate for the regulatory process management requirements. They will be tabled to the NDPC at the next meeting. Seven RIS are undergoing the improvement process and needed to be resubmitted for assessment.

CHALLENGES IN ENHANCING GOOD REGULATORY PRACTICE IMPLEMENTATION

Based on the assessment by the OECD to create a greater impact and sustain the improvement initiatives, Malaysia has been advocated to put more efforts in the following six areas:

1. Institutionalise GRP
   Institutionalisation would require the development of indicators for the implementation of GRP across the Government, including key performance indicators for top management and using them in the periodic reporting to meetings of secretaries-general of various Government ministries. It also includes the strengthening of regulatory oversight as well as a challenge function in RIA to complement the advocacy and capacity building activities.

2. RIA is an agenda with impacts over the long term
   GRP would have to be embedded into the 11MP and that GRP be prioritised regionally in the post-2015 agenda. The actual impact of the NPDIR also needs to be evaluated within five years of its implementation.

3. Effective communication and reaching out
   An effective communication strategy for Government stakeholders has to be implemented to manage expectations and support the implementation of NPDIR.

4. Create incentives and demand
   Ministries have to embed GRP in their work procedure manuals, work programmes and performance appraisals of their organisational structures so that GRP will not be perceived as additional work for them.

5. Build capability and regulatory literacy
   Building greater awareness and strong support from all regulatory bodies on regulatory literacy has to be implemented. In addition, the delivery of more detailed and higher quality training programmes to cater for the evolving requirement of Government officials and other key stakeholders has to be undertaken. This also necessitates strong support from INTAN.

6. Compliance with Regulatory Process Management Requirements (RPMR)
   NPDIR has to be implemented into phases to encourage compliance for all regulatory proposals while improving regulatory quality on carefully selected strategic proposals.

In addition, the Malaysian Government's initiatives to further enhance the implementation of GRP are as follows:

1. Strengthening and monitoring GRP implementation at the federal level
   GRP has been promoted at the federal level and more than 300 RCs have been appointed from ministries and agencies. Specific training and guidance have been given to carry out the Regulatory Impact Analysis (RIA). Moving forward, the GRP concept and RIA methodology have to be strengthened at ministries that have yet to implement them.

2. Creating awareness of GRP at the state level
   The GRP concept has now been disseminated to selected states as well as local authorities to integrate the established, standardised, structured and systematic way of reviewing business regulations.

3. Creating mechanisms for evaluation review in measuring regulatory performance
   GRP should be measured by regulatory oversight after five years of its implementation. A set of indicators will need to be developed to measure the performance of regulatory policy as a whole. The framework on the evaluation review should look at how effectively the inputs have been used, how efficient has been the process of reviewing the policies and what have been the outcomes and impact produced during implementation in order to ensure the quality of regulation.

4. Implementing GRP at regional levels to strengthen regulatory coherence
   To ensure that the ASEAN community becomes a reality, the most challenging issue is its institutional set up. Hence, one of the ways is to have institutional connectivity is to adopt similar or complementary practices and principles on institutional behaviour to meet the regulatory objectives across the region. GRP is not only a cross-cutting theme for ASEAN integration but also one to reduce barriers as well as to support cross-border matters in the consolidation of the ASEAN Economic Community. GRP has been mainstreamed into the ASEAN agenda as one of the major deliverables for 2015 and its impact for post-2015 will have to be ensured.

Following the recommendations of the OECD, various procedures for the implementation of GRP have been set in motion. GRP has gone beyond the discussion stage and is poised to make a strong impact to drive entrepreneurship further in the country as a result of greater regulatory coherence. The country's enhanced regulatory literacy will in the long run contribute towards greater ASEAN economic cohesiveness as the region strives towards engendering a strong single economic community by 2025.

BEYOND MEASURES: THE BIG IMPACT OF SMALL CHANGES

Empowering people is a great way to enhance or improve performance because of the confidence entrusted upon them. It is about giving people the opportunity to grow and motivate them to perform better. As Malaysia moves forward to become a developed nation by 2020, it needs people who feel motivated about achieving better performances for the country at all times.

Malaysia's aspiration to be an advanced economy relies heavily on highly–skilled and well-trained human capital who are motivated towards higher-value and knowledge-based activities. It is the people who can actually power the processes and systems used in industry, and it is also the people who demand products and services produced by these industries. Malaysians need to inculcate a more competitive and productive mind set at all levels of society so as to increase the country's capacity for innovation and productivity.

The five-year development strategy under the 11MP leading up to 2020 outlines productivity as the game changer to achieve inclusive and sustainable growth. The country's holistic and integrated approach for higher productivity will enhance the competitiveness of industries and offer greater businesses opportunities with high value jobs. This will eventually lead to affordable levels of living, greater social inclusivity and a better quality of life for the *Rakyat*.

In addition, Malaysia's participation in the ASEAN Economic Community (AEC) and admission into the Trans-Pacific Partnership Agreement (TPPA) offers huge market opportunities for the country. Collectively, AEC is the third largest economy in Asia and the seventh largest in the world valued at USD2.6 trillion covering over 600 million people. TPPA enhances the liberalisation process, amplifies openness, promotes competition and fortifies the rule of law. These platforms are projected to raise investments, increase export growth and accelerate Malaysia's GDP at more than double its present rate.

To leverage on the above, concerted efforts from industry players and individual enterprises are needed to champion and spearhead productivity initiatives supported by the Government.

CHAMPIONING PRODUCTIVITY AND COMPETITIVENESS

Malaysia's success in executing productivity initiatives is reflected in the targeted achievement of labour productivity at RM92,000 in 2020 at the national level. Raising industry productivity enables industry integration to higher value added products, processes and value chain segments. At the enterprise level, boosting productivity inspires enterprises to diffuse the most productive technology and methods. For individuals, they are incentivised to work more productively, get higher wages, have better work quality and job satisfaction. To narrow the gap to the frontier and going beyond, the Government has been continuing with its efforts to enhance productivity and achieve sustainability as well as high rates of economic growth.

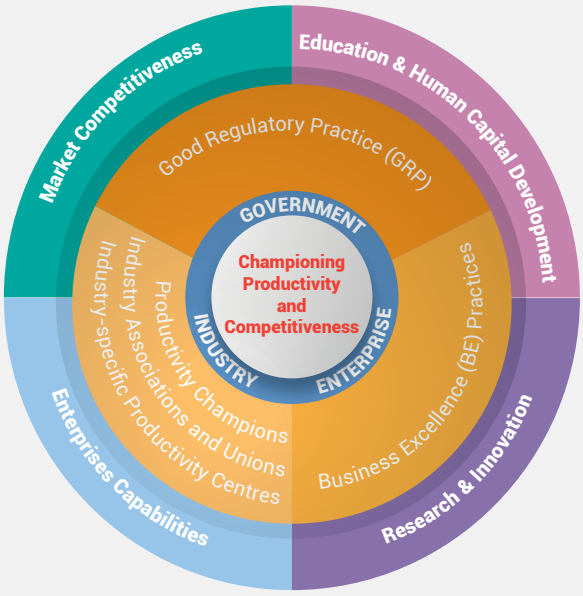
Through the 11MP, the Government has placed productivity as the main focus or game changer for the development of the economy. Holistic strategies and initiatives at the national, industry and enterprise levels have been introduced. These strategies and initiatives illustrate the collaboration between the Government and private institutions working together for a common cause with some even led by the private sector as well.

Malaysia's approach to productivity will be targeted at industry players and individual enterprises with champions having been identified to effect role model changes and ensure buy-in across various stakeholders. The sole aim of these productivity champions will be to identify opportunities for boosting productivity within their respective industries and to help industry players take advantage of them. In addition, sector-level productivity centres set up under the purview of existing trade bodies and industry associations will also have a big impact in boosting productivity. They are expected to be able to contribute valuable and more meaningful inputs to the enterprises and industries as well as to influence policy-making in a much broader sense. Over time, these activities will give the Government more insights into the needs of each industry and allow it to formulate more effective policies to boost growth.

Productivity champions and centres need to be more proactive in expanding their roles in disseminating knowledge and information such as building competent, innovative and skilled workforce, leveraging on research and innovation and market competitiveness.

Figure 5.1

Critical Factors in Championing Productivity and Competitiveness



Competent, Innovative and Skilled Workforce

The Government has been vigorously continuing its efforts to nurture and produce human capital equipped with the right knowledge, skills and attitudes to thrive in a globalised economy. The focus areas are improving the efficiency of the labour market to accelerate economic growth, transforming Technical and Vocational Education and Training (TVET) to meet industry demand, strengthening lifelong learning for skills enhancement, and improving the quality of the education system for better student outcomes and institutional excellence. However, the global challenges also require the industries' workforce to be equipped with the state-of–the-art technology to meet industry demand. It is imperative for respective ministries, agencies and academia to collaborate with associations and industry players to bridge or narrow the gap in terms of skill deficiencies.

THE GERMAN DUAL VOCATIONAL TRAINING PROGRAMME

The Penang Skills Development Centre (PSDC), an industry-driven education and development institution, runs the German Dual Vocational Training (GDVT) Programme in Mechatronics, designed to upskill the existing technical workforce and school leavers with international-level skills and competencies. Apprentices are trained through a two-pronged approach, where training is conducted both at the workplace and training institutions under actual work conditions with the guidance of competent coaches and classroom trainers.

The GDVT programme is accredited by both the Malaysian and German education systems. Upon successful completion of the programme, graduates will receive certificates from both *Jabatan Pembangunan Kemahiran* (JPK) (National Occupational Skills Standard certification) and Malaysian-German Chambers of Commerce and Industry (MGCC-AHK certification).

The industry-oriented training programme is open to currently employed operators or fresh recruits to be reskilled or skilled besides being certified. With opportunities for career advancement available through the skills upgrade, this will potentially encourage better employee retention and workplace loyalty. Employers will also be able to build a team of highly specialised and skilled mechatronic technicians. This will not only lead to higher efficiency and productivity, but also lessen the dependence on foreign experts and workers in the long run.

Future Skills: Training for Tomorrow's Opportunities

Based on success stories in developed economies such as Singapore and Australia, "Skills Future" plays an important part in charting their next phase of development towards becoming advanced economies and having an inclusive society.

The Government should also take Industry 4.0 into account as it contemplates the future directions of companies -- the second way to capture the potential. The traditional manufacturing business model is now changing and new models are emerging; incumbents must be quick to recognise and react to new competitive challenges. As such, Malaysia needs to plan and develop future skills in order to leverage on the workforce potential to the fullest. This will enable them to take advantage of a wider range of opportunities and help them realise their aspirations and attain a mastery of skills.

Leveraging on Research and Innovation

Market competition demand that enterprises innovate new products and services as a focal agenda to accelerate their productivity performance. Enterprises, mostly SMEs, need to be more proactive in leveraging the incentives provided by the Government to accelerate the adoption of innovation and new technology. Malaysia is on the verge to champion a new innovation value chain by establishing a network among enterprises, academia and research institutions to generate and participate in the innovation system.

Several strategic innovation partnership models have been identified to spur technology development and commercialisation to accelerate the productivity growth of the enterprises. Malaysia has partly adopted the OECD smart specialisation, a regional policy framework for innovation-driven growth.

WHAT IS SMART SPECIALISATION?

What distinguishes smart specialisation from traditional industrial and innovation policies is mainly the process defined as "entrepreneurial discovery" - an interactive process in which market forces and the private sector are discovering and producing information about new activities and how the Government assesses the outcomes and empowers those actors that are most capable of realising the potential (Foray, 2012; Hausmann and Rodrick, 2003). Hence, smart specialisation strategies are much more bottom-up than the traditional industrial policies. In addition, the focus of the choices is on the "enabling knowledge-based assets", both in the public (e.g. education, public research) and private sectors, not on particular industries. This more upstream approach gives more of a margin for the market to determine and lead on downstream choices. Still, the operationalisation of entrepreneurial discovery processes from a policy perspective is a major challenge and requires the collection and analysis of diverse information that is often held by entrepreneurs themselves or embedded in firms and public institutions. Incentives and instruments for disclosing -- passively or actively -- this information (e.g. through stakeholder consultations, public-private partnerships, Intellectual Property Rights) will be the key.

Source: Innovation-driven Growth in Regions: The Role of Smart Specialisation, OECD

In line with this, the National SME Development Council (NSDC) has introduced the four Strategic Partnership Models, namely Public-Private Research Network (PPRN), Steinbeis Malaysia Foundation, SIRIM-Fraunhofer Partnership and PlatCOM Ventures to assist SMEs. In addition, the productivity impact of these programmes is being monitored by the National Oversight Productivity Council (NOPC). These programmes are being assessed using the Productivity Gain Measurement (PGM) approach, comprising both quantitative and qualitative productivity measures.

Public-Private Research Network (PPRN)

Public-Private Research Network (PPRN) as one of the strategies to increase productivity and strengthen Malaysia's economic development through innovation and commercialisation programmes. It helps SMEs striving to raise productivity and technological readiness, and subsequently matches them with teams of academics with expertise to develop appropriate solutions. PPRN also offers matching grants to co-finance the developmental cost of innovation and commercialisation, together with SMEs.

Steinbeis Malaysia Foundation

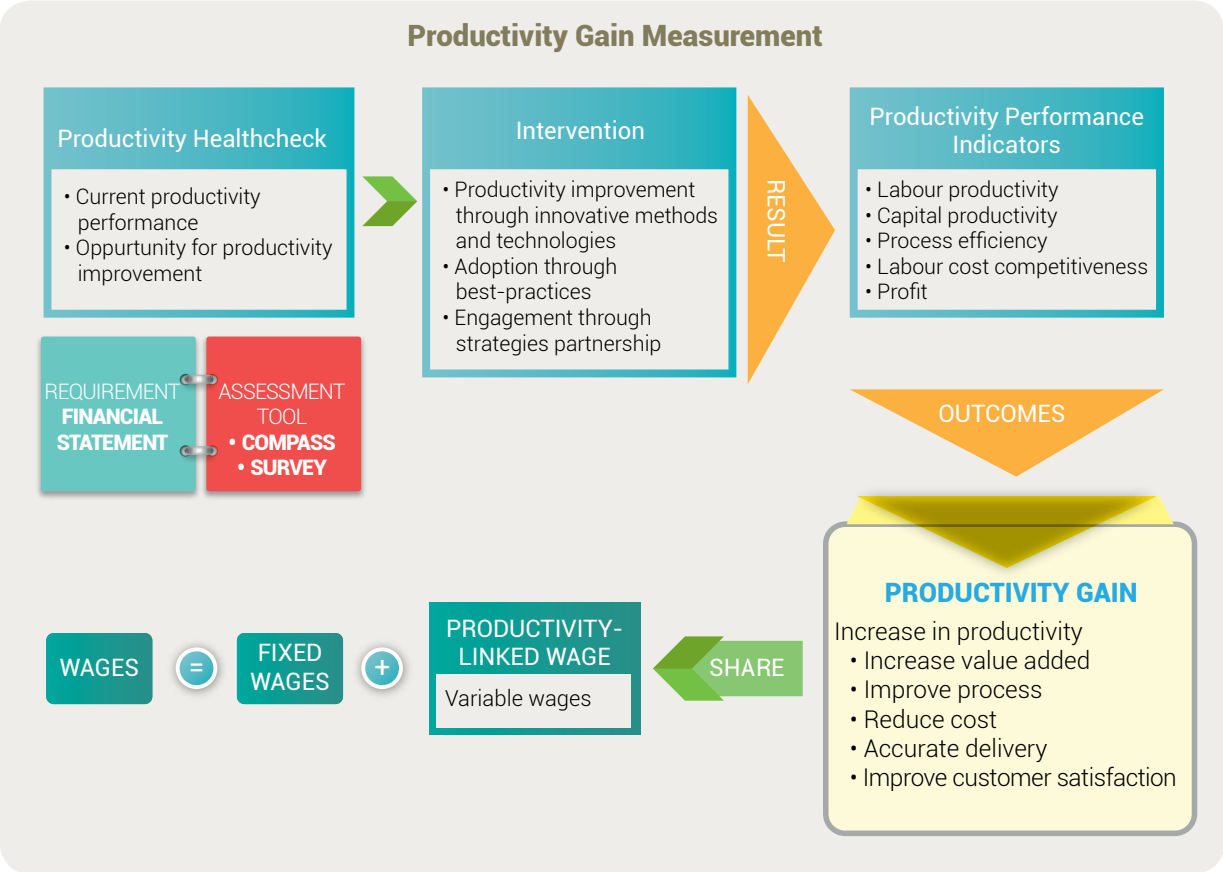
Steinbeis Malaysia Foundation (Steinbeis Malaysia), established under the purview of Agensi Inovasi Malaysia (AIM), is modelled after Germany's Steinbeis model. Its core focus is to be a bridge between academia and industry to promote effective and efficient cooperation. Steinbeis Malaysia acts as a conduit to help companies find the right solutions by providing expertise in technical and non-technical solutions, marketing solutions, management solutions, product development and innovation across varying stages, and regulatory or certification assistance. It also offers financial assistance like matching innovation grants for technical and non-technical research by industry players.

SIRIM-Fraunhofer Partnership

Fraunhofer Gesellschaft Institute (Fraunhofer), Europe's largest application-oriented research organisation, entered into a two-year strategic alliance with the Standards and Industrial Research Institute of Malaysia (SIRIM) in 2014 to strengthen SME development. Its niche focus is transforming scientific expertise into applications to benefit private and public enterprises and society. Fraunhofer, together with SIRIM, aims to increase the technology uptake of SMEs in Malaysia, with emphasis on joint research and technical services. Fraunhofer and SIRIM also cooperate in strategic studies in shared analysis and regular monitoring of market developments in Malaysia, initialisation and implementation of R&D projects to support the development of regional enterprises, joint organisation of conferences, workshops and seminars.

PlatCOM Ventures

PlaTCOM Ventures Sdn. Bhd. (PlaTCOM) established Innovation Business Opportunities (IBO), an online user-friendly platform which showcases all economically viable inventions in universities and research institutes for entrepreneurs, businesses and investors to facilitate academia industry partnership. It aims to turn innovations into market-driven inventions. It is also an intermediary for commercialisation on specific industry areas.



Malaysia recognises the importance of science, technology and innovation in contributing towards sustainable economic and social development and become an advanced nation by 2020. To become a high value-added nation, one of the key drivers to realise this aspiration is the creation of a knowledge-based economy. In view of this, R&D, commercialisation and innovation play a key role across the whole spectrum of the economy to bring direct benefits to the nation. These benefits are defined as sustainable economic growth, high-skilled job creation, continued productivity gains, societal inclusiveness and a better quality of life.

MIFF HOLDINGS SDN. BHD.

PPRN: Modelling and Optimisation of Clay Product

MIFF Holdings Sdn. Bhd. produces special clay products called Claymiff used to purify impurities to eliminate germs and harmful bacteria for Islamic cleansing. In order to be more effective and efficient in their production process and product development, the company realised that it needs to improve the effectiveness of Claymiff scientifically. Through PPRN's intervention programme, a team of researchers from *Universiti Teknologi Malaysia* (UTM) successfully developed a mathematical model to study the effectiveness of useful bacteria in Claymiff to eliminate harmful bacteria in impurities and determine the optimal amount for the application of Claymiff in the cleansing treatment.

After the research and innovation was completed, the company managed to reduce cost, increase its product volume and widen access to overseas markets such as Brazil, Hong Kong, Indonesia, Dubai and Japan.

DARUL KHUSUS VENTURE SDN. BHD.

PPRN : Optimisation of Cap Production Using Injection Molding Process

Darul Khusus Venture Sdn. Bhd. is a company that produces high quality mineral water bottles for the Malaysian market. The company had faced a high rejection rate of Polyethylene Terephthalate (PET) bottles and caps due to the inconsistent quality of the products produced. Through PPRN's intervention programme, a team of researchers from *Universiti Sultan Zainal Abidin* (UniSZA) deployed the Design of Experiment (DoE) methodology and implemented the right combination of polymers mixing formulation.

These helped the company to solve quality issues associated with its products and eliminated complaints from customers on the cracking of PET bottles and caps. It also managed to reduce operational costs and generate more profits.

Market Competitiveness

Malaysia has embraced initiatives for greater trade openness to cultivate the competitive advantage of enterprises in local and overseas markets. As Malaysia pushes for productivity enhancement towards 2020, the country is also guided by various multilateral agreements. Two of these agreements are the ASEAN Economic Community (AEC) and the Trans-Pacific Partnership Agreement (TPPA).

ASEAN ECONOMIC COMMUNITY

AEC is attempting to launch a single market for goods, services, capital and labour, which the region also has the potential to become one of the largest economies and markets in the world. This initiative will make ASEAN more dynamic and competitive with new mechanisms and measures to strengthen the implementation of its existing economic initiatives; accelerate regional integration in priority sectors; facilitate the movement of business persons, skilled labour and talents; and strengthen the institutional mechanisms of ASEAN.

ASEAN will allow the free flow of goods, services, investments, skilled labour and the freer movement of capital across the region. In addition, ASEAN's single market and production base also include two important components, namely the priority integration sectors, food, agriculture and forestry.

The free flow of goods is one of the principle means by which the aims of a single market and production base can be achieved. A single market for goods (and services) will also facilitate the development of production networks in the region and enhance ASEAN's capacity to serve as a global production centre or as a part of the global supply chain.

TRANS-PACIFIC PARTNERSHIP

Malaysia views the TPP as a positive step towards deeper integration within the Asia Pacific region that will also allow Malaysia to continue to engage with the United States, which remains one of the country's major trading partners.

Participating in the TPPA will offer Malaysia several advantages by accessing a single market comprising 466.9 million people (Australia, Brunei, New Zealand, Singapore, Peru, Vietnam, the United States and Malaysia). There is also potential to expand further when countries like Japan, Canada and other APEC economies join in.

With the United States remaining an important trading partner and source of investment, TPPA will see an additional 11.7% of Malaysia's global trade to be accorded preferential treatment. This would bring the total preferential trade to 71.2% of Malaysia's global trade, a fact that resonates well in terms of market gains. In addition, Malaysia is expected to enjoy a greater inflow of investments from third countries that may wish to use Malaysia as their base to penetrate other TPPA markets.

Under TPPA, Malaysia will remain an integral part of that important supply chain and will therefore ensure that the country remains an attractive investment destination and production hub. Provisions involving SMEs in TPPA also offer avenues into ways how the agreement can facilitate the development and promotion of SMEs into international markets. This would certainly benefit Malaysian SMEs that are increasingly looking to expand their markets abroad.

This creates an open market environment demanding that the Government have a competition enhancing policy known as Competition Act 2010 (under the Malaysia Competition Commission, MyCC), which came into effect on 1st January 2012.

In addition, the Government had liberalised the services sector (45 sub-sectors) to attract more foreign investments and bring more professionals and technology as well as strengthen the competitiveness of the services sector. Opening the market to foreign competition forces the least productive companies to leave the market and reward the most productive ones.

The intense competition will push local enterprises to be more innovative and efficient or otherwise be pushed aside by the newer and more efficient firms. Thus, the Government has provided various platforms for enterprises to enhance their efficiency and be more competitive in the market.

The collaboration of public and private institution in promoting Malaysia's product is an initiative that will enhance enterprise productivity in order to compete in international markets. Malaysia External Trade Development Corporation (MATRADE), and other Government entities as well as private institutions, including industry associations, are working together to promote Malaysia's products.

NATIONAL EXPORT COUNCIL

Recent developments in Malaysia's export promotion drive was the establishment of the National Export Council (NEC). The council is chaired by the Prime Minister while MATRADE acts as the secretariat with members coming from the public and private sectors. The council's role is to develop policies and action plans for high impact initiatives to accelerate export growth; strengthen cooperation and coordination among ministries and agencies to ensure the effective implementation of national strategies and action plans to enhance exports; address issues related to the export ecosystem such as standards and certification, market access and talent; and ensure that the legal and regulatory framework within the country supports and smoothens the export processes.

Focus groups under this council representing the main key export sectors often discuss issues like challenges being faced when exporting, action plans to achieve KPIs, export targets and solutions in relation to gaps in the ecosystem on export facilitation, domestic regulations, human capital development and access to finance. The council has approved 30 initiatives towards achieving the 11MP export targets of RM974.6 billion. These initiatives cover several areas including trade facilitation, exporters' development, product sectors as well as export markets such as China and ASEAN.

In Canada, public and private organisations work together in promoting export as one of the agenda for business development. The programme, known as 'Smart Exporting', introduces a three-stage journey: Stage 1: Think like an exporter; Stage 2: Become an exporter and Stage 3: Win as an exporter. In addition, promotion of industries is also supported by their respective associations.

The Aerospace Industries Association of Canada (AIAC), which represents Canada's aerospace industry, other than facilitating business development opportunities and providing aerospace research, data and analytical support, also showcases the industry's products and services at global trade shows. Another association is the Agri-Food Export Group that represents Canadian agri-food exporters. The group offers seminars, conferences, roundtables, foreign promotional activities and export market validation. The Canadian Manufacturers and Exporters Association is another association that promotes the competitiveness of Canadian manufacturers and enables the success of Canadian exporters in markets around the world. The association also has developed an in-depth guide in partnership with Export Development Canada (EDC).

The Export Club through the Singapore Food Manufacturers' Association assists local food manufacturers to penetrate into new markets and solidifies the existing ones. The club actively leads its members to participate in international tradeshows and exhibitions. It organises trade missions to explore new and emerging markets and works with internationally recognised hypermarkets and supermarkets to promote Singapore food products. The club also conducts surveys with overseas consumers to understand the preferences of overseas markets, where the findings would enable manufacturers to adjust and change formulas to suit consumers' tastes.

Strengthening Enterprises Capabilities

Both domestic and multinational companies in Malaysia often face multiple challenges. However, these challenges can be turned into opportunities provided that the enterprises improves their processes and complied with regulatory requirements to achieve greater operational excellence across the value chain.

In pushing the limits of innovation and commercialisation, enterprises need to be more receptive and creative in providing service excellence, which is beyond meeting customer's satisfaction. Having a service excellence mind set requires the enterprises to fulfil the customers' ideal needs and customisation. This is only possible through measuring customer satisfaction in order to assist the enterprises to sustain longer-term productivity.

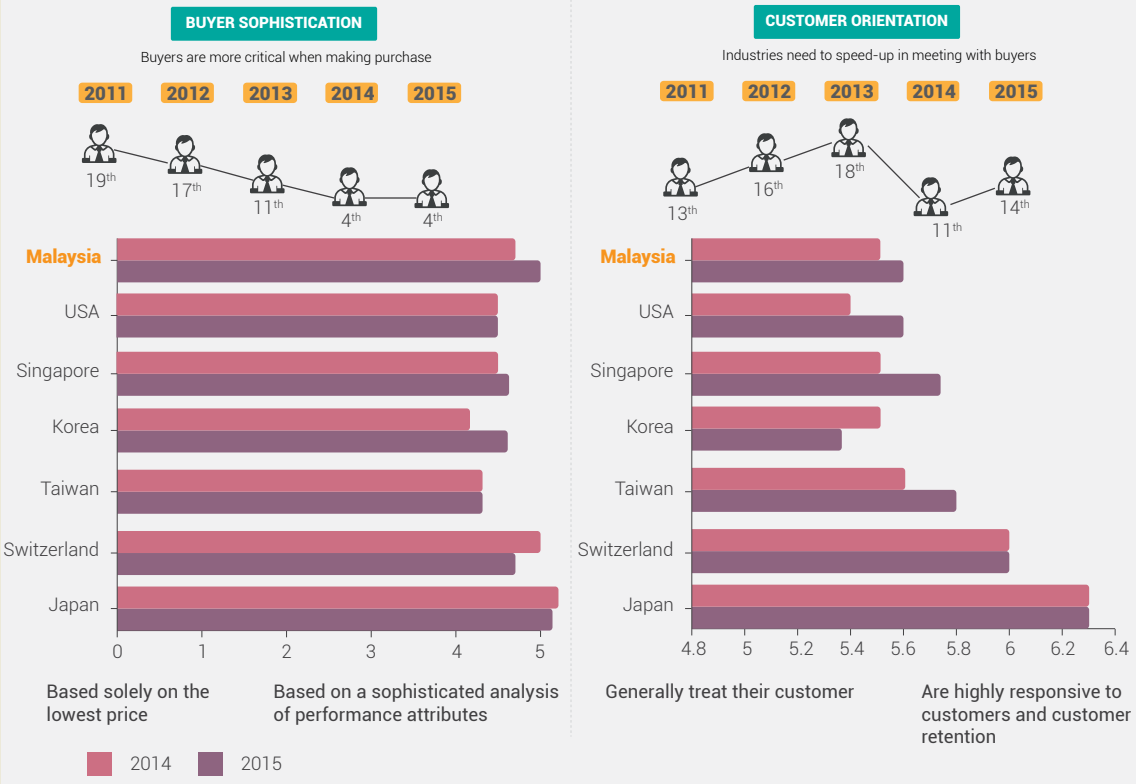
CUSTOMER SATISFACTION INDEX

The Customer Satisfaction Index (CSI) is a customer satisfaction measurement tool that suits companies of various sectors and industries such as E&E, automotive, transportation and warehousing, hotels and restaurants as well as public administration and Government agencies.

The need for CSI as a service delivery measure is imperative as Malaysian buyers are becoming more sophisticated and highly-oriented towards superior quality products and services. Malaysian manufacturers and service providers need to be more competitive and responsive in providing excellent products and services. CSI will be able to address the gaps through enhanced branding and reputation of the local service providers and producers.

MPC has adopted the American Customer Satisfaction Index (ACSI) model to developed Malaysia's CSI. This allows the industry and the country to benchmark against international CSI as it uses a common methodology. This holistic satisfaction measurement will lead to increased customer loyalty and the financial benefits associated with more loyal customers in all markets. Data collected can also be used as the basis for performance incentives, operational decision-making and process improvement.

Buyer Sophistication and Customer Orientation Comparison with Developed Economies



Source: The Global Competitiveness Report, World Economic Forum, Various Years

The Government, on the other hand, should provide clear industry-focused direction to facilitate industries in order for businesses to develop new business models that enable them to venture into new markets and leverage on the global supply chain.

To strengthen the capabilities of enterprises, productivity champions are being developed. They are individuals or companies that have been identified among industry associations or NGO members as innovation leaders in the industry. These productivity champions will assist the associations and NGO members to strengthen the productivity ecosystem by providing information and feedbacks on industry's requirements to the Government or vice versa. This will support the Government in developing more structured and effective policies to enhance the productivity of the industry as well as that of the nation.

Collaboration with Industry Associations

Industry associations should act as productivity change agents that link Government initiatives to strengthen the capabilities of enterprises. For the manufacturing sector, the Federation of Malaysia Manufacturer (FMM) plays a major role in disseminating knowledge on productivity among its members. FMM assists members through implementing the MBEF as the means to support them to push for higher productivity of the nation.

MBEF is versatile in nature and applicable to all types of organisations – public or private, manufacturing or services, small or large. FMM adopted MBEF as an assessment tool for the FMM Excellence Industry Award (FMMEIA) in collaboration with MPC. FMM started with a few roadshow programmes in several regions throughout the country to promote better awareness among its members. Under FMM's Business Excellence (BE) Mentoring Programme, FMMs' assessors have been trained to conduct the assessment using MBEF tools.

With the objective of enhancing MBEF and increasing its usage among FMM members, MPC has appointed FMM Council Members as Business Excellence Champions. These champions are the catalysts for sharing their expertise and help build up the capabilities of SMEs besides helping to create BE communities in their respective regions.

Collaboration with Associations and NGOs

MPC has recognised a number of individuals and companies to be the Productivity Champions in various industries who are experts in productivity tools and initiatives. Nevertheless, this number is insufficient to facilitate the current number of enterprises in various industries. This is where associations and NGOs need to assist the Government to develop more Productivity Champions to facilitate and sustain productivity initiatives among industries, enterprises and the *Rakyat*.

Singapore, as another example, created champions among the industries through their industry associations. SPRING Singapore, a Government agency, is responsible for assisting enterprises in recognising industry associations as the key productivity synergist in the industry development. SPRING and International Enterprise (IE) Singapore launched a SGD50 million Local Enterprise and Association Development (LEAD) programme to enhance industry capabilities and grow SMEs through the leadership of their industry associations.

Among the leading associations that participated in this programme were the Restaurant Association of Singapore (RAS) for the food & beverage industry, Singapore Food Manufacturers' Association (SFMA) for the food manufacturing industry, the Singapore Furniture Industries Council (SFIC) for the furniture industry, the Association of Process Industry (ASPRI) for the process control and instrumentation industry, the Singapore Precision Engineering & Tooling Association (SPETA) for precision engineering and the Textile and Fashion Federation (Taff) for the textile and apparel industry.

LOCAL ENTERPRISE AND ASSOCIATION DEVELOPMENT PROGRAMME

SPRING together with the Restaurant Association of Singapore (RAS), the industry's largest representative body, sought to transform the industry over three years through this programme. The plan was to build a skilled and professional workforce with attractive career paths, develop market intelligence on trends and opportunities, and strengthen capabilities in technology, brand and business expansion strategies.

Another programme was the Singapore Food Manufacturers Association (SFMA) to creating opportunities for co-operation and export through the SME Club and Export Club formed under the LEAD programme. It provides resources to develop innovative products and gather market intelligence on local and international issues affecting food manufacturers.

These LEAD programmes touch on human capital, innovation, system, technology and market expansion. The programmes have succeeded in making associations to be involved towards contributing to enhance Singapore's productivity and development.

Source: SPRING Singapore web article: We Champion Industry Development by Nurturing Growth in Key Industry Cluster, download on March 2016

Collaboration with Cooperatives

Cooperatives should transcend beyond their objectives of raising the wealth of their members into environmental causes as a way of preserving Malaysia's resources towards better sustainability. They should widen their operations and services into the whole value chain, not only concentrating on marketing and sale, but also focused on supporting the Government agenda in productivity. In line with this, the National Cooperative Policy (*Dasar Koperasi Negara*) 2011-2020 has outlined strategies to enable the cooperative movement to have an active role in developing the country together with the public and private sectors based on their strategic thrusts. These include encouraging the cooperatives' involvement in high value economic sectors, strengthening the capacity and capability of cooperatives and creating and enhancing the capability of cooperatives' human resources.

In Korea, Hansalim is a model of mutual trust between farmers and consumers. Its growth has had a great impact on the development of organic agriculture and growth of organic consumer cooperatives. In addition, it has been benchmarked by other cooperatives and currently four major organic cooperatives in that country account for 30% of the Korean organic market. Direct sales between farmers and consumers have guaranteed a stable livelihood for farmers and safe food to its consumers. Malaysia ought to adopt this Hansalim's organic cooperative model to help expand the productivity of the 12,500 cooperatives registered in Malaysia and benefit its 7.5 million members.

HANSALIM ORGANIC COOPERATIVE, KOREA

The Hansalim Organic Cooperative started as a small organic grain store. Now, it operates with over 130 stores in Korea with almost 2,000 contracted organic farmers, carries over 1,900 kinds of food products and serves over 350,000 household members.

Hansalim is the so-called "direct sales movement between the rural and the urban areas" of organic food. Farmers sell directly to Hansalim through contract farming and get back 76% from the sales price as sales do not go through any middle-person. Hansalim is a model of mutual trust between farmers and consumers - "farmers shoulder the responsibility of the health of the consumers while consumers shoulder the livelihoods of the farmers". Consumers regularly visit the farms and come face-to-face with the farmers who produce the food that they get on the table.

Hansalim does not only concentrate on the marketing and sale of organic food. Much of its work is focused on advocating the benefits of organic agriculture, the importance of food sufficiency, local food and integrated farming systems with animal husbandry and the cycling of natural resources as a way of preserving Korean agriculture and sustainability. Direct selling facilitated between the farmers and consumers and other than a minimal operational fee, all profits go back to the farmers. Prices set by the farmers are with consideration on production costs and profits do not follow the market price.

All cultivation is carried out through contract farming. Through this, farmers are guaranteed the "right price" for their products and their livelihoods are protected. No imported products are sold in the stores, meaning that Hansalim does not sell even neither coffee nor even sugar, as these two products are not produced locally.

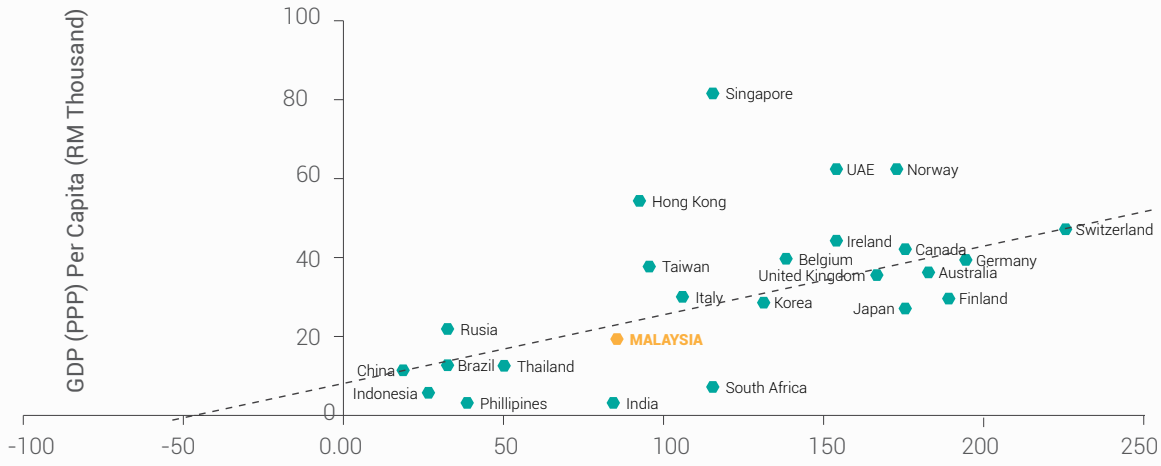
Hansalim has also created its very own standards of food safety which are considered to be some of the most stringent in Korea:

i. No pesticides or/and chemical fertilisers;
ii. Fresh vegetables and fruits in season;
iii. Local food: Local production for local consumption;
iv. Non-GMO agricultural product and seafood;
v. Avoid food additives like artificial preservatives, colours, flavours and sweeteners; and
vi. No antibiotics and growth hormones for livestock feed.

Source: eng.hansalim.or.kr

Figure 5.2

Quality of Life Index in Selected Countries, 2015



Sources: World Competitiveness Report 2015 and www.numbeo.com

INCREASED PRODUCTIVITY BRINGS GREATER WELL BEING

It has long been accepted that material well being, as measured by GDP per capita, cannot alone explain the broader quality of life in a country. Comparing Malaysia with selected countries, it can be shown from Figure 5.3 that countries with high income economies demonstrated high quality of life index. Unlike Malaysia, as compared to similar GDP per capita range such as Hong Kong and Taiwan, Malaysia indicates lower quality of life index.

There are other quantifying factors that are omitted by the GDP measure such as health, political stability and security, family life, community life, climate and geography, job security, political freedom and gender equality (Figure 5.4). Over a long period of time, productivity which takes into consideration the collective factors of the above, is the single most important determinant of a nation's living standard.

Figure 5.3

Quality of Life Determinants

Quality Healthcare

The Government has invested significant resources throughout the various five-year development plans to improve healthcare, which focuses on increasing the life expectancy of Malaysians, decrease in infant and maternal mortality rates and improvements in access to healthcare services. In the 11MP, the improvements will focus on addressing underserved populations, improving health system delivery to enhance the efficiency and effectiveness by intensifying collaboration with the private sector and NGOs. The Government remains committed to achieving equal access to affordable and good quality healthcare services, whether delivered by public or private providers.

To improve the system delivery for better health outcomes, various productivity initiatives measures were introduced. They include the introduction of LEAN practices to streamline work processes and procedures in order to enhance effectiveness and efficiency in public hospitals. These include optimising efforts in bed management, robust operation theatre scheduling and best practice treatment. The Putrajaya Health Office has undertaken LEAN Management at *Klinik Kesihatan Putrajaya* and this has resulted in improved patients' expectations and experience. This initiative has also shortened patient waiting times, improved patient outcomes and satisfaction and optimised the use of healthcare resources.

PUTRAJAYA HEALTH OFFICE

LEAN Management In Putrajaya Health Office

Health providers are responsible to provide the best possible services to their patients. *Pejabat Kesihatan Putrajaya* (PKPj) also aims to offer high quality healthcare services which are affordable and accessible to their patients.

However, PKPj is also facing difficulties as the number of patients keep on increasing every year. A team was assigned to study the problems and brainstormed for the best possible solutions to reduce work interferences and inefficiencies. A problem on the length of time taken by patients to travel from the registration counter to the end of clinic station in *Klinik Kesihatan Putrajaya* was identified.

Matrix Before and After LEAN Project

Description	Before	After
Patients movements (steps)	210	168
Processing time (minutes)	54	40
Waiting time (minutes)	153	110
Lead time (minutes)	207	150
Number of staff	5	2

Under the conventional way, the distance taken from the registration counter to the final stage of the patients' movements took about 210 steps. After incorporating LEAN, the distance taken for the patients took up only 168 steps. The processing time was reduced by up to 40 minutes as compared to 54 minutes previously, an improvement of 26%. Hence, an extra 30 patients could be accommodated to receive treatment for the day. Waiting time dropped to 110 minutes as compared to 153 minutes previously. Thus, the lead time for the whole processes improved by 27.5%. Before the LEAN project, five nurses were required to work at the registration counter but after using LEAN, only two nurses were required while the other three nurses were assigned to consultation rooms. Hence, the productivity of PKPj was improved and has definitely helped enhance patients' expectations and experience towards better services.

Inclusive Green Growth for Productivity and Sustainability

Malaysia's Green Growth Strategy is aimed at leading towards a better quality of growth, strengthening food, water and energy security, lowering environmental risks and ecological scarcities, and ultimately having better well being and a quality of life. It will mean significant reduction in greenhouse gas emissions and improved conservation of terrestrial and inland water as well as coastal and marine areas, including its ecosystems.

The 11MP reiterates emphasis on inclusive green growth to enable the nation to manage its environmental assets and ecological resources sustainably without compromising the future. Through the envisioned goal to become an advanced nation by 2020, Malaysia has anchored growth on the people by pursuing inclusive green growth initiatives comprising resilient, low carbon, resource efficient and socially inclusive developments.

Green Growth serves as a game changer that supports the three pillars of sustainable development, namely economic, social and environment. Enabling environment factors such as policy and regulatory framework, human capital, green technology investment and financial instruments, will shift the economy in particular the private sector towards sustainable patterns of consumption and production, as well as sustainability of the nation's natural resources. Ultimately, the pursuit of Green Growth will expand economic opportunities and result in productivity and sustainability through optimised use of capital, human and natural resources.

At the firm level perspective, productivity improvements can be achieved by reducing wastage on resources, eliminating unnecessary processes of production and ultimately manage the carbon footprint to preserve the environment sustainability.

GREEN TECHNOLOGY FOR BUSINESS GROWTH

Green Technology is a diverse range of products, services, and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources and cut or eliminate emissions and wastes. In other words, it can improve production efficiency through the reduction of input costs, energy costs, operating and maintenance costs and in turn improve a business competitive position. This is another solution where businesses can choose to respond and integrate sustainability with their core business strategies that will underpin their success in achieving long-term competitive advantages.

The implementation of Green Technology will benefit businesses or organisations as follows:

- Ability to meet stringent product specifications in foreign market: Meet stricter environmental requirements and specifications to export their products to industrialised countries. The adoption of green technologies can help exporting companies gain advantage and market share over their competitors;
- Reduction of input costs: Green technologies can improve production efficiency through a reduction of input costs, energy costs and operating and maintenance costs, which can improve a company's competitive position;
- Environmental image: Adopting green technology can help improve a company's environmental reputation, which is crucial if other competitors and consumers are becoming more environmentally conscious; and
- Ability to meet stricter environmental regulations in the future: Companies investing in green technology are more likely to be better equipped and ready for stricter environmental regulations as well as products specifications that are expected to be imposed on them in the future.

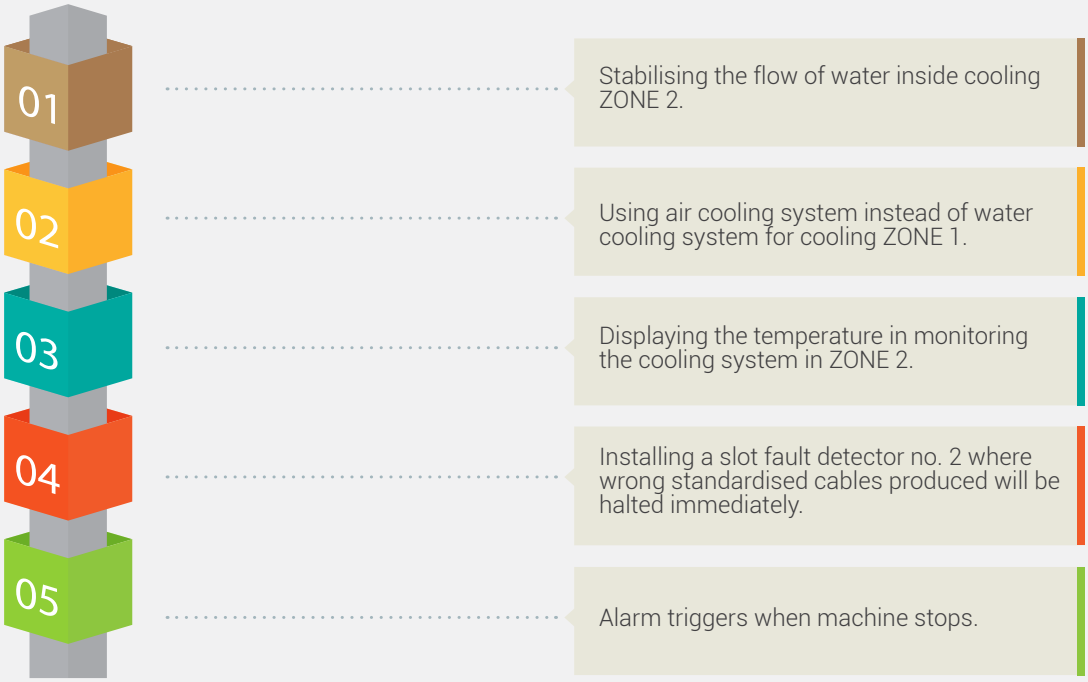
MANAGING WASTE: AIM FOR ZERO SCRAP METAL USING LEAN

One of Malaysia's largest fibre optic cable manufacturers has adopted LEAN practices to manage their scrap wastes. With the introduction of 192 core cables as new high core cable, it has increased the scrap cables for the company. There are four main processes involved which are slotting, stranding, sheathing and rewinding processes that has increased unplanned number of scraps to 1.19%. Due to heavy losses, the company decided to have zero scrap using the LEAN approach. A team was assigned to focus on the slotted core process area with the aim to achieve zero production of unplanned scrap metals and to reduce unplanned scrap values by 50%.

By using LEAN, the lead time has been reduced to 308 minutes/km instead of 417.3 minutes/km. There is an improvement of 26% in lead time. Another achievement is on the waiting time, whereby the company has saved to 39.8 minutes/km from 84.3 minutes/km. The value on excess of scrap cables has been reduced to 55%. With this LEAN implementation, the company has managed to save on its overall cost, production and wastages tremendously.

The initiatives were carried out in for the slotting process are as follows :

KAIZEN Improvement Initiatives



THE WAY FORWARD

The end vision for Malaysia is to have an inclusive, caring society wherein every Malaysian has access to quality of life, regardless of their socio-economic background. The march towards this brave new world with greater well being and incomes lies in the spark towards having improved productivity.

Many propositions have been put forth on how to achieve better productivity and it has to start from the *Rakyat* by understanding that productivity as the best way forward. The Government, which has always adopted a balanced development approach that gives equal emphasis to both economic growth and the well being of the *Rakyat*.

Various economic reforms that affect resource reallocation processes and their contributions to productivity growth are now being put to test. The economic liberalisation and globalisation requires the Government to eliminate cumbersome rules and regulations.

This will give impetus to the enterprises to thrive and compete along with the Government productivity initiatives. Growth, investment and exports are often the outcomes of the processes by which people with ideas start enterprises. The successful ones are those who can deliver products or services for which people are willing to pay for. The various policy shifts to enhance productivity in Malaysia's economic development will ensure sustainable growth and a better quality of life for all Malaysians. Productivity will also feature prominently in Malaysia's economic development to ensure sustainable growth and a better quality of life for all Malaysians.

Higher productivity growth is essential to accommodate the impact of demographic pressures on public budgets, to escape the middle income trap that afflicts emerging economies and to foster a new era of efficiency that drastically shrinks the carbon footprint on the environment.

Malaysia Productivity Blueprint, themed "Driving Productivity for the Nation", with the objective to provide guided implementation and to accelerate productivity improvements at national, industry and enterprise levels as envisaged in 11MP.

It will also address issues and challenges to productivity in a comprehensive and cohesive manner through the development of national productivity framework. Designed and developed productivity improvement strategies, initiatives and programmes at national industry and enterprise.

APPENDICES

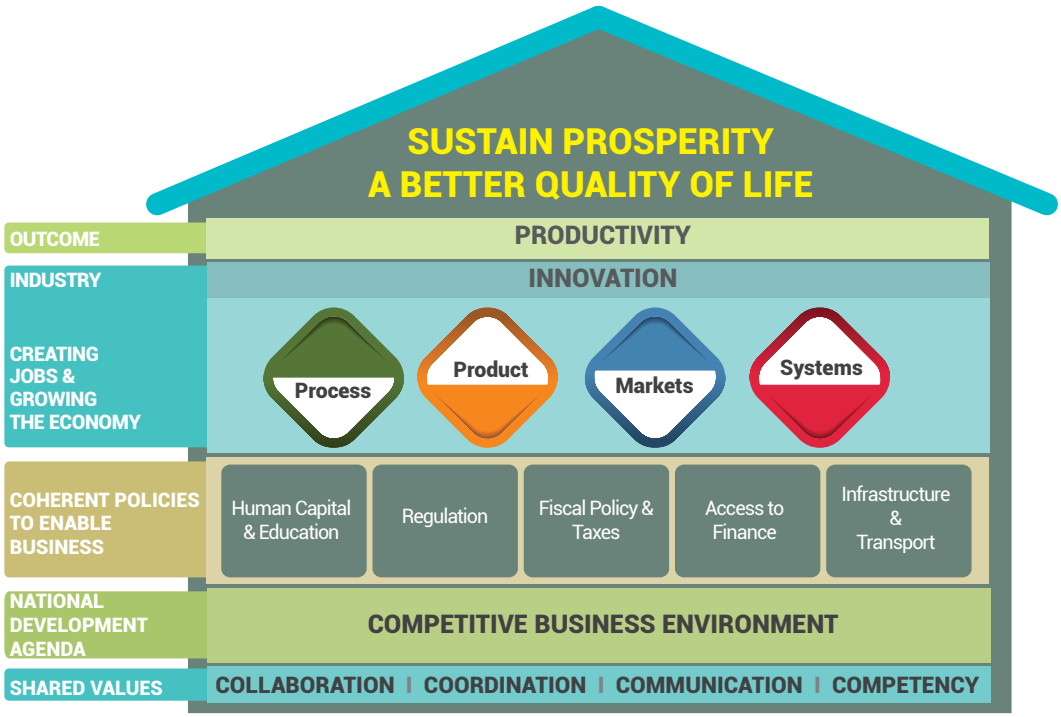
WHAT IS PRODUCTIVITY?

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

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

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

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



HOW WILL HIGHER PRODUCTIVITY BENEFIT THE COUNTRY?

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

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 only one input, or the ratio of output to more than one input. The method involving only one input is called the partial factor productivity measure, while the method involving more than one factor input is called the multi-factor productivity measure or total factor productivity (TFP) 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. **ii) Subtraction Method** This is called the wealth creation method. *Added Value =* *Total Output less Bought-In Materials and Services (BIMS)* In order to produce goods or services, a company has to purchase the necessary raw materials and other inputs. The difference between the total value of output and total cost of inputs i.e. all inputs and services bought from another company is called added value.

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

APPENDIX A.1.2: DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH

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

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

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

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

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

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

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

APPENDIX A.1.3: TOTAL FACTOR PRODUCTIVITY MEASURE

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

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

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

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

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

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

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:

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

The assumption of constant returns to scale implies $v_{jt}^X + v_{jt}^L + v_{jt}^K =$ 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):

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

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

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

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

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

$$P_j^V V_j = P_j^K K_j + P_j^L L_j \tag{7}$$

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).

$$w_{jt}^L = (P_{jt}^V V_{jt})^{-1} P_{jt}^L L_{jt}; \quad w_{jt}^K = (P_{jt}^V V_{jt})^{-1} P_{jt}^K L_{jt} \tag{8}$$

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

$$\Delta \ln V_{jt} = \overline{w}_{jt}^K \Delta \ln K_{jt} + \overline{w}_{jt}^L \Delta \ln L_{jt} + \Delta \ln A_{jt}^V \tag{9}$$

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

Output and Intermediate Input Accounts

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

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

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

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

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

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

$$\Delta \ln X_{jt} = \sum_i \overline{v}_{ijt}^X \Delta \ln X_{jt}$$

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

Labour Accounts

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

$$Y_j = g_j(Y_{ij}) = f_j(K_j, L_j, X_j,$$

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

Capital Accounts

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

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

$$v^X_{jt} + v^L_{jt} + v^K_{jt} :$$

with Ak,t , the capital stock for a particular asset type k at time t, $\theta k,\tau$, the efficiency of a capital good of age t relative to the efficiency of a new capital good and $Ik\ t-\tau$, the investment in period t-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, $Ak,\ t$ is given by:

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

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:

$$\Delta \ln K_t = \sum_k \bar{v}_{k,t} \Delta \ln A$$

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 $v_{kt} = (\sum_k p^k_{kt} A_{kt})^{-1} p^K_{kt} A_{kt}$ with p^K_{kt} the price of capital services from asset type

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

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

The nominal rate of return can be estimated as follow:

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

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

APPENDIX A.2: 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 = Added Value / Labour Cost	Pure Number	Indicates how competitive the enterprise is in terms of labour cost. A low ratio indicates high labour cost which does not commensurates with added value creation.
ii) Labour Cost Per Employee = Labour Cost / No. of Employees	Ringgit Malaysia (RM)	Measure the average remuneration per employee. A high ratio means high returns to individual workers and vice-versa.
ii) Unit Labour Cost (ULC) = Labour Cost / 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.

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
i) Added Value Per Fixed Asset = Added Value / 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 assets utilisation.

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 = Added Value / No. of Employee	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 attitude; • Price effects; and • 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 = Total Output / No. of Employees	Ringgit Malaysia (RM)	The size of output generated by each employee of the enterprise.
iii) Added Value per Hour Worked = Added Value / Total Hours Worked	Ringgit Malaysia (RM)	Reflects the amount of wealth created by the company relative to the number of working hours according to types of employees: • Full time • Part time • Self-employed

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
i) Fixed Assets Per Employee = Fixed Assets / 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 techological input.

APPENDIX B.1: STATISTICS BY MANUFACTURING SUB-SECTORS, 2015

Description	2015					
	Added Value (RM)	Growth (%)	Employment (RM)	Growth (%)	Productivity (RM)	Growth (%)
Manufacturing	**244,247**	**4.89**	**2,321,171**	**-2.01**	**105,226**	**7.04**
Food products	21,453	-0.55	252,766	-4.30	84,873	3.92
Beverages	4,746	3.53	16,365	12.19	290,005	-7.72
Tobacco products	3,736	17.23	2,377	8.16	1,571,819	8.38
Textile and wearing apparel	3,734	6.30	104,709	1.83	35,663	4.39
Leather and related products	401	6.58	12,353	3.27	32,440	3.20
Wood products	5,321	2.56	119,929	-4.80	44,367	7.73
Paper and paper products	3,003	10.85	73,204	-3.80	41,021	15.23
Printing and reproduction of recorded media	2,881	1.58	66,133	-3.62	43,562	5.40
Refined petroleum products	31,767	5.58	6,426	-7.90	4,943,604	14,63
Chemicals & chemical products and pharmaceutical products	24,822	2.40	111,946	-5.97	221,729	8.90
Rubber & plastics products	16,850	-1.07	321,958	1.84	52.335	-2.86
Non-metallic mineral products	9,290	5.94	100,864	-0.51	92,103	6.48
Basic metals	6,909	5.29	86,374	2.55	79,989	2.67
Fabricated metal products	14,071	2.38	185,438	-4.98	75,881	7.74
Machinery and equipment	7,750	12.73	77,310	1.60	100,245	10.95
Computer, electronics and optical products	52,288	7.68	393,615	-3.69	132,841	11.80
Electrical equipment	4,601	13.53	89,540	-4.06	51,389	18.33
Motor vehicles and transport equipment	25,574	4.35	159,131	-0.13	160,710	4.48
Furniture	3,014	11.11	87,992	-4.21	34,257	15.99
Other manufacturing and repair & installation of machinery and equipment	2,037	15.62	52,742	5.07	38,625	10.03

Note: For further details, please visit Malaysia Industrial Productivity Database at www.mpc.gov.my

APPENDIX B.2: STATISTICS BY SERVICES SUB-SECTORS, 2015

Sub-Sectors	2015					
	Added Value (RM)	(%)	Employment (RM)	(%)	Productivity (RM)	(%)
Services	**569,046**	**5.15**	**8,595**	**3.59**	**66,204**	**1.51**
Utilities	27,085	3.46	127	-12.09	212,710	17.69
Wholesale and retail trade	155,738	6.89	2,361	3.73	65,965	3.04
Food & beverage and accomodation	29,377	6.37	1,122	0.82	26,188	5.50
Transportation and storage	37,326	5.68	636	7.21	58,665	-1.43
Information and communication	60,480	9.40	223	5.19	271,786	4.01
Finance & Insurance	73,488	-0.69	366	11.10	200,687	-10.62
Real estate & business services	45,796	6.58	1,075	2.89	42,620	3.59
Government services	42,553	2.84	767	2.95	55,485	-0.11
Health	19,180	3.87	569	6.94	33,729	-2.87
Education	46,213	5.06	926	5.95	49,922	-0.84
Other services	31,810	5.03	425	-2.35	74,922	7.56

Note: For further details, please visit Malaysia Industrial Productivity Database at www.mpc.gov.my

APPENDIX C.1: SERVICES SUB-SECTORS FOR LIBERALISATION

2009

Computer and Related Services

1. Consultancy services related to the installation of computer hardware.
2. Software implementation services-systems and software consulting services; systems analysis services; systems design services; programming services and systems maintenance services.
3. Data processing services-input preparation services; data processing and tabulation services; time sharing services and other data processing services.
4. Data base services
5. Maintenance and Repair Services of Computers.
6. Other services - data preparation services; training services; data recovery services; and development of creative content.

Health and Social Services

7. All veterinary services.
8. Welfare services delivered through residential institutions to old person and the handicapped.
9. Welfare services delivered through residential institutions to children.
10. Child day-care services including day-care services for the handicapped.
11. Vocational rehabilitation services for handicapped.

Business Services

22. Regional Distribution Centre
23. International Procurement Centre.
24. Technical Testing and Analysis Services - composition and purity testing and analysis services, testing and analysis services of integrated mechanical and electrical systems, and technical inspection services.
25. Management Consulting Services - general, financial (excluding business tax), marketing, human resources, production and public relations services .

Tourism Services

12. Theme Park.
13. Convention and Exhibition Centre (seating capacity of above 5,000).
14. Travel Agencies and Tour Operators Services (For inbound travel only).
15. Hotel and Restaurant services (for 4 and 5 star hotels only).
16. Food Serving Services (for services provided in 4 and 5 star hotels only).
17. Beverage Serving Services for consumption on the premises (for services provided in 4 and 5 star hotels only).

Transport Services

20. Class C Freight Transportation (Private Carrier License - to transport own goods)

Sporting and Other Recreational Services

21. Sporting Services. (Sports event promotion and organisation services).

Supporting and Auxiliary Transport Services

18. Maritime Agency Services.
19. Vessle salvage and refloating services.

Rental/Leasing Services Without Operators

26. Rental/Leasing services of ships that excludes cabotage and offshore trades.
27. Rental of cargo vessels without crew (Bareboat Charter) for international shipping.

APPENDIX C.2: SERVICES SUB-SECTORS LIBERALISATION

2011

Telecommunications

28. Telecommunication services (network service providers and network facilities providers licences)
29. Telecommunication Services (Application Service Providers licence)

Healthcare

37. Private hospital services
38. Medical specialist services
39. Dental specialist services

Professional Services

30. Accounting and taxation
31. Architectural services
32. Engineering services
33. Legal services
34. Quantity surveying services

Environmental Services

36. Incincineration services

Distributive Trade Services

35. Departmental stores and specialty stores

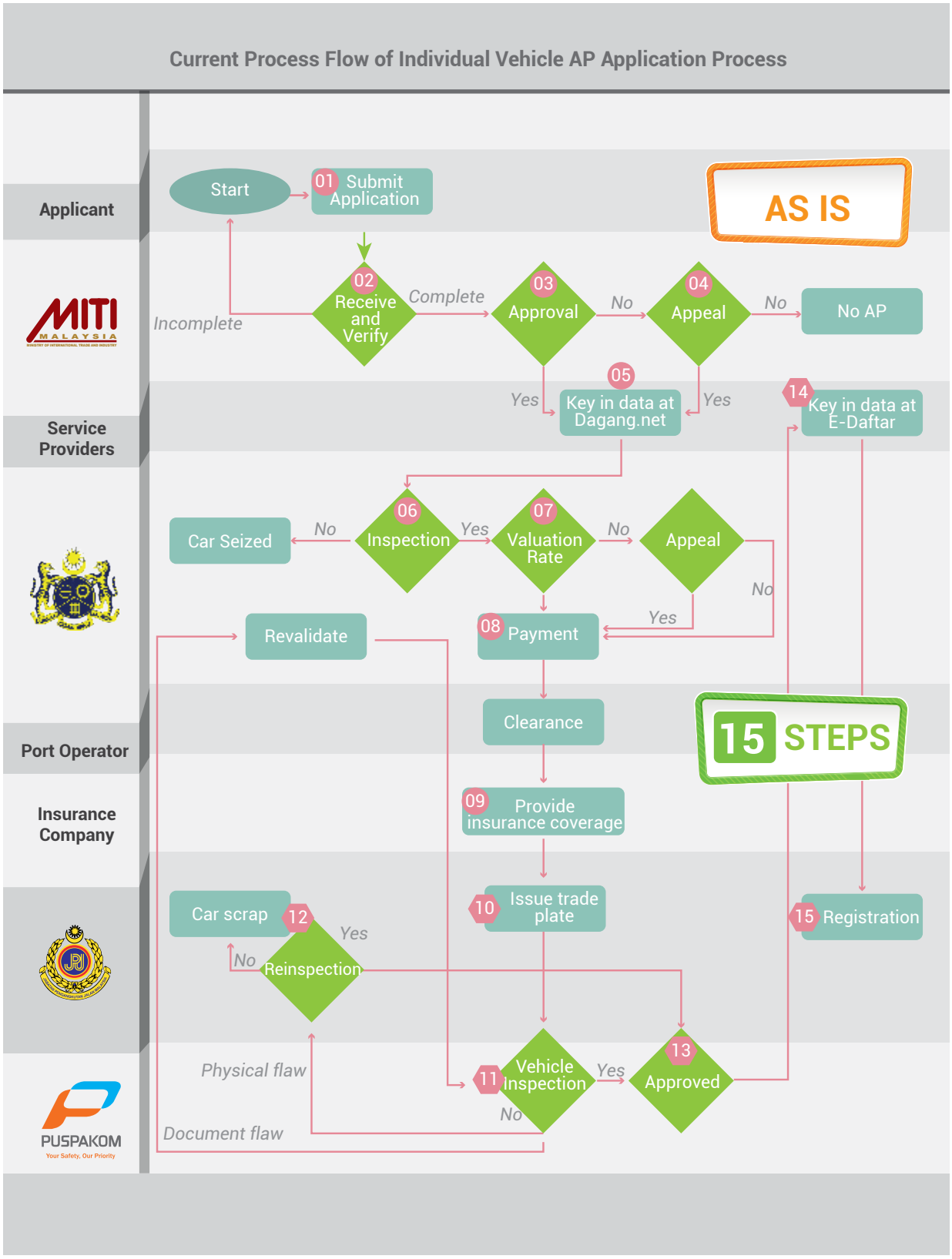
Education Services

40. Private higher education with university status
41. International schools
42. Technical and vocational secondary education services
43. Technical and vocational secondary education services for students with special needs
44. Skills training centre

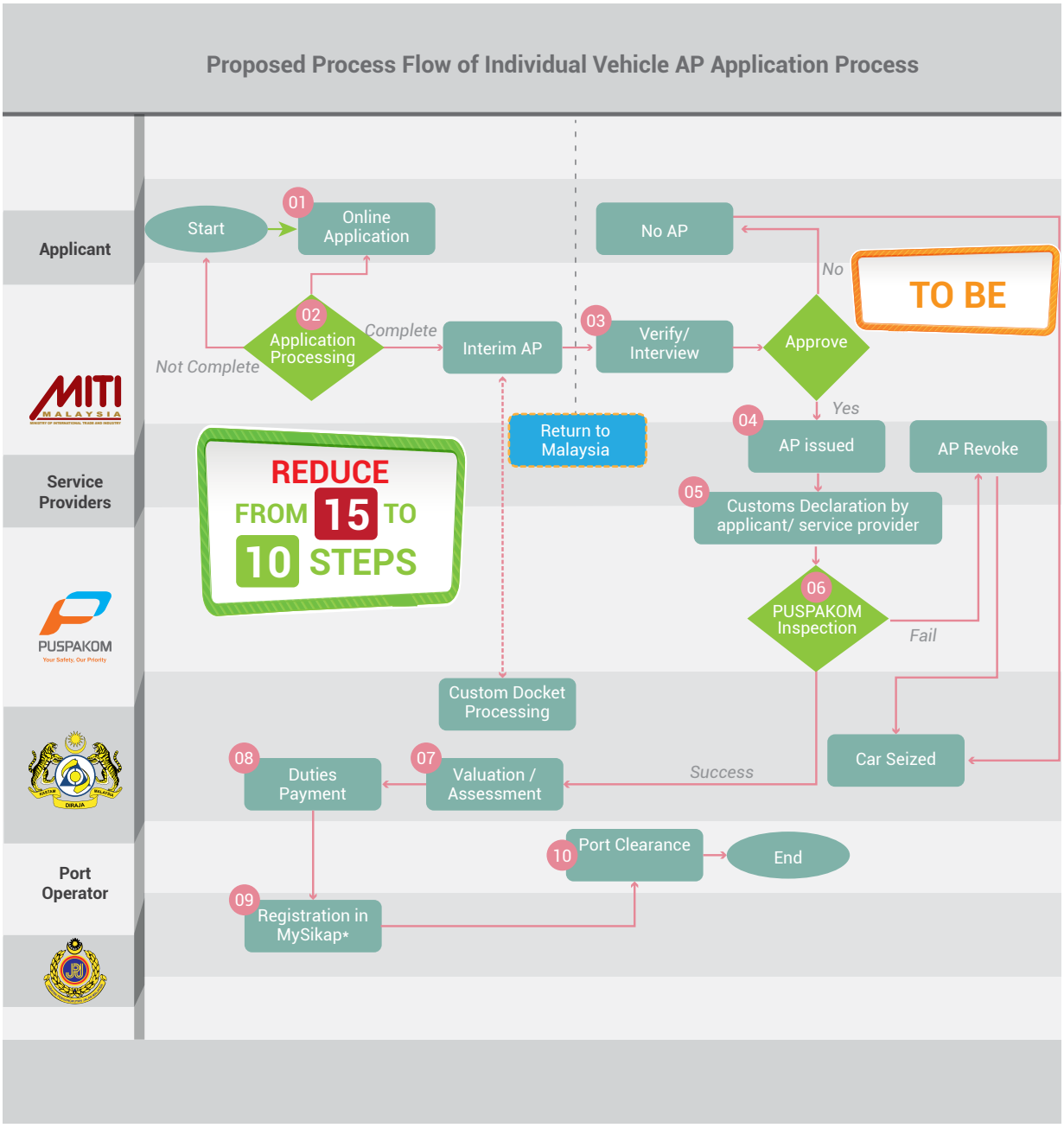
45.Courier Services

Complementing the growth and development in the manufacturing sector, the Government is intensifying its efforts to promote and develop the services sector. The Government will be progressively undertaking liberalisation of the other services sub-sector on an on-going basis.

APPENDIX D.1: PROCESS IMPROVEMENT THROUGH RURB ON INDIVIDUAL VEHICLE APPROVED PERMIT



APPENDIX D.2: PROCESS IMPROVEMENT THROUGH RURB ON INDIVIDUAL VEHICLE APPROVED PERMIT



APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
Working Capital Guarantee Scheme (WCGS) To assist Small Medium Enterprise (SMEs) to gain access to financing.	Application for WCGS is available from from 1 January 2016 until 31 December 2018 or upon approval of financing up to RM2.0 billion for SMEs with 70% government guarantee.	**Syarikat Jaminan Pembiayaan Perniagaan Berhad (SJPP)** http://www.sjpp.com.my/sjppv2e/index.php/services/working-capital-guarantee-scheme-wcgs/scheme-brief-wcgs
Services Sector Guarantee Scheme (SSGS) To assist services sector SME companies to gain access to financing from Financial Institutions.	Application for SSGS is available from 1 April 2015 until 31 December 2017 or upon approval of financing up to RM5 billion for SMEs in the services sector together with 70% government guarantee.	http://www.sjpp.com.my/sjppv2e/index.php/services/services-sector-guarantee-scheme-ssgs/scheme-brief-ssgs
Services Export Fund (SEF) To provide assistance to Malaysian Service Providers (MSPs) to undertake activities to expand and venture into the international market.	**The disbursement of SEF to MSPs is through the provision of grants and soft loans:** • 100% reimbursable grant for eligible expenses incurred up to a maximum of RM50,000 per company; • 50% reimbursable grant for eligible expenses incurred up to a maximum of RM50,000 per company; • 50% reimbursable grant for eligible expenses incurred in the initial twelve (12) months for the setting up of office overseas, up to a maximum of RM150,000 per company (whichever is earlier); • 50% reimbursable grant for eligible expenses incurred up to a maximum of RM1 million per company; and • 50% reimbursable grant for eligible expenses incurred up to a maximum of RM3 million per company.	**Malaysia External Trade Development Corporation (MATRADE)** http://www.matrade.gov.my/en/component/joomdoc/doc_details/188-services-export-fund-sef-application-form
Business Accelerator Programme 2.0 (BAP 2.0) Business Accelerator Programme (BAP) 2.0 is an integrated assistance programme to enhance capabilities of small and medium enterprises (SMEs) through business advisory and financial support. The Programme supports a wide range of capacity building initiatives to assist SMEs to grow their businesses locally and abroad.	**Two types of financing available under the Business Accelerator Programme (BAP) :** • Matching Assistance; and • Soft Loan.	**SME Corp** http://www.smecorp.gov.my/index.php/en/programmes/2015-12-21-09-53-14/business-accelerator-programme-bap

APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016 (con't)

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
Soft Loan Scheme for Automation & Modernisation (SLSAM) The fund for this Scheme is channelled by the Government of Malaysia via the Ministry of International Trade and Industry (MITI) to MIDF for the implementation of the Scheme.	**The SLSAM assists manufacturing companies to:** • Modernise and automate manufacturing processes; • Upgrade production capability and capacity; • Minimise dependence on labour – intensive activities and foreign labour; • Diversify into higher value- added activities; • Rationalise and streamline operations including through mergers and acquisitions; • Tooling acquisition, development and production; • Productivity improvement; and • Enhancing export performance.	**Malaysian Industrial Development Finance Berhad (MIDF)** http://www.midf.com.my/index.php/development-finance-our-products-a-services/development-finance-soft-loan-scheme-for-automation-and-modenisation-slsam http://www.midf.com.my/index.php/development-finance-our-products-a-services/soft-loan-scheme-for-services-exports-slsse
Soft Loan Scheme for Services Exports (SLSSE) The SLSSE was launched in October 2015 to provide assistance to Malaysian Service Providers (MSPs) to undertake activities to expand and venture into international markets. The implementation of the fund is from 2015 until 2020.	**Financing Amount:** • Financing to defray the cost related to the issuance of a Bank Guarantee or Performance Bond for project execution excluding the principal value of the said Bank Guarantee or Performance Bond – Maximum of RM5 million per company; and • Financing to assist MSPs in proposing and planning for overseas' project negotiations – Maximum of RM2 million per company.	
Expatriate Posts for Green Technology (GTs) A company which Undertakes a green technology project or services activity entitle for this incentive granted by Malaysian Investment Development Authority (MIDA).	**A company which undertakes a green technology project or services activity should submit the application to MIDA** • Investment Tax Allowance (Project) • Income Tax Exemption (Services) **A company which purchases green technology assets listed in MyHijau Directory should submit its application to MGTC** • Investment Tax Allowance (Asset)	**Malaysian Investment Development Authority (MIDA)** http://www.mida.gov.my/home/administrator/system_files/modules/photo/uploads/20151228030641_GTJA.pdf

APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016 (con't)

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
Capital Allowance to Increase Automation in Labour Intensive Industries To encourages shift from high labour intensive towards automation and innovation activities.	**Category 1: High labour intensive industries (such as rubber products, plastics, wood, furniture and textiles),** • An automation capital allowance of 200% will be provided on the first RM4 million expenditure incurred within the period from 2015 to 2017; and **Category 2: Other industries** An automation capital allowance of 200% will be provided on the first RM2 million expenditure incurred within the period from 2015 to 2020.	**Malaysian Investment Development Authority (MIDA)** http://www.mida.gov.my/home/administrator/system_files/modules/photo/uploads/20151228030641_GTJA.pdf
Incentive for Less Developed Areas To enhance the special incentive package available in the Economic Corridors to include more less developed areas.	**Customised incentive based on the merit of each case:** • 100% income tax exemption up to 15 years of assessment (5+5+5) commencing from the first year of assessment statutory income is derived. **or** Income tax exemption of 100% of qualifying capital expenditure (Investment tax Allowance) which can be offset against 100% statutory income for 10 years. • Stamp duty exemption • Withholding tax exemption • Import duty exemption on raw materials and components • Import duty exemption on machinery and equipment	
Incentive for Industrial Area Management To ensure industrial estates better managed.	100% income tax exemption of statutory income for 5 years, commencing from the date the company commences its specified activities.	
Incentive for Establishment of Principle Hub • To encourage foreign companies to leverage on Malaysia's position in ASEAN and Asia Pacific; and • To encourage Malaysia companies to provide function of regional headquarters.	• Tier 3 : Corporate Tax rate at 10% for 5 + 5 years • Tier 2: Corporate Tax rate at 5% for 5 + 5 years • Tier 1: Corporate Tax rate at 0% for 5 + 5 years	

APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016 (con't)

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
The East Coast Economic Region In ensuring inclusivity of vulnerable groups, the ECER developed a range of entrepreneurship development programmes to broaden the abilities of target groups such as women, youth and unemployed to participate in the economy.	• Empower ECER Programme trained 4,050 participants in entrepreneurship skills. • ECER Entrepreneurship Development Programme (EEDP). • Suri@Home Programme creates home-based business opportunities for housewives and single mothers.	**East Coast Economic Region Development Council (ECERDC)** http://www.ecerdc.com.my/
The Sabah Development Corridor (SDC) Initiatives to increase opportunities for local communities in the Sabah	The SDC focused on skills training programmes: • 800 local participants were trained to become technopreneurs in the agri-based industry through exposure and knowledge transfer in the processing of agri-food and specialty natural products; • The Accelerated Skill Enhancement Training Programme to reskill or upskill them for hospitality jobs, benefiting from increasing investments in the tourism sector; and • University College Sabah Foundation (UCSF) together with Sabah Economic Development and Investment Authority (SEDIA) has conducted programmes in creative content skill development under Sabah Animation Creative Content Centre (SAC3).	**Sabah Economic Development and Investment Authority** http://www.sedia.com.my/SDC_Incentives.html
The Sarawak Corridor of Renewable Energy (SCORE)	The provision of infrastructure and access to economic opportunities: • Unit Peneraju Agenda Bumiputera (TERAJU) has allocated RM100 million for entrepreneur development, including RM1.5 million for a fishmeal and surimi processing enterprise and RM16.1 million Facilitation Fund allocated to 4 local companies enabling them to provide support services to Petroliam Nasional Berhad (PETRONAS) and Bintulu Port; • Yayasan Peneraju Pendidikan Bumiputera (YPPB) delivered education programmes, including support for professional qualifications such as the Association of Chartered Certified Accountants (ACCA) and Welding Apprentice Programme; and • Construction of access roads to Murum and Baram Dam that provided paved road access to more than 40 villages and 25,000 people.	**Sarawak Corridor of Renewable Energy (SCORE)** http://www.recoda.com.my/invest-in-score/what-is-score/

APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016 (con't)

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
Bumiputera Economic Community (BEC) The development of the BEC involved specific initiatives for Bumiputera companies based on their business needs.	Entrepreneurs were assisted in terms of financing, support services, and capacity building. Over RM9 billion in financial assistance was provided to more than 414,000 Bumiputera businesses: • Loans of RM8.6 billion benefited 413,278 micro and small businesses. • Financial assistance totalling RM495.2 million to 760 Bumiputera small and medium enterprises (SMEs) in the development and growth stage, by Malaysia Technology Development Corporation (MTDC), Malaysia Venture Capital Management Berhad, Malaysia Debt Ventures.	**Unit Perancang Ekonomi, Jabatan Perdana Menteri** http://rmk11.epu.gov.my/pdf/strategy-paper/Strategy%20Paper%2003.pdf
Franchise Financing Scheme (FFS) To assist viable franchise businesses to secure the necessary financing through the provision of Guarantee cover for the loan granted by the participation financial institutions.	Maximum Loan Limit: • RM7.5 million Credit Facilities Covered • Term Loans; • Overdrafts; • Trade Financing; and • Any other credit facilities determined from time to time by the Corporation.	**Credit Guarantee Corporation** http://www.cgc.com.my/government-funded-schemes/
My Creative Ventures To spur Malaysia's creative industry via strategic and innovative funding in a form of equity or debt investments.	The business offerings must fall within the creative industry as guided by the Dasar Industri Kreatif Negara by Ministry of Information, Communication and Culture, which includes, amongst others: • Visual Arts; • Performing Arts; • Music; • Literature; • Content Creation; • Fashion and Design; • Traditional Arts/Cultural Arts; • Culinary Arts; • Creative Education; and • Creative Technology.	**My Creative Ventures Sdn. Bhd.** http://www.mycreative.com.my/how
Public-Private Research Network (PPRN) To promote innovation programme based on demand in increasing productivity and strengthens the economic development in Malaysia.	The initiative is collaboration between the Ministry of Education (MOE), the Malaysian Technology Development Corporation (MTDC), SME Corp and private industries.	**Public-Private Research Network (PPRN)** http://portal.pprn.myain.my/files/infokit-pprn-BI.pdf

APPENDIX E: INCENTIVES TO BOOST PRODUCTIVITY 2015/2016 (con't)

PROGRAMME / INCENTIVE	DESCRIPTION	SOURCES
Young Professional Bumiputera Entrepreneurs Development Programme **Armed Forces Veteran Entrepreneur Development Programme** To provide micro financing and support services towards entrepreneurial development.	• To provide easy business financing. • To provide business opportunities and entrepreneurial information. • To provide support services and guidance to entrepreneurs who participate in TEKUN's programmes. • To develop a progressive and dynamic TEKUN Entrepreneur community and business network. • To instil entrepreneurship culture among Malaysians. • To encourage savings lifestyle among TEKUN's entrepreneurs.	**TEKUN Nasional** https://www.tekun.gov.my/en/special-program-2/
Technology Commercialisation Platform (PLATCOM) Programme	This programme provides necessary support from 'concept to commercialisation'. This will be done through the provision of access to technical assistance, market information, incubation facilities, testing facilities and other relevant services.	**PLATCOM Ventures Sdn. Bhd.** http://www.platcomventures.com/staging/upload/834617hip2_brochure.pdf
Industry Academia Collaboration programme	TalentCorp partners with the Ministry of Higher Education (MoHE) to bring employers into universities for Industry-Academia Collaboration (IAC) with the main aim of producing industry-ready graduates with competencies both in technical and soft skills.	**TalentCorp Malaysia** https://www.talentcorp.com.my/our-work/initiatives/industry-academia-collaboration
Bumiputera Entrepeneurs Startup Scheme (SUPERB)	Bumiputera Entrepreneurs Startup Scheme (SUPERB) provides grants of up to RM500, 000 to support innovative and creative business ideas. It is a fund to help startup companies with an allocation of RM100 million within 3 years. A total of RM30 million has been allocated for 2014.	**Unit Peneraju Agenda Bumiputera (TERAJU)** http://www.teraju.gov.my/skim-permulaan-usahawan-bumiputera/?lang=en
High Performing Bumiputera Companies (TERAS) Programme	Teras Fund is intended to facilitate business expansion under the Syarikat Bumiputera Berprestasi Tinggi (Teras) programme. Funding under the Teras Fund is for working capital and asset purchases. These funds are provided TERAJU and a collaboration between financial institutions and fully managed by SME Bank, RHB Islamic, MIDF and Maybank Islamic. Teras Fund is only open to companies that are under the Teras programme.	http://www.teraju.gov.my/teras-fund/?lang=en

ACRONYMS AND ABBREVIATIONS

11MP	Eleventh Malaysia Plan
10MP	Tenth Malaysia Plan
9MP	Ninth Malaysia Plan
ACSI	American Customer Satisfaction Index
AEC	ASEAN Economic Community
AGC	Attorney General's Chamber
AIAC	Aerospace Industries Association of Canada
AIM	Agensi Inovasi Malaysia
AP	Approved Permit
ARMR	Annual Report on Modernisation of Regulations
ASEAN	Association of Southeast Asian Nations
ASPRI	Association of Process Industry
BDA	Big Data Analytics
BEC	Bumiputra Economic Community
BEF	Business Excellence Framework
BE	Business Efficiency
BIM	Building Information Modelling
BIMS	Bought-in Materials and Services
BLESS	Business Licensing Electronic Support System
BPR	Business Process Re-engineering
BS	Business Sophistication
CAGR	Compounded annual growth rate
CEO	Chief Executive Officer
CITP	Construction Industry Transformation Programme
CPO	Crude Palm Oil
CSI	Customer Satisfaction Index
DOE	Design of Experiment
DOSM	Department of Statistics, Malaysia
DT	Dynamic Test
E&E	Electrical and Electronics
EDC	Export Development Canada
ETP	Economic Transformartion Programme
EPF	Employee's Provident Fund
FFS	Franchise Financing Scheme
FGBPR	Focus Group on Business Process Re-engineering
FMM	Federation of Malaysia Manufacturer
FMMEIA	FMM Exellence Industry Award

GBI	Green Building Index
GDP	Gross Domestic Products
GDVT	German Dual Vocational Training
GFCF	Gross Fixed Capital Information
GII	Global Innovation Index
GRP	Good Regulatory Practices
GTP	Government Transformation Programme
HIP	High Impact Programmes
IBO	Innovation Business Opportunities
IBS	Industrialised Building System
ICT	Information and Communication Technology
ICC	Innovative and Creative Circle (ICC)
ICU	Implementation Coordination Unit
IE	International Enterprise
IGBT	Insulated Gate Bipolar Transistors
IMD	International Institute for Management Development
INTAN	National Institute of Public Adminstration
IoT	Internet of Things
IT	Information Technology
JAKIM	Jabatan Kemajuan Islam Malaysia / Islamic Development Department Malaysia
JPJ	Jabatan Pengangkutan Jalan / Road Transport Department
JPK	Jabatan Pembangunan Kemahiran
KLEMS	K-capital, L-labor, E-energy, M-materials, and S-purchased services
LEAD	Local Enterprise and Association Development
LFPR	Labour Force Participation Rate
LPTT	Longitudinal Patient Transfer Trolley
M&E	Machinery and Equipment
MAF	Malaysia Association Franchise
MARDI	Malaysian Agricultural Research and Development Institute
MATRADE	Malaysia External Trade Development Corporation
MBEF	Malaysia Business Excellence Framework
MBL	Moderning Business Licensing
MBR	Modernising Business Regulations

ACRONYMS AND ABBREVIATIONS (con't)

MDR	Majlis Daerah Raub / Raub District Council
MEP	Paddy Mini Estates
MGCC	Malaysian-German Chambers of Commerce
MITI	Ministry of International Trade and Industry
MKRA	Ministerial Ket Results Areas
MNC	Multinational Company
MOH	Ministry of Health
MPC	Malaysia Productivity Corporation
MPB	Malaysia Productivity Blueprint
MPOB	Malaysian Palm Oil Board
MRT	Mass Rapid Transit
MRP	Material Resource Planning
MTDC	Malaysian Technology Development Corporation
NDPC	National Development Planning Committee
NDWQSP	National Drinking Water Quality Surveillance Programme
NEC	National Export Council
NGO	Non-government Organisation
NKEA	National Key Economic Area
NKRA	National Key Result Area
NOPC	National Oversight Productivity Council
NPC	National Productivity Council
NPDIR	National Policy on the Development and Implementation of Regulations
NSDC	National SME Development Council
OECD	Organisation for Economic Cooperation and Development
PET	Polyethylene Terephthalate
PGM	Productivity Gain Measurement
PKPj	Pejabat Kesihatan Putrajaya
PLWS	Productivity-Linked Wage System
PPP	Purchasing Power Parity
PPRN	Public-Private Research Network
PSDC	Penang Skills Development Centre
PWE	Piece Work Earning
QRMS	Quality Regulatory Management System
R&D	Research and Development
RAS	Restaurant Association of Singapore
RC	Regulatory Coordinator
RIA	Regulatory Impact Analysis
RIS	Regulatory Impact Statement
RM	Ringgit Malaysia
RNF	Regulatory Notification Form
RPMR	Regulatory Process Management Requirements
RURB	Reducing Unnecessary Regulatory Burden
SDWA	Safe Drinking Water Act
SFMA	Singapore Food Manufacturers' Association
SFIC	Singapore Furniture Industries Council
SGA	Small Group Activity
SIRIM	Standards and Industrial Research Institute of Malaysia
SLSAM	Soft Loan Scheme for Automation & Modernisation
SME	Small Medium Enterprise
SMV	Standard Minute Value
SOP	Standard Operating Procedure
SOCSO	Social Security Organisation
SPAD	Suruhanjaya Pengangkutan Awam Darat / Land Public Transport Commision
SPETA	Singapore Precision Engineering & Tooling Association
SSGS	Services Sector Guarantee Scheme
Taff	Textile and Fashion Federation
TCB	The Conference Board
TFP	Total Factor Productivity
TKPM	Taman Kekal Pengeluaran Makanan / Permanent Food Production Parks
TPPA	Trans-Pacific Partnership Agreement
TVET	Technical and Vocational Education and Training
ULC	Unit Labour Cost
UniSZA	Universiti Sultan Zainal Abidin
USD	United States Dollar
UTM	Universiti Teknologi Malaysia
WBDB	World Bank Doing Business
WCY	World Competitiveness Yearbook
WCGS	Working Capital Guarantee Scheme
WEF	World Economic Forum

MPC'S DIRECTORY

HEADQUARTERS

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

MPC REGIONAL OFFICES

Malaysia Productivity Corporation
(Petaling Jaya Office)
A-06-01, Level 6, Block A, PJ 8
No. 23, Jalan Barat Section 8
46050 Petaling Jaya
Selangor, Malaysia
Tel: 603-7960 0173 / 7960 0176 / 7960 0178 / 7960 0179
Fax: 603-7960 0211
Email: marketing@mpc.gov.my

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

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

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

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

Malaysia Productivity Corporation
(Terengganu Office)
Lot No. 1F 22
Kompleks Usahawan Terengganu (KUT)
Kubang Jela, Manir
21100 Kuala Terengganu
Terengganu, Malaysia
Tel: 609-615 6089
Fax: 609-615 6081
Email: ecrt@mpc.gov.my

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

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