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04

SECTOR-LEVEL  
INITIATIVES

As there is a wide variation in challenges for different sectors and industries, additional sector-specific initiatives are critical for productivity improvement. This chapter outlines the sector-level challenges and initiatives for nine priority subsectors. Sector-specific initiatives are proposed, including the setting up of sector Productivity Nexus to drive the implementation of the initiatives in close partnership with the government. A detailed discussion of three deep-dive subsectors is also presented.

9 priority subsectors are identified and they collectively contribute to 30% of Malaysia's GDP, and 40% of total employment.

In the previous chapter, 10 national-level initiatives were presented that correspond to the 5 strategic thrusts. However, it is important to acknowledge the wide variation in challenges for different sectors and industries, and as such, additional sector-specific initiatives are critical for productivity improvement.

9 priority subsectors are identified: retail and food & beverages (F&B)<sup>1</sup>; electrical and electronics (E&E); chemicals and chemical products; agro-food; professional services; tourism; information, communication and technology (ICT); machinery and equipment; and private healthcare. Combined, the 9 priority subsectors selected contribute 30% of Malaysia's gross domestic product (GDP) and 40% of total employment. These subsectors are prioritised based on the following criteria:

- Contribution to GDP
- Share of workforce
- Opportunity for productivity improvement
- High multiplier effect
- Readiness to implement productivity improvement

For each priority subsector, two workshops and various one-on-one engagements with stakeholders were conducted to identify the challenges that each subsector faced and validate the proposed sector-specific initiatives.

From these subsectors, 3 are selected as deep-dive subsectors: retail and F&B, agro-food, and chemicals and chemical products. They are selected based on the following criteria:

- Significant size and highly visible
- Underperformed productivity growth with large gaps when compared to the best-in-class sector benchmarks
- Strong stakeholder support
- Potential for quick-to-impact results

1. Due to their many similarities, the retail and food and beverages (F&B) within the services sector are analysed jointly.

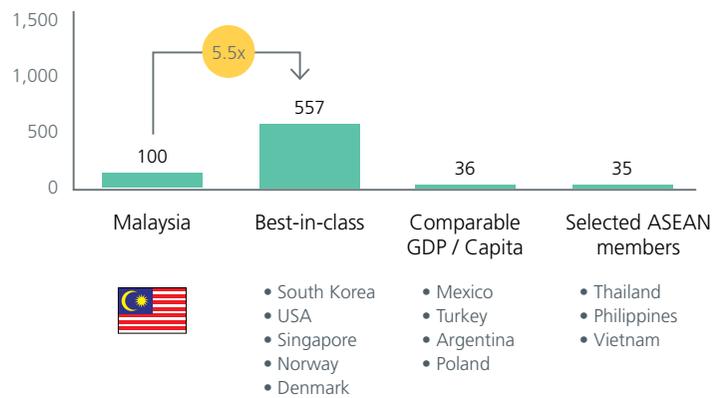
Figure 4-1

ELECTRICAL AND ELECTRONICS (E&E)<sup>1</sup>

Gross Value Add (RM bn), 2015	57.1	Labour Productivity (RM '000), 2015	125	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	2.6
Total Employment ('000), 2015	457	Labour Productivity (% p.a.), 2011-2015	6.7	Growth Surplus / Shortfall (% p.p.)	4.1

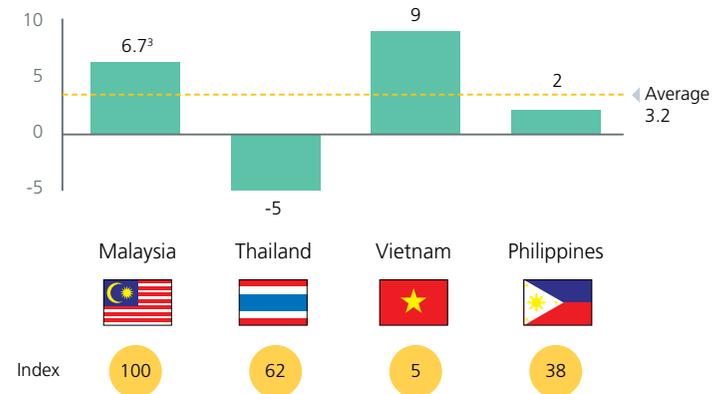
Labour productivity lags best-in-class average by 5.5x

Labour productivity index (Malaysia = 100)



Productivity growth is lagging behind Vietnam

Labour productivity (% p.a.), 2011-2014



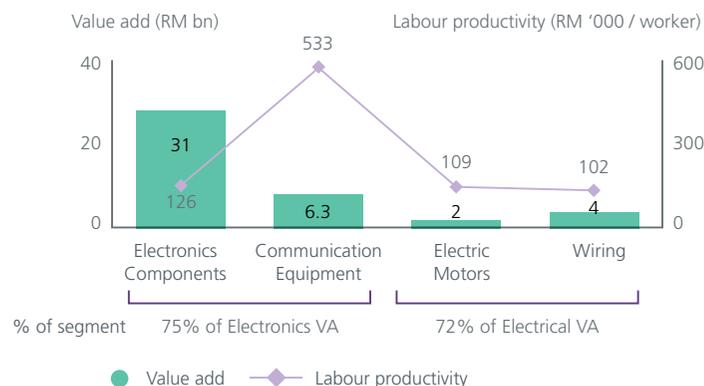
E&E SUBSECTORS

Electronics	Electrical
Computer & Peripherals	Electric Motors & Generators
Electronic Components & Board	Domestic Appliances
Communication Equipment	Wiring
Consumer Electronics	Lighting & Others

SUBSECTOR COMPOSITION

2011 Census	Large	SMEs
Number of Establishments ('000)	0.3	1.0
Average Value Add (RM mn)	99.5	3
Number of Employees ('000)	363	43
Labour Productivity (RM '000)	91	73

Communication Equipment is the most productive and value adding subsector



Many small players but contribute less value add



1.Value add and labour productivity at 2010 Prices. 2. Manufacturing labour productivity growth target in 11MP. 3. 2011-2015 period.

Source: Economic Planning Unit, Department of Statistics Malaysia, Oxford Economics, and International Labour Organisation.

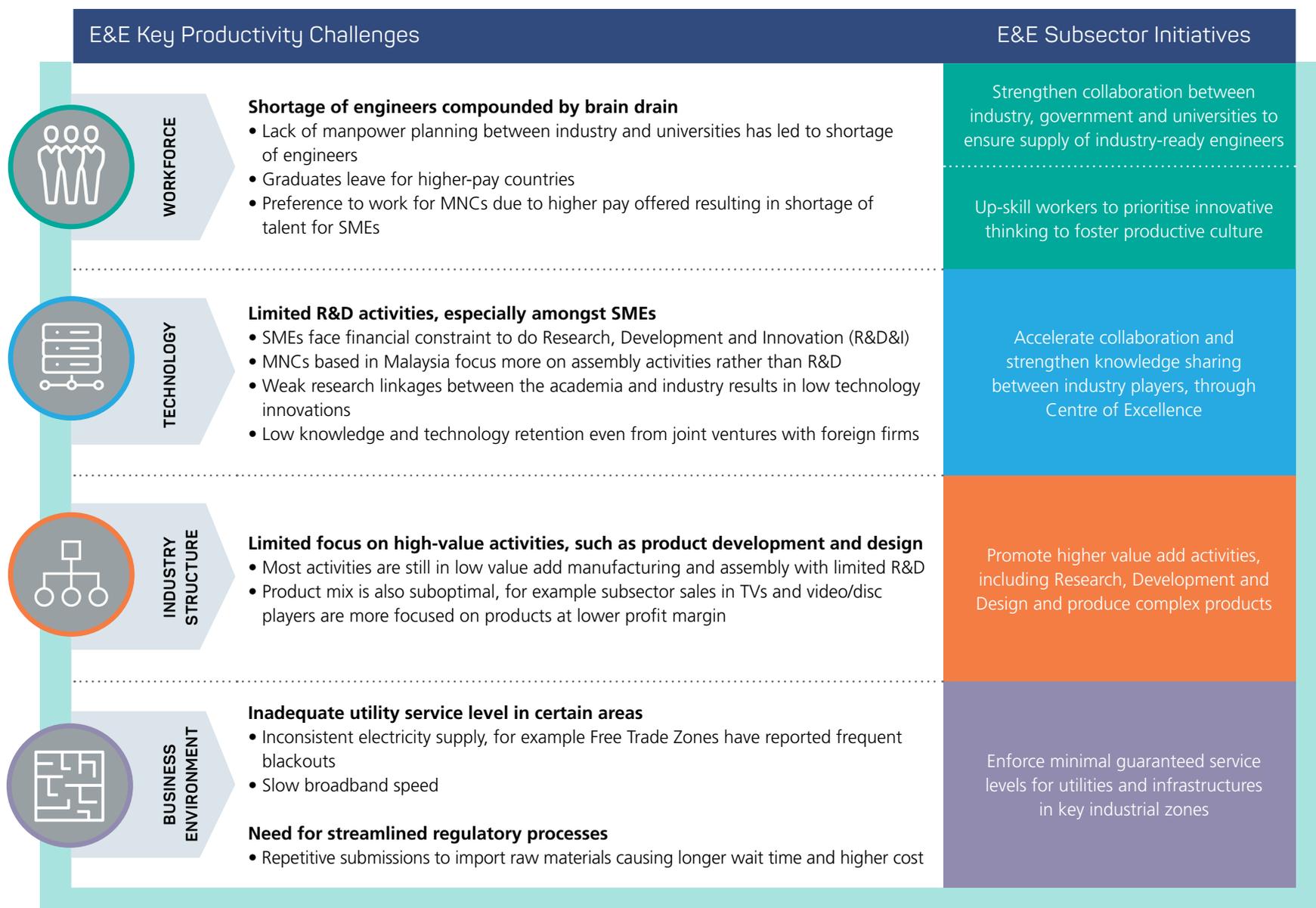


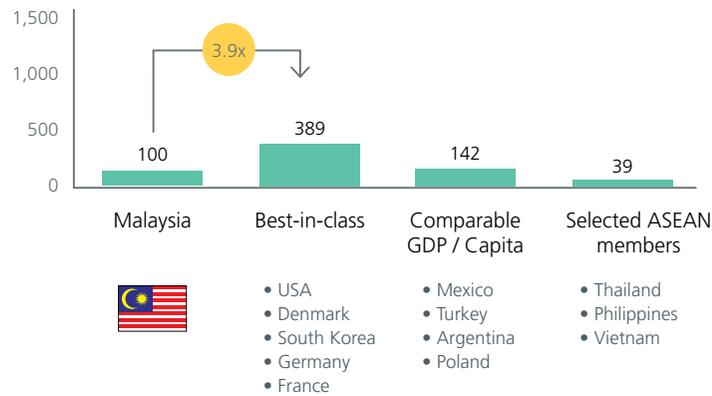
Figure 4-2

MACHINERY AND EQUIPMENT (M&E)<sup>1</sup>

Gross Value Add (RM bn), 2015	7.2	Labour Productivity (RM'000), 2015	113	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	2.6
Total Employment ('000), 2015	50	Labour Productivity (% p.a.), 2011-2015	10.3	Growth Surplus / Shortfall (% p.p.)	7.7

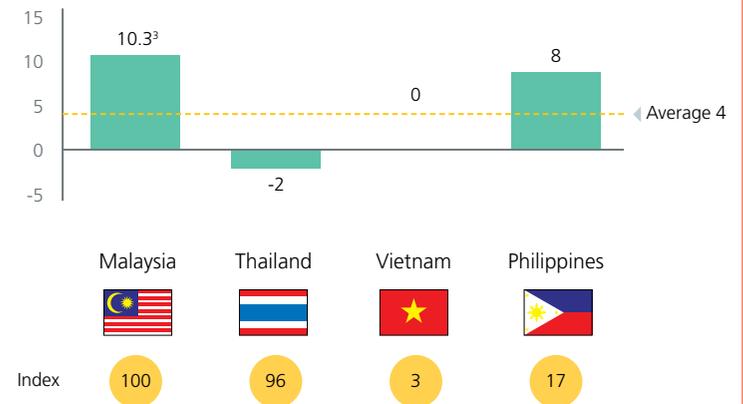
Labour productivity lags best-in-class average by 4x

Labour productivity index (Malaysia=100)



Above average growth but lags behind Philippines

Labour productivity (% p.a.), 2011-2014



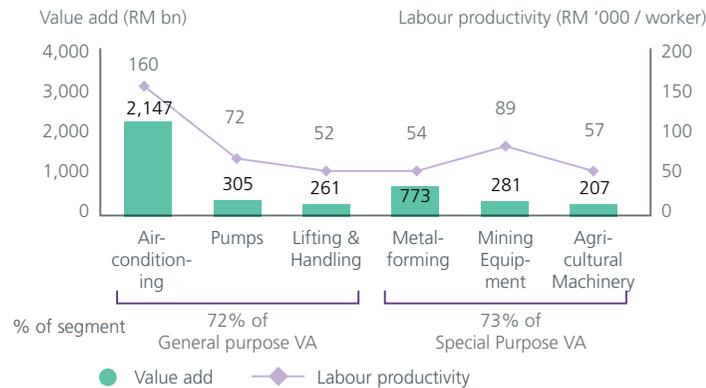
M&E SUBSECTORS

General Purpose	Special Purpose
Air-conditioning Machines	Metal-forming Machinery
Compressors and Pumps	Mining and Quarry Machinery
Lifting and Handling Equipments	Agricultural Machinery

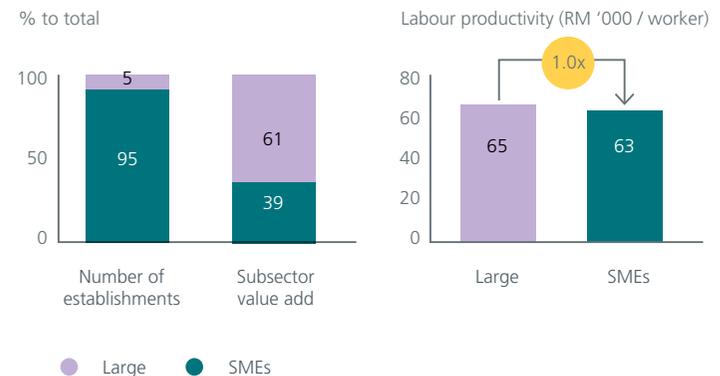
SUBSECTOR COMPOSITION

2011 Census	Large	SMEs
Number of Establishment	70	1,222
Average Value Add (RM mn)	46.2	1.8
Number of Employees ('000)	52	33
Labour Productivity (RM '000)	63	65

Air-conditioning has highest value add and highest productivity level



SMEs are 1.4x less productive than large companies



1.Value add and labour productivity at 2010 Prices. 2. Manufacturing labour productivity growth target in 11MP. 3. 2011-2015 period Note: Historical labour extrapolated for Thailand, Philippines and Vietnam where not available, based on trend.

Source: Economic Planning Unit, Department of Statistics Malaysia, Oxford Economics, and International Labour Organisation.

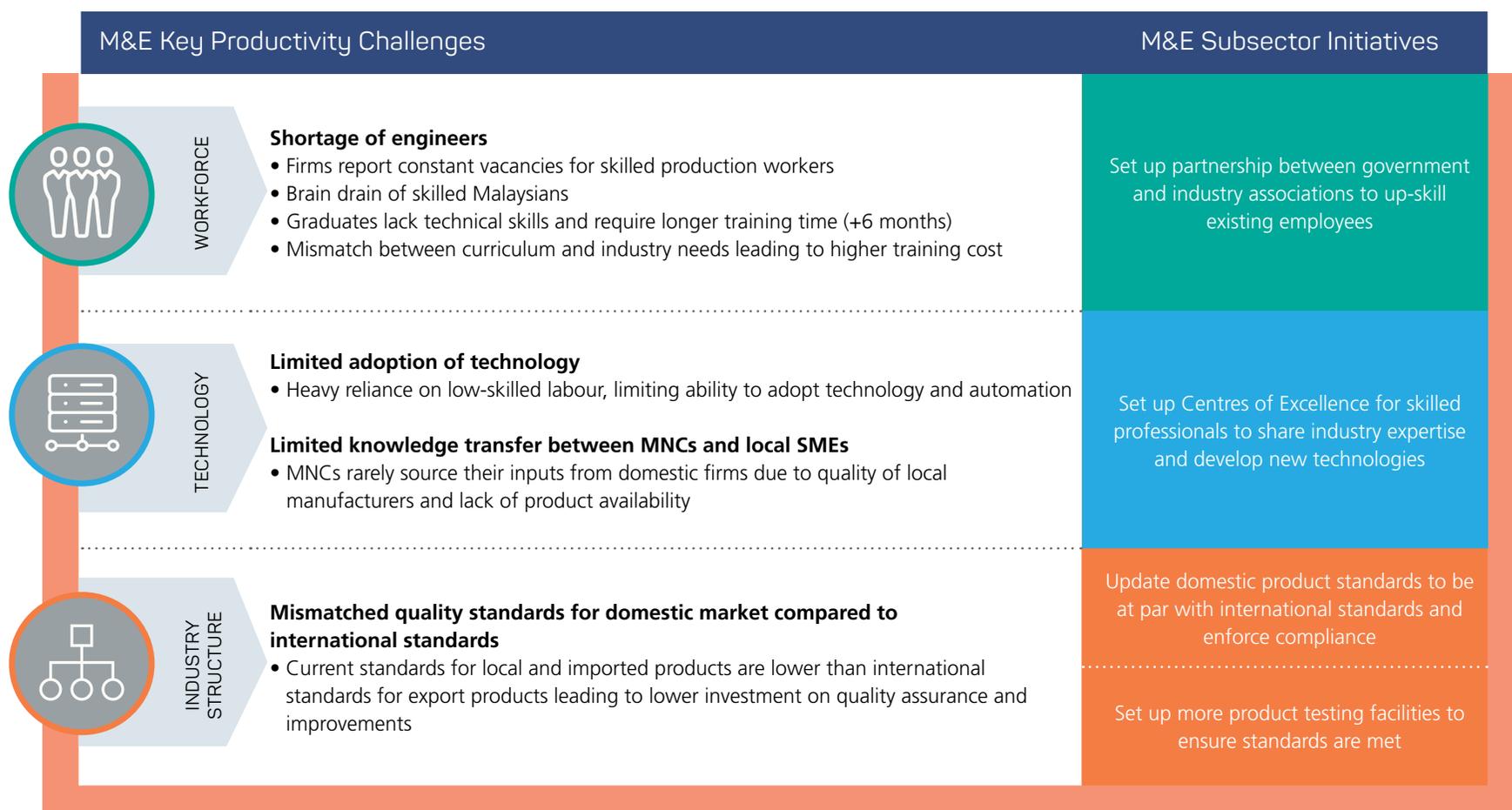


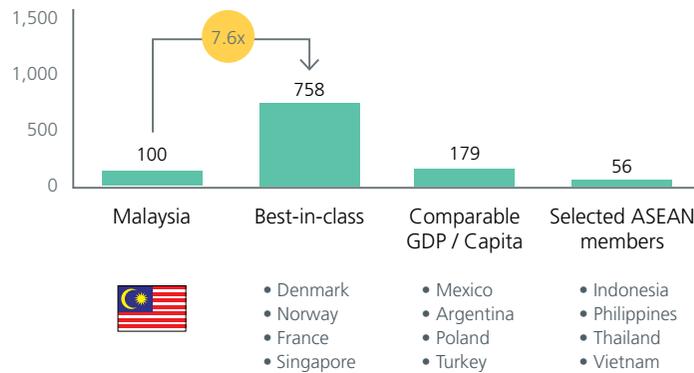
Figure 4-3

PRIVATE HEALTHCARE<sup>1</sup>

Gross Value Add (RM bn), 2015	6.8	Labour Productivity (RM'000), 2015	68	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	4.1
Total Employment ('000), 2015	103	Labour Productivity (% p.a.), 2011-2015	0.1	Growth Surplus / Shortfall (% p.p.)	-4.2

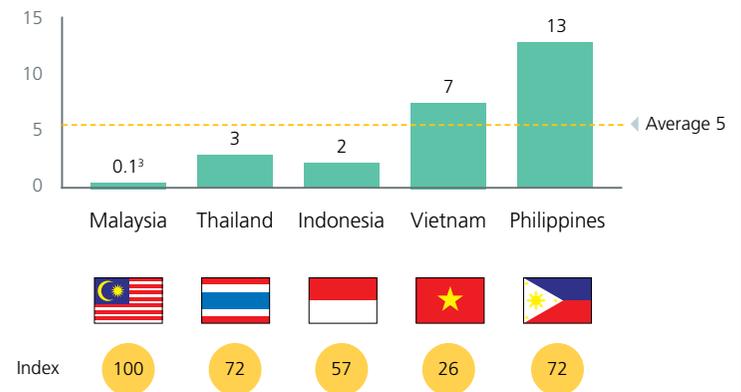
Labour productivity lags best-in-class average by 7.6x

Labour productivity index (Malaysia=100)



Malaysia's growth is below selected ASEAN members average

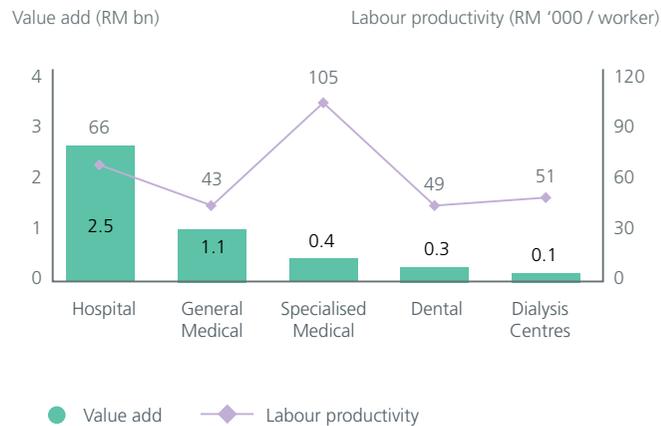
Labour productivity (% p.a.), 2011-2014



PRIVATE HEALTHCARE SUBSECTORS

Health Services	Residential Care Activities	Social Work
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Specialised medicine has highest productivity within health services



SUBSECTOR COMPOSITION

2011 Census	Large	SMEs
Number of Establishments ('000)	0.1	9
Average Value Add (RM mn)	32.8	0.3
Number of Employees ('000)	32	58
Labour Productivity (RM'000)	71	43

SMEs are as productive as large companies



1. Value add and labour productivity at 2010 Prices. 2. Services labour productivity growth target in 11MP. 3. 2011-2015 period.

Source: Economic Planning Unit, Department of Statistics Malaysia, Oxford Economics, and International Labour Organisation.

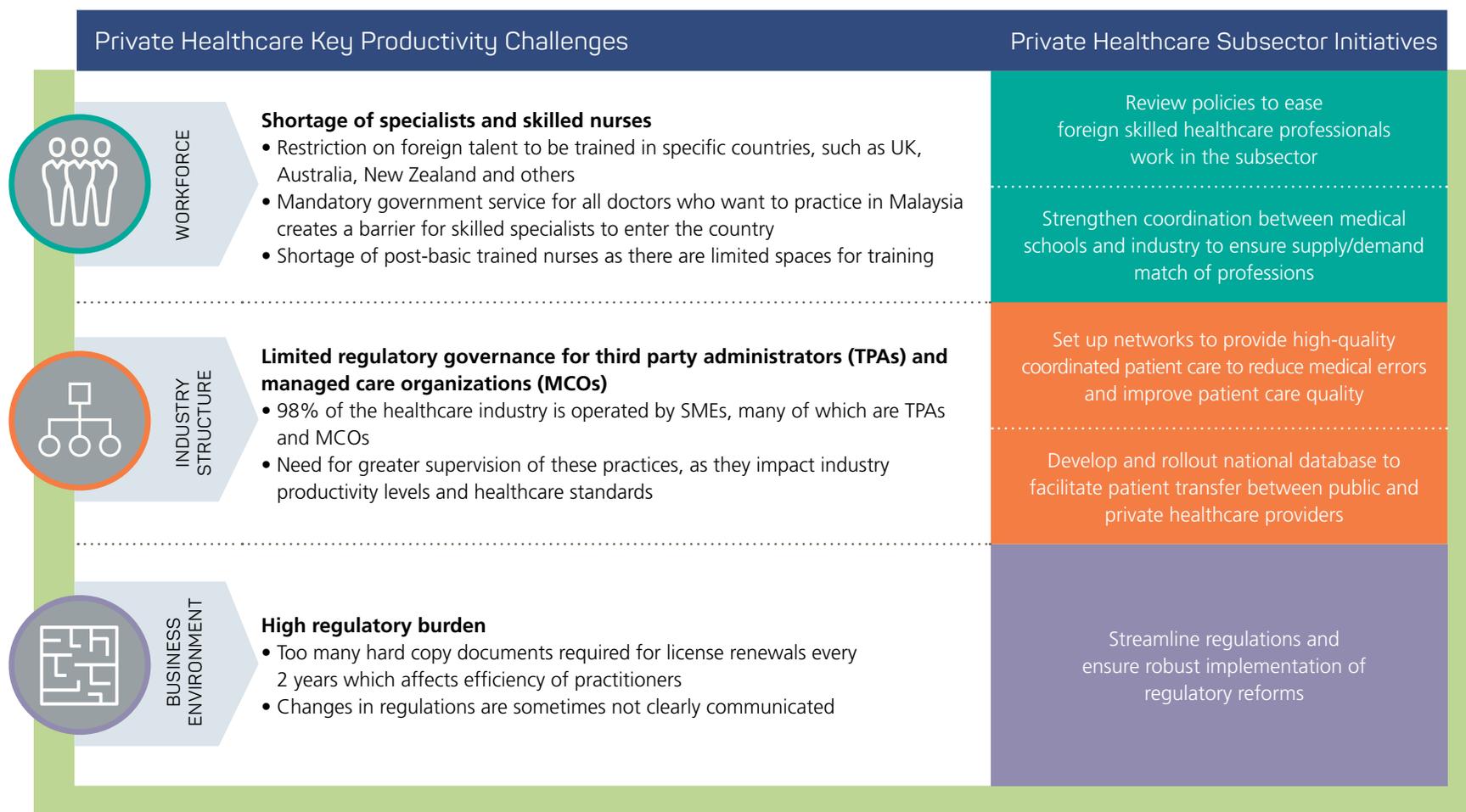


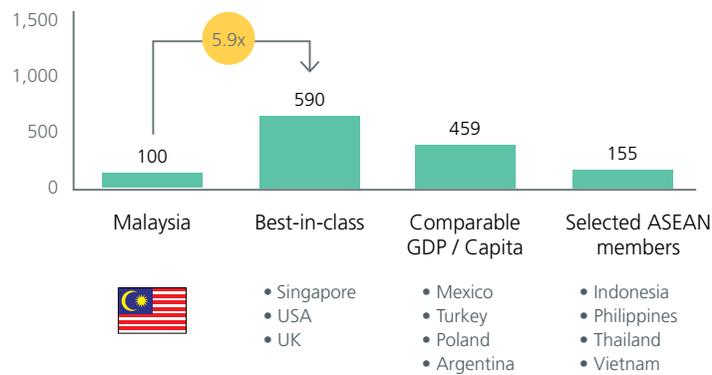
Figure 4-4

PROFESSIONAL SERVICES<sup>1</sup>

Gross Value Add (RM bn), 2015	20.8	Labour Productivity (RM'000), 2015	58	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	4.1
Total Employment ('000), 2015	359	Labour Productivity (% p.a.), 2011-2015	4.0	Growth Surplus / Shortfall (% p.p.)	-0.1

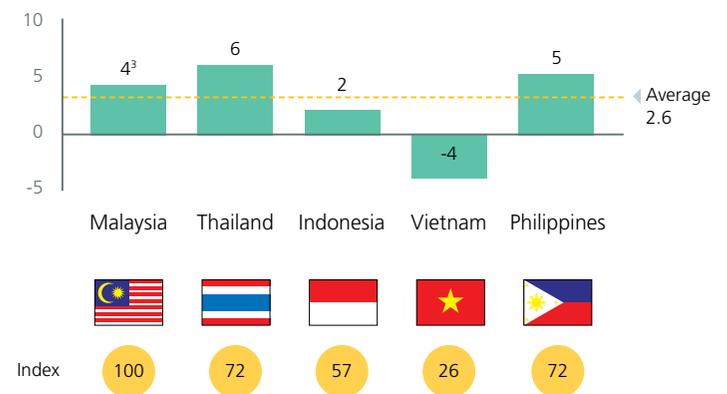
Labour productivity lags best-in-class average by 6x

Labour productivity index (Malaysia=100)



Malaysia leads selected ASEAN members on professional services productivity growth

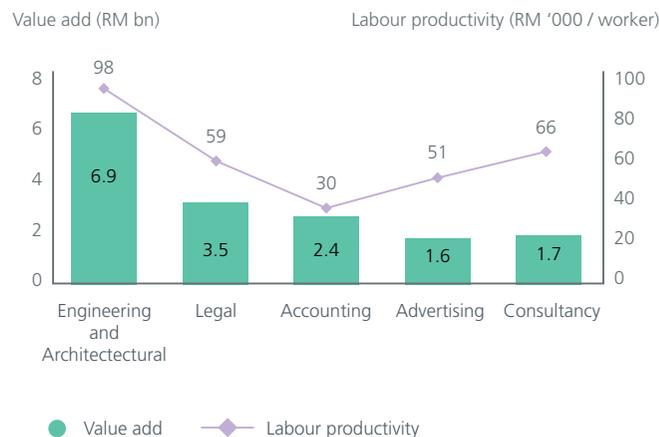
Labour productivity (% p.a.), 2011-2014



SELECTED SUBSECTORS IN PROFESSIONAL SERVICES

Engineering	Advertising
Legal	Architectural
Accounting	Consultancy

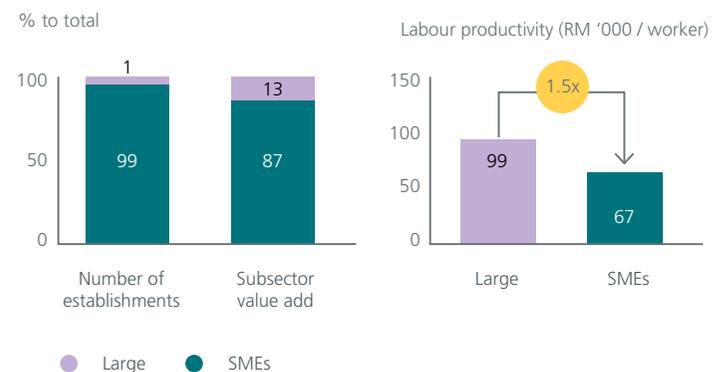
Advertising and Engineering have the highest productivity levels



SUBSECTOR COMPOSITION

2011 Census	Large	SMEs
Number of Establishments ('000)	0.1	19
Average Value Add (RM mn)	18.6	0.5
Number of Employees ('000)	22	143
Labour Productivity (RM'000)	99	67

Large companies are 1.5x more productive than SMEs



1.Value add and labour productivity at 2010 Prices. 2. Services labour productivity growth target in 11MP. 3. 2011-2015 period.

Source: Economic Planning Unit, Department of Statistics Malaysia, Oxford Economics, and International Labour Organisation.

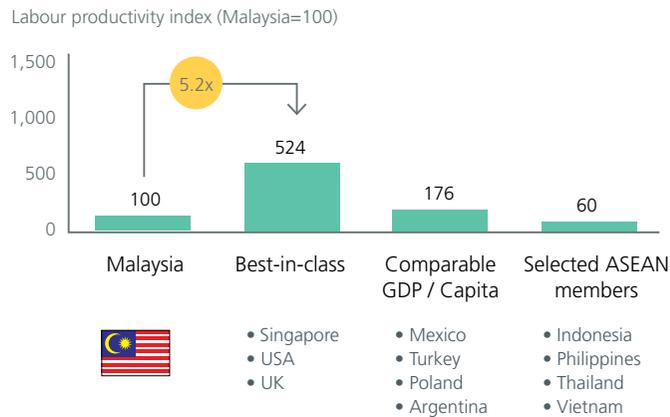


Figure 4-5

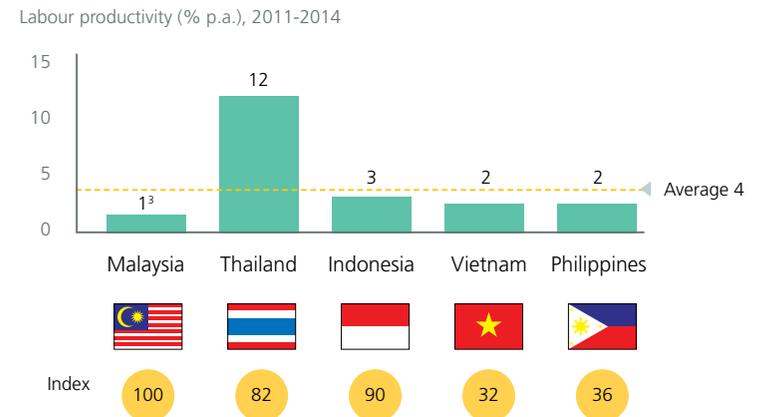
TOURISM SERVICE<sup>1</sup>

Gross Value Add (RM bn), 2015	33.9	Labour Productivity (RM'000), 2015	27.4	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	4.1
Total Employment ('000), 2015	1.2	Labour Productivity (% p.a), 2011-2015	0.7	Growth Surplus / Shortfall (% p.p.)	-3.4

Malaysia's labour productivity lags best-in-class average by 5.2x



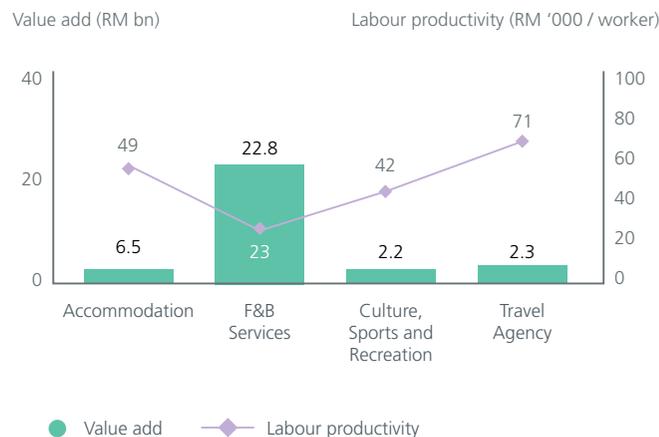
Malaysia's labour productivity growth in line with most of ASEAN but lags behind Thailand



SUBSECTORS TOURISM

Accommodation Services	Travel Agencies
Food and Beverages (F&B) Services	Cultural, Sports and Recreational activities

F&B Services provide highest value add but lowest productivity level



SUBSECTOR COMPOSITION<sup>4</sup>

2011 Census	Large	SMEs
Number of Establishments ('000)	0.6	151.5
Average Value Add (RM mn)	17.1	0.1
Number of Employees ('000)	155	680
Labour Productivity (RM'000)	71	25

SMEs make up 90% of companies and are 3x less productive than large companies



1. Value add and labour productivity at 2010 Prices. 2. Services labour productivity growth target in 11MP. 3. 2011-2015 period. 4. Accommodation; F&B services; and Cultural, Sports and Recreational.



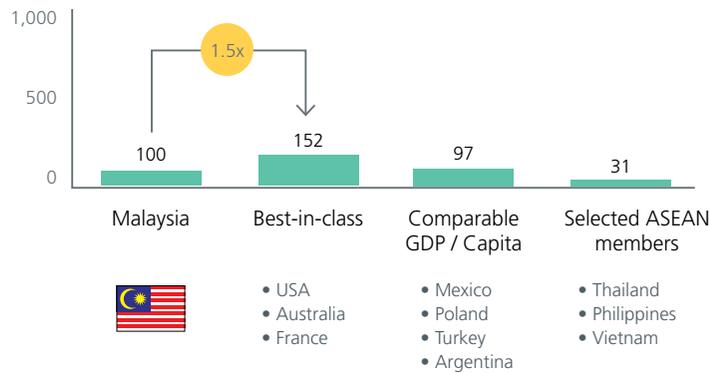
Figure 4-6

INFORMATION, COMMUNICATION AND TECHNOLOGY<sup>1</sup>

Gross Value Add (RM bn), 2015	142.7	Labour Productivity (RM'000), 2015	134	11MP Labour Productivity Target (% p.a.) <sup>2</sup>	4.1
Total Employment ('000), 2015	1.0	Labour Productivity (% p.a), 2011-2015	3.9	Growth Surplus / Shortfall (% p.p.)	-0.2

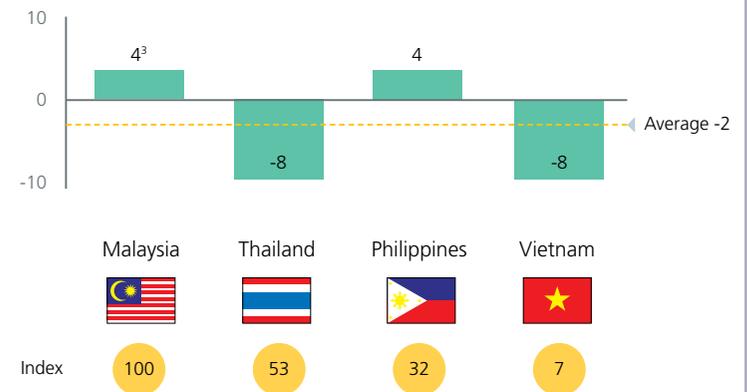
Labour productivity lags best-in-class average by 1.5x

Labour productivity index (Malaysia=100)



Highest growth of labour productivity among selected ASEAN members market

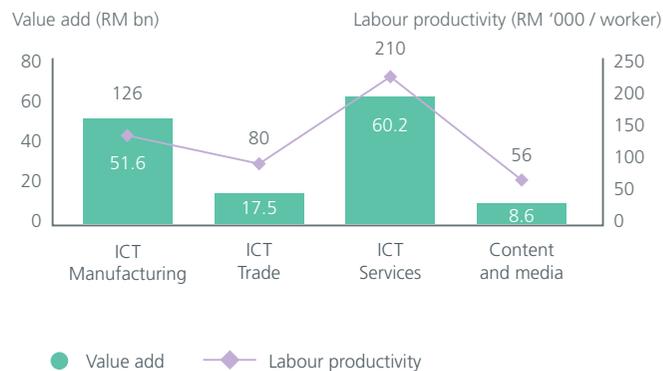
Labour productivity (% p.a.), 2011-2014



SUBSECTORS IN ICT

ICT Manufacturing	ICT Services
ICT Trade	Content and Media

ICT Services and ICT Manufacturing have highest value add contribution and productivity levels<sup>4</sup>



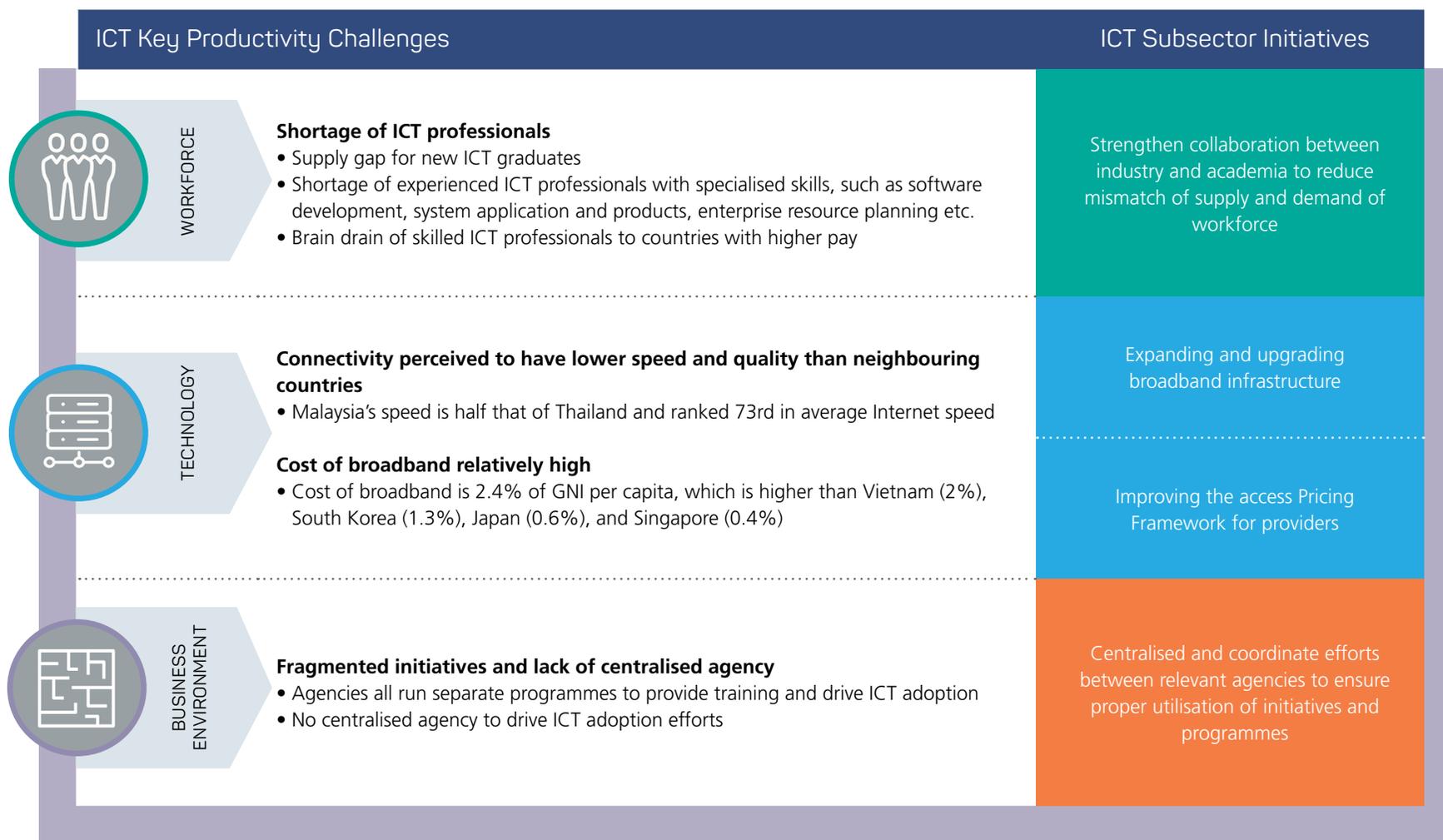
ICT SERVICES SUBSECTOR COMPOSITION<sup>5</sup>

2011 Census	Large	SMEs
Number of Establishments ('000)	0.2	2.2
Average Value Add (RM mn)	178.5	3.7
Number of Employees ('000)	92	39
Labour Productivity (RM'000)	372	203

Many small players contributing 22% of value add to overall sector



1. Value add and labour productivity at 2010 Constant Price, ICT includes both manufacturing and services for baseline based on Digital National Satellite Account. 2. Services labour productivity growth target in 11MP. 3. 2011-2015 period. 4. ICT breakdown based on ICT Satellite Account. 5. ICT Services sector composition based on latest available census data in 2011.



### Deep-dive subsectors

This section outlines the challenges and initiatives identified for each of the deep-dive subsectors: retail, and food and beverages (F&B); agro-food; and chemicals and chemical products.



#### Retail, and Food and Beverages subsector

The retail subsector includes non-specialised stores (such as department stores, supermarkets and convenience stores) and specialised stores (such as jewellery, technology products, clothing and shoes).

The F&B subsector consists of restaurants, including casual dining and quick service restaurants.

A focused study of the retail and F&B subsector is crucial for two main reasons as it is:

1. The largest contributor at 30% to the services sector’s value add in 2015; and
2. Largely made up of SMEs. However, data shows that SMEs are only half as productive when compared to large enterprises. Hence, there is potential of raising overall productivity by targeting SMEs.

#### Key Productivity Challenges for the Subsector

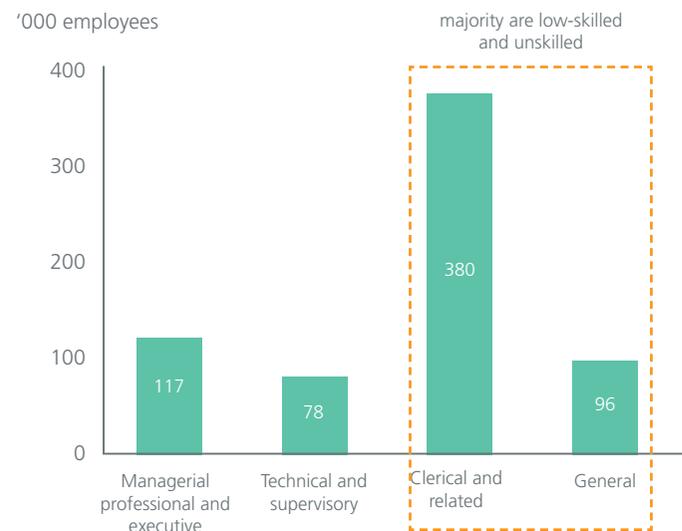
Some of the key challenges that have been identified in the retail and F&B subsector are:

- High reliance on low-skill and low-wage workers
- Low adoption of technology across the subsector
- Lack of operational efficiency tracking

#### 1. High reliance on low-skill and low-wage workers

The main factor affecting the retail subsector productivity is its reliance on low-skill and low-wage workers, which account for over 70% of the subsector’s workforce<sup>2</sup>.

Figure 4-7 TOTAL RETAIL EMPLOYEES BY OCCUPATION



Source: Department of Statistics Malaysia.

2. Ministry of Home Affairs.



Figure 4-8

RETAIL AND F&B SUBSECTOR

8.3%

CONTRIBUTION TO TOTAL GDP

18%

SHARE OF TOTAL EMPLOYMENT<sup>1</sup>

SMEs dominate the subsectors, in terms of both number and contribution...

Number establishments vs. subsector value add (%)<sup>1</sup>



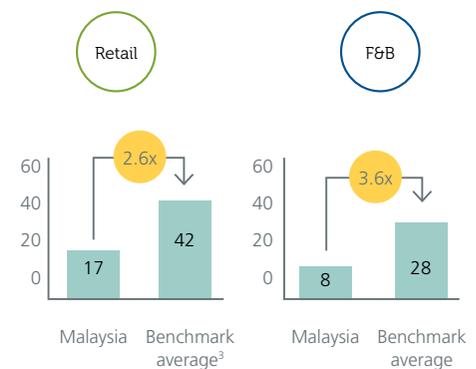
...and SMEs productivity is 2x lower compared to large companies

Labour productivity (RM '000 / worker)



As a whole, retail and F&B are lagging in productivity, behind best-in-class average

Labour productivity (RM '000 / worker)

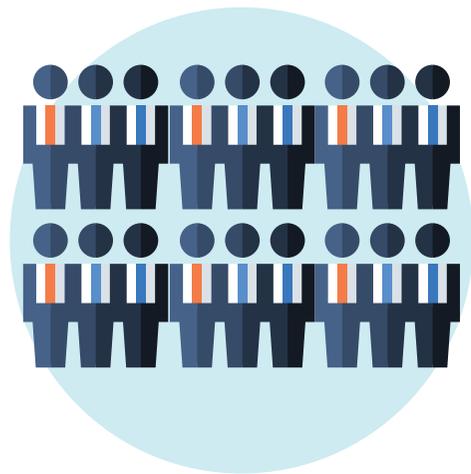


1. Census of Distribution Trade Report 2014. 2. Census of Food and Beverages 2012. 3. 2015 figures. Average benchmark comprises data from USA, Singapore and Australia.

Figure 4-9

THE RETAIL AND F&B SUBSECTOR EMPLOYS A LARGE WORKFORCE ACROSS MULTIPLE SEGMENTS

Retail and F&B employs a large workforce ...

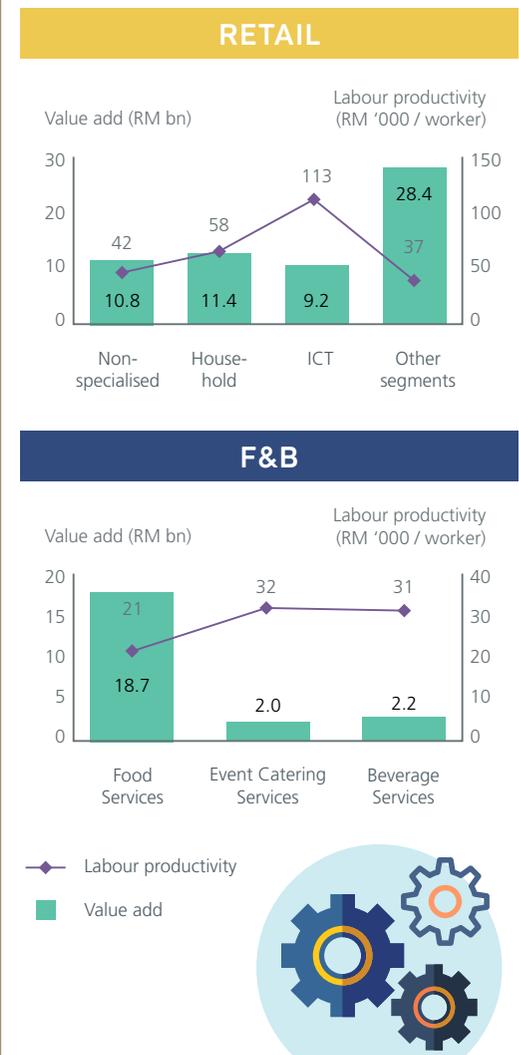


2.5 million employees

... spans across multiple segments



... with different levels of productivity



Source: Economic Planning Unit, and Department of Statistics Malaysia.

There are two major factors causing this reliance: the poor perception surrounding the industry and the lack of an attractive career progression. The long hours, low wages and poor career prospects deter talent from entering the subsector, hindering the subsector's ability to recruit skilled labour to drive productivity growth. Furthermore, it is widely acknowledged that there is a lack of investment in staff training programmes. Only 1% of employers utilised the HRDF for certified training<sup>3</sup>. Employers stated that the high turnover rate of employees diminished the benefits of sending employees for training, further impeding the ability of the subsector to upskill its talent pool. Given that more industries utilise online platforms as well as e-commerce in the retail subsector, higher skilled employees are required to maintain a competitive edge. Hence, over relying on low-skilled foreign labour

is a poor alternative to a highly skilled workforce, and ultimately results in poor productivity performance in the subsector.

## 2. Low adoption of technology across the subsector

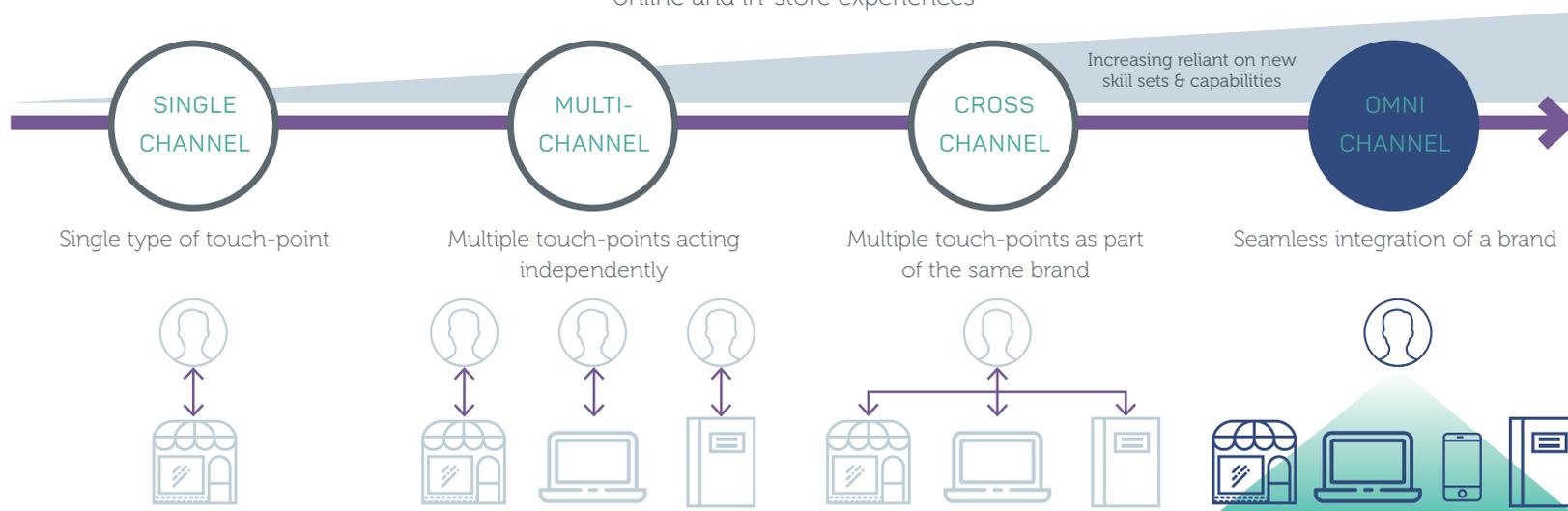
The retail and F&B subsector is dominated by SMEs, with limited resources and capability to invest in technology that can be a viable alternative to low-skilled labour. The subsector spends less on ICT compared to any other subsector as well as relative to that in other countries. This directly impedes the ability of these enterprises to compete, especially with the rise in e-commerce that changes purchasing patterns and store formats globally (see Figure 4-10).

Figure 4-10 TRENDS SHIFT DEMAND FOR SKILL SETS REQUIRED IN THE RETAIL AND F&B SUBSECTOR

### RETAIL AND F&B SUBSECTOR IS CHANGING THE WAY IT DOES BUSINESS

Increased demand for skilled workers as well as the inability to hire required workforce would make it difficult for players to compete in the new landscape

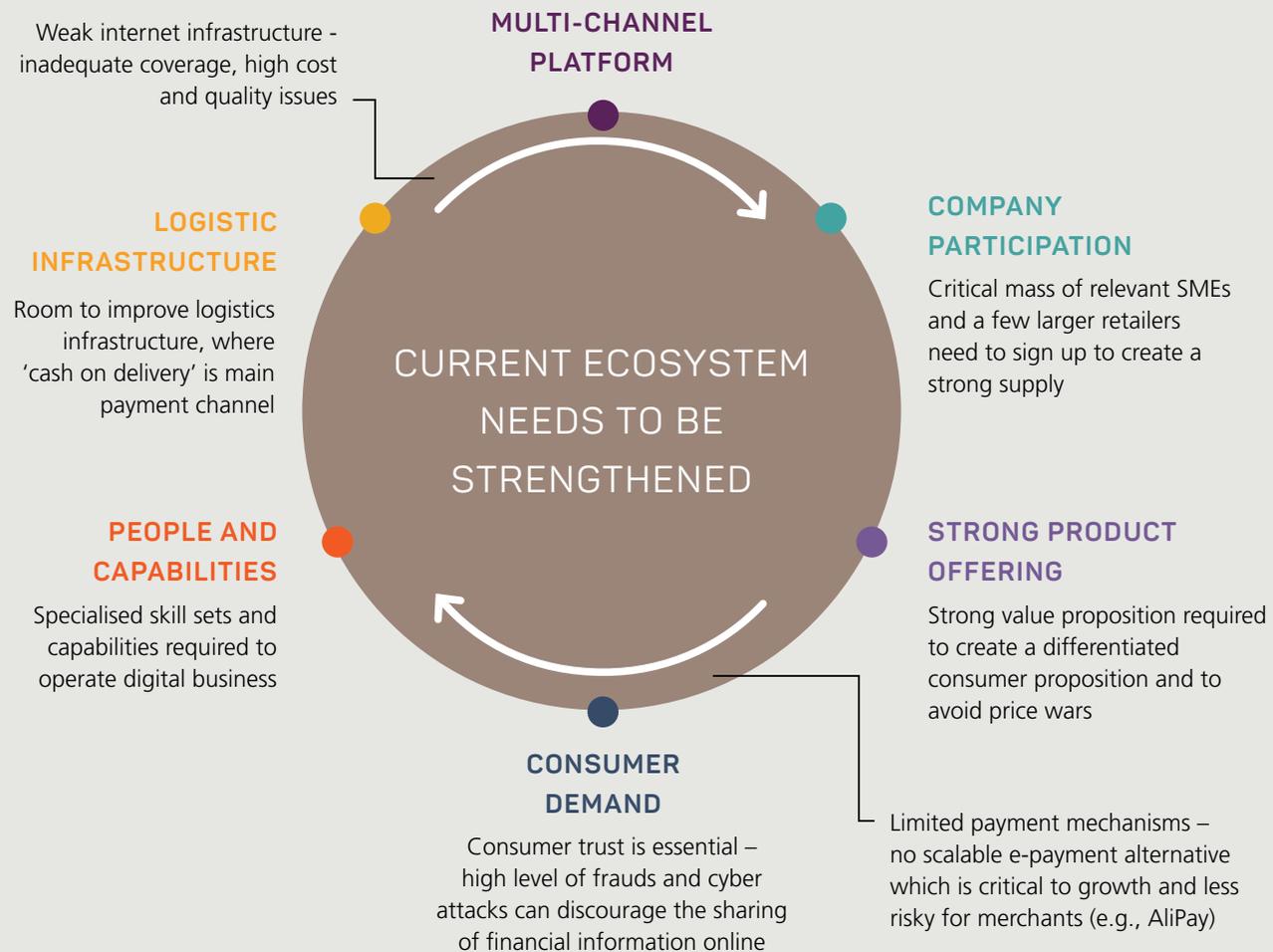
For example, an e-commerce specialist is required to manage omni-channel strategies and understand customer preferences to ensure consistent and optimal online and in-store experiences



3. Globally Recognised Industry and Professional Certification (1 Malaysia GRIP).

Presently, a low proportion of SMEs in Malaysia are involved in doing business online, mainly focusing on the adoption of computers and the internet, with low usage of other ICT tools<sup>4</sup>. To increase competitiveness and drive productivity, it is important that industry players are better equipped to utilise technological advancements. This requires a holistic ecosystem in place and the strengthening of key enablers of technology (see Figure 4-11).

Figure 4-11 HOLISTIC ECOSYSTEM REQUIRED FOR SUCCESSFUL E-COMMERCE IN RETAIL AND F&B SUBSECTOR



Successful e-commerce requires an entire ecosystem to come together

### 3. Lack of operational efficiency tracking

Furthermore, enterprises within the retail and F&B subsector do not prioritise productivity performance tracking. Its importance in day-to-day operations tends to be overshadowed by the operational challenges faced in meeting production needs. Some enterprises have indicated that the lack of priority placed on productivity stems from the perception that productivity enhancement requires large capital investments, that are not always justified by the risk these investments entail. Therefore, it is unsurprising that almost 40% of survey respondents<sup>5</sup> stated that their companies do not have systems in place to effectively monitor the efficiency of processes and operations. This explains the fact that labour productivity of domestic SMEs is two times lower than large players, even though SMEs contribute 77% and 92.1% of value add in the retail and F&B subsector, respectively. There is a drastic need to change mindsets surrounding productivity, and strategically prioritise productivity tracking in order to drive better operations and returns.

To address these core issues, the Blueprint recommends four subsector-specific initiatives, which correspond with the national thrusts:

- |    |  |
|----|--|
| R1 | Provide support to high potential SMEs for digitilisation of business operations and build e-commerce capabilities |
| R2 | Promote opportunities for sharing economy  |
| R3 | Strengthen Retail and F&B competencies   |
| R4 | Provide assistance to Retail and F&B players to grow internationally   |

**R1** Initiative R1: Provide support to high potential SMEs for digitilisation of business operations and build e-commerce capabilities

In line with the need to better support and equip local enterprises to adopt technological advancements, this initiative proposes to provide SMEs with access to e-commerce experts who will offer end-to-end e-commerce advisory support.

To increase the number of SMEs who venture into local and international e-commerce markets and successfully increase their sales and customers, the Blueprint proposes for the development of an e-commerce knowledge-based platform, that links all existing e-commerce initiatives and matches businesses to vendors. This will streamline the entire process of conducting business online.

In ensuring the success and sustainability of online platforms for e-commerce purposes, the Blueprint will facilitate the strengthening of the e-commerce ecosystem to increase SMEs capabilities in adopting of digital tools. This, in turn, will attract workers with digital and technological skills to work for SMEs, boosting productivity.

To ease the access to e-commerce resources for SMEs, the Blueprint will establish an advisory support platform that is available through website, mobile application and telephone hotline. These channels of communication will connect businesses to e-commerce experts that provide advice on any e-commerce related issues, easing the shift to increased digitalisation.

### R2 Initiative R2: Promote opportunities for sharing economy

This initiative aims to support and promote sustainability, social cohesion and a robust retail and F&B subsector. It calls for identifying the opportunities of the sharing economy through stakeholder's needs assessment and benchmarking with global best practices. Pilot projects will be identified, implemented and further refined based on feedback before expanding the projects.

Existing laws and regulations will be strengthened to stimulate sustainable shared services by ensuring risks are mitigated while not curtailing growth and innovation, as well as ensuring the protection of consumers and workers.

Industry and the government will collaborate in developing the sharing economy platforms, in which industry players will lead by example in establishing platforms to improve resource utilisation, drive efficiency and scale up businesses. The government will facilitate industry participation, foster partnerships and participate in the sharing economy.

The awareness about the opportunities and benefits of the sharing economy will be increased, especially among the underprivileged, to boost workforce and industry participation, which will foster greater inclusiveness.

The sharing economy innovation ecosystem will be strengthened to allow entrepreneurs explore the new concept, foster entrepreneurial and develop digital technology talent. The digital technology infrastructure will also be enhanced to support pervasive seamless and widespread adoption of the sharing economy platform. This includes fostering open data ecosystem across government and industries.

### R3 Initiative R3: Strengthen Retail and F&B competencies

This initiative focuses on ensuring employers' commitment to developing talent and competencies as well as providing a strong incentive structure and career development programme for employees. It calls for establishing a talent development programme, which includes specific measures to recruit and retain quality human capital.

The Blueprint proposes proactive engagement with successful enterprises to develop better career pathways and incentive structures. This will encourage graduates to actively seek a long-term career in retail and F&B, while motivate employees to provide high quality customer service and improve efficiency, all of which will boost subsector productivity. The Blueprint also calls for jobs to be redesigned to match the future needs of the subsector. It is important that enterprises are prepared to redesign jobs to involve higher value add tasks, with the lower value-adding tasks eventually being replaced by the adoption of technology. Thus, it is vital that enterprises recognise the importance of investing in and developing their human capital.

## BOX 4-1

# LAZADA

## Effortless Shopping

Lazada is Southeast Asia's number one online shopping and selling destination, with presence in Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

Launched in March 2012, Lazada is pioneering e-commerce in the region by providing customers with an effortless shopping experience with multiple payment methods, including cash-on-delivery, extensive customer care and free returns. Lazada features a wide product offering in categories ranging from consumer electronics to household goods, toys, fashion and sports equipment.

Lazada offers brands and merchants a marketplace solution with simple and direct access to about 560 million consumers in six countries through one retail channel. In view of Lazada's undeniable potential, Alibaba<sup>1</sup> invested US\$1bn into the company in 2016.

Lazada has built a successful e-commerce platform that is easily accessible to SME retailers, who are seeking to expand their offerings online but lack the scale or experience to do so.

With approximately 12,000 sellers on board in Malaysia, Lazada is supporting the growth of Malaysian SMEs through hassle-free fulfilment services, e-commerce trainings as well as marketing and analytical support. This has vastly increased the value add of SMEs in the retail subsector, who previously might not have had the resources and reach of an MNC in selling their wares.

In June 2016, Lazada Malaysia signed a partnership with CIMB Bank Bhd to offer enterprise clean loans (ECLs) to Lazada merchants to further support the expansion of local SMEs and raise productivity. Under this scheme, financing of up to RM300,000 per company is offered with a loan tenure of up to five years. These customised ECLs have a rapid turnaround, offering a 48-hour approval timeline with the loan disbursed within 24 hours upon full document execution, giving SMEs faster and easier access to the funds they need to fuel their business growth.

1. Alibaba is one of the most popular destinations for online shopping in the world e-commerce market.

**R4** Initiative R4: Provide assistance to Retail and F&B players to grow internationally

With the fast-paced business landscape of the retail and F&B subsector, it is essential that domestic enterprises are equipped to successfully venture into international markets. This initiative strives to provide strategic customised assistance to high potential, medium-sized SMEs who are seeking to internationalise their businesses but lack the capabilities and support to penetrate overseas markets. The assistance will enable SMEs to develop their trade networks via international trade fairs and gain access to current market research.

The Blueprint also recommends the enhancement of the existing online platform, which will provide a one-stop centre to obtain information on high potential markets that would be of interest for growing SMEs. By improving local players' knowledge of global markets and effective business strategy and product design, it is hoped that there will be a visible increase in high potential medium-sized SMEs and brands penetrating international markets.

To support the existing international expansion efforts, the Blueprint recommends providing tailored assistance to high potential SMEs, including international trade representatives, showroom assistance and language support. These channels of support will serve as an initial point of contact for local SMEs before launching global marketing campaigns. Ultimately, this assistance will push the visibility and competitiveness of SMEs internationally.

## BOX 4-2



**Marrybrown**

**Marrybrown** is a homegrown fast food restaurant chain established in Johor Bahru in 1981, and is the first local fast food chain to franchise its business in Malaysia. Currently, it has more than 350 restaurants in 15 countries throughout Asia, Middle East and Africa. Marrybrown's vision is to be an icon of national pride. Marrybrown has been highly effective at catering to local nuances in taste – the main factor underlying its rapid expansion into markets abroad.

In order to replicate Marrybrown's success across other F&B players with the potential to expand internationally, the Malaysia External Trade Development Corporation (MATRADE) has taken the initiative to introduce the country's first ever Integrated Centre for Export (ICE) at Menara MATRADE. Open twice a week on Wednesdays and Thursdays, the ICE aims to ease access to up-to-date information on exporting, including matters of financing, customs regulations, standards and certification, logistics as well as industry-related data. This full-fledged export service centre also provides information about all relevant programmes carried out by MATRADE, relevant ministries, agencies, associations and banks, acting as a one-stop centre to SMEs targeting expansion abroad.



### Agro-food Subsector

The agriculture sector is a key component of the Malaysian economy. As at 2014, the sector makes up 9% of the GDP and contributes 12% of the total national employment.

The agriculture sector can be broken down into two subsectors, namely industrial commodities and agro-food. This section will focus on the agro-food subsector for two main reasons:

1. The industrial commodities subsector is fairly mature given the presence of large and successful Government Link Companies (GLCs), which have contributed to uplifting the productivity of the sector. On the other hand, the agro-food subsector is more fragmented and dominated by small players, who can benefit from more guidance and intervention on productivity improvements.
2. The agro-food subsector is expected to increase its contribution to total value add of the agriculture sector as a whole. As targetted in the *Dasar Agro Makanan Negara* (2011-2020), it may potentially grow to contribute up to 50% of the total value add of the sector by 2020.

#### Key Productivity Challenges for the Agro-food Subsector

The current key challenges which impact the productivity levels of the agro-food subsector have been identified as follows:

- Insufficient focus on value-adding activities and disconnections along the value chain
- Many small players with low levels of productivity
- Issues with quality and standards across the subsector
- Low adoption of technology and modern farming techniques

#### 1. Insufficient focus on value adding activities and disconnections along the value chain

The agro-food value chain is highly fragmented, with a disconnection between upstream producers and downstream manufacturers. Traditionally, government programmes have focused heavily on production, and as such, there is a lack of emphasis placed on the post-production value chain. This leads to a low conversion of raw produce into higher value-add products. A study has indicated that approximately 80% of wholesale agro-food production in Malaysia is sold for direct consumption, while the remaining is further processed into other goods<sup>6</sup>. This current state is driven by multiple factors, such as the absence of distribution and logistics services (especially in the rural areas) and reliance on middlemen who are primarily focused on transporting and moving goods with minimal interest in converting goods into higher value products. At the same time, there are weak linkages between the upstream and downstream activities, due to poor dissemination of information between agro-food producers and manufacturers, resulting in mismatched supply and demand. This issue is evidenced by the fact that several large agro-food manufacturers rely on imported produce as raw material for their products, despite the same produce being available locally.

#### 2. Many small players with low levels of productivity

A key feature of the agro-food subsector is its composition, which is largely comprised of SMEs with low levels of productivity. These SMEs face significant difficulties in achieving economies of scale to compete against larger enterprises due to a number of issues including:

6. Findings from Universiti Putra Malaysia (UPM) Research Paper, an Overview of the Supply Chain Management of Malaysian Vegetable and Fruit Industries Focusing on the Channel of Distribution, 2009.



Figure 4-12 AGRICULTURE SECTOR

9%

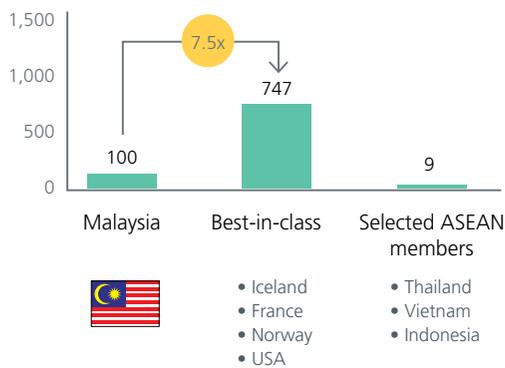
CONTRIBUTION TO TOTAL GDP

12%

SHARE OF TOTAL EMPLOYMENT<sup>1</sup>

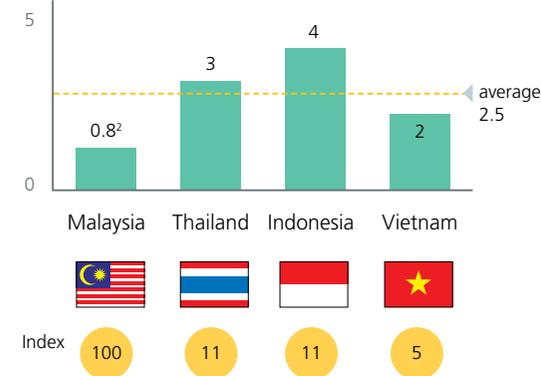
Malaysia's labour productivity is ahead of selected ASEAN members but lags best-in-class average by 7.5x

Labour productivity index (Malaysia=100)



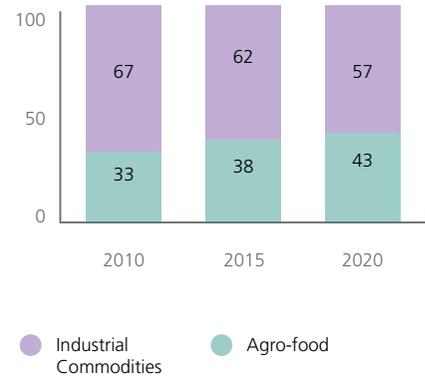
Selected ASEAN peers are experiencing productivity growth while Malaysia's growth is declining

Labour productivity (%p.a.), 2011-2014



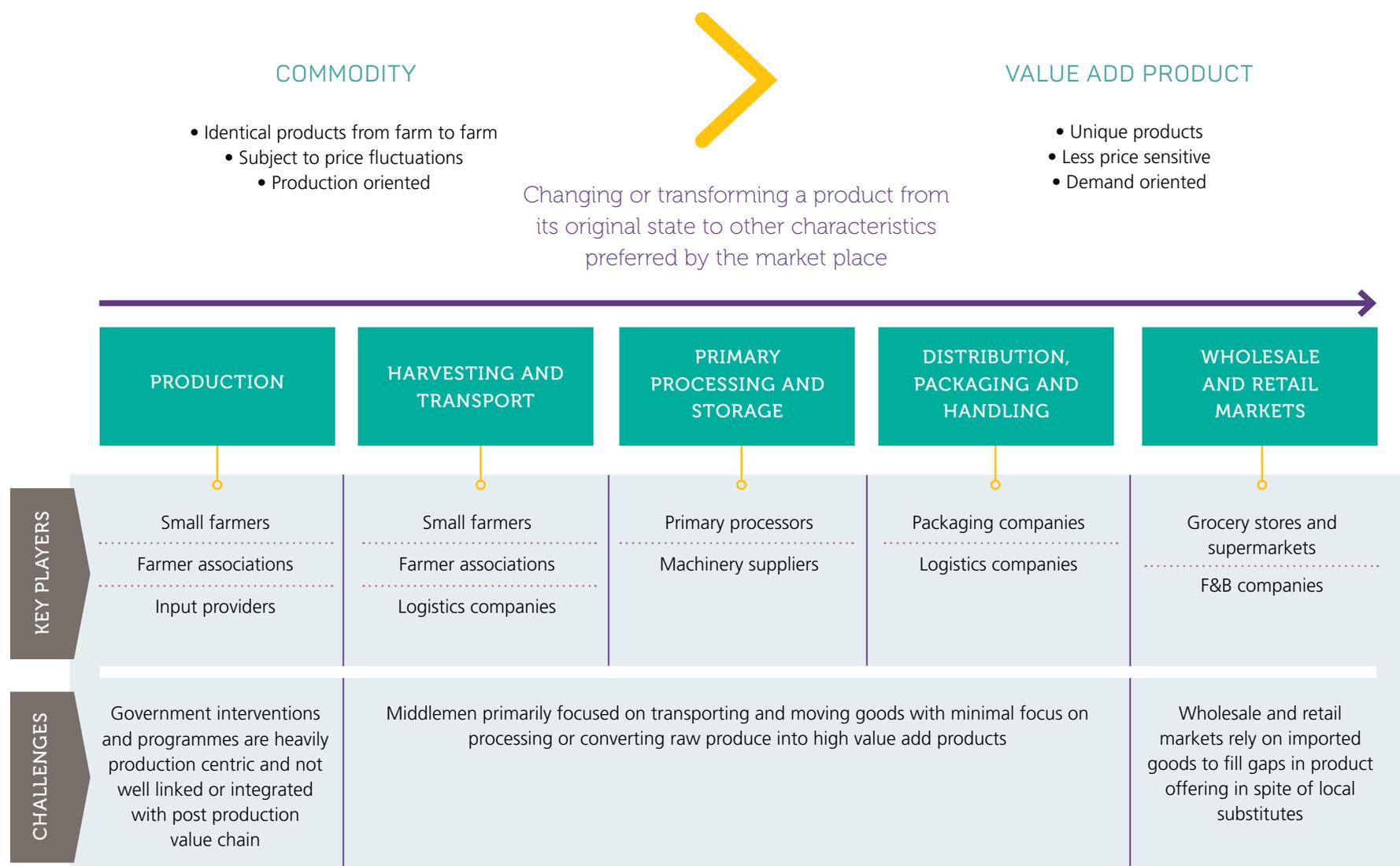
Going forward, agro-food is expected to become a bigger contributor to the sector as a whole<sup>2</sup>

% to agriculture value add



1. 2015 figures. 2. Dasar Agro Makanan Negara, 2011-2020. 3. 2011-2015 period.

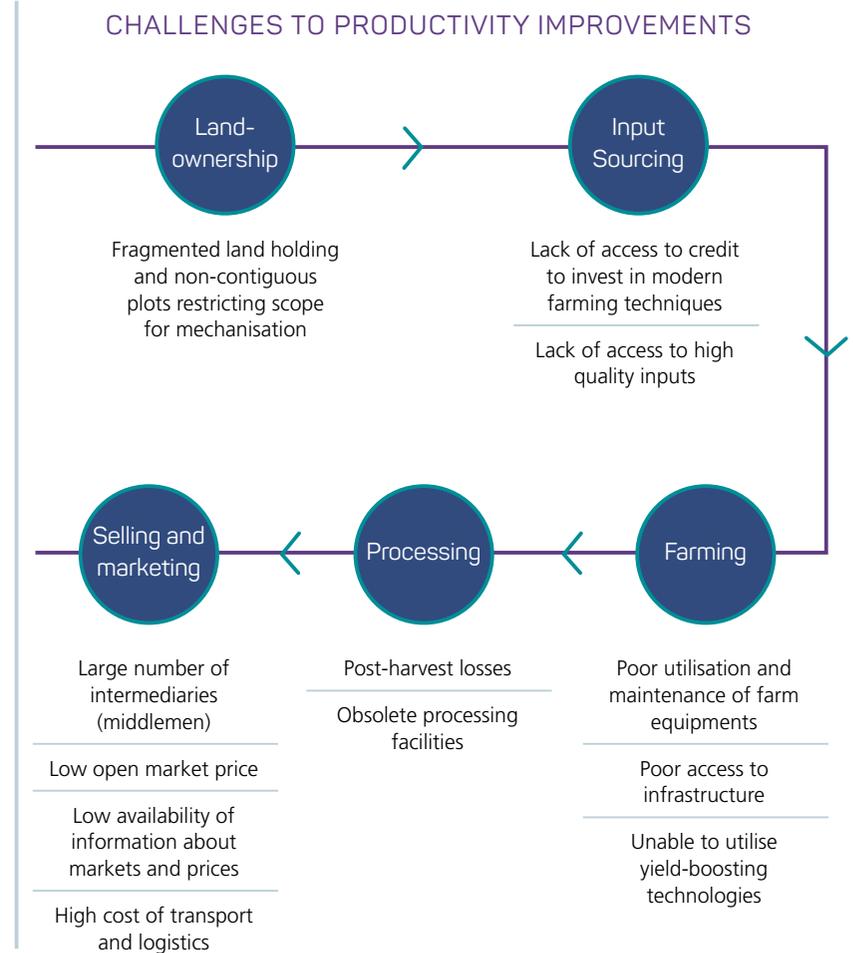
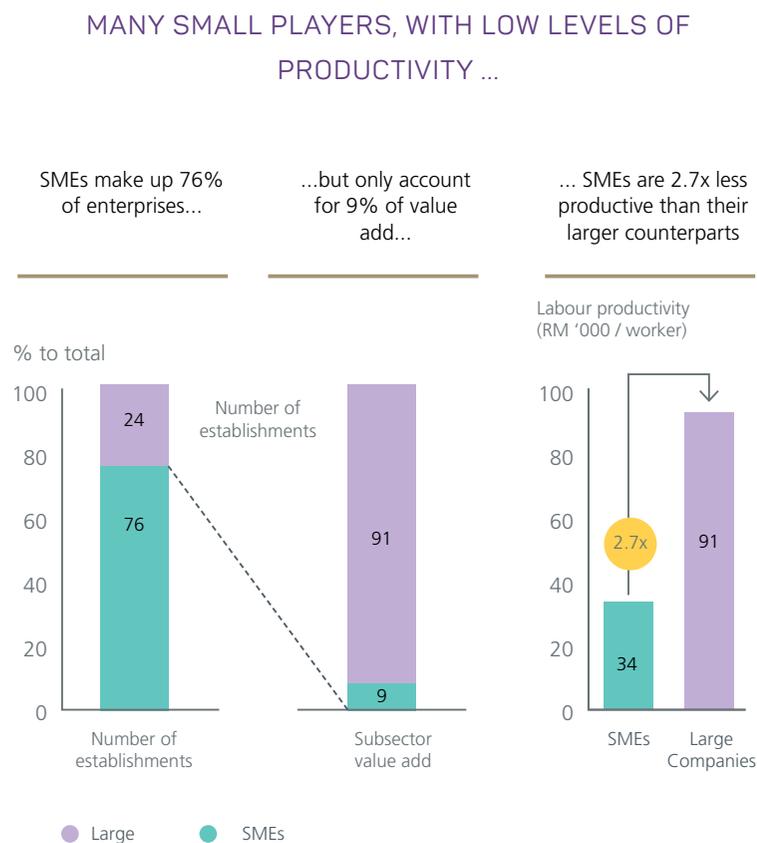
Figure 4-13 DISCONNECTION ALONG THE VALUE CHAIN KEY BARRIER TO AGRO-FOOD PRODUCTIVITY



- Fragmented land ownership that restricts the scope for growth and mechanisation
- Limited access to credit that hampers investments in modern farming techniques
- Poor access to quality farming inputs and infrastructure that decreases yield production
- Obsolete processing facilities that result in post-harvest losses
- Limited selling and marketing capabilities, resulting in low prices due to low market access and excessive reliance on middlemen

With increasing trade liberalisation and market access, these SMEs will be further challenged to remain competitive.

Figure 4-14 AGRICULTURE SECTOR IS DOMINATED BY SMEs WITH LOW LEVELS OF PRODUCTIVITY



Source: Department of Statistics Malaysia.

### 3. Issues with quality and standards across the subsector

Overall, there is a lack of emphasis on excellence across multiple areas within the subsector, including quality issues in human capital, R&D and products. From a human capital perspective, there is poor replenishment of talent within the subsector, given that 60% of the workforce are above the retirement age, and there is low inflow of younger talent into the subsector given the perception that the subsector is 'Dirty, Difficult and Dangerous'. At the same time, industry players believe that graduates for the subsector are not field-ready, given that there is a mismatch between curriculum delivered and what is required by the subsector. These issues, combined with the ease of access to cheap foreign labour, have led to a high reliance on low-skilled foreign labour. About 50% of enterprises in the Online Productivity Survey agreed that access to foreign labour was crucial to their business.

From a knowledge creation perspective, Malaysia has amongst the highest agri-related R&D spend in South East Asia. However, while research funds have led to a high number of publications, there have been low commercial outcomes. This mismatch can be attributed to insufficient dialogue between the industry players and R&D institutions, leading academics to focus on intellectually interesting topics, but often resulting in R&D output that cannot be effectively utilised by the industry. Additionally, commercialisation of R&D often requires capital investment, which is not often allocated for this purpose.

Low product quality also manifests itself in the form of low levels of standards compliance to good agricultural and manufacturing practices among key players. Given the global trend towards higher standards of food quality and safety, the lack of emphasis on standards and quality has negative implications on sector and national productivity. Despite local standards which are less stringent than global standards, compliance levels are still relatively low. Upstream players are not shifting to optimal farming practices, evident in the low compliance rate to Malaysia Good Agricultural Practices (MyGAP) at 4.6%, while the growth of downstream players is limited by non-compliance to standards such as Hazard Analysis and Critical Control Points (HACCP) and Good Manufacturing Practices

(GMP). In the long run, this will have detrimental impact on the ability of the subsector to compete on an international platform.

### 4. Low adoption of technology and modern farming techniques

With the increasing advancement of technology and digitalisation, the agro-food subsector is lagging in the adoption of modern farming techniques. Malaysia's investment in farm capital is significantly lower than its ASEAN neighbours. About 52% of enterprises surveyed are unsure or agree that they are not investing enough in technology. This low adoption of technological innovation by agro-food enterprises will undoubtedly affect their productivity performance.

To address these core issues, the Blueprint recommends six subsector-specific initiatives, which directly correspond with the aforementioned national thrusts:

- |    |  |
|----|--|
| A1 | Facilitate better matching along the supply chain by linking downstream demand to upstream supply          |
| A2 | Embed robust contract-farming model across the subsector   |
| A3 | Push for enforcement and adoption of relevant standards and practices to strengthen end-to-end value chain |
| A4 | Boost awareness and adoption of technological upgrades and modern farming techniques                       |
| A5 | Establish industry-led collaboration with educational institutions   |
| A6 | Encourage agro-food players to move into high value add products and markets                               |

**A1** Initiative A1: Facilitate better matching along the supply chain by linking downstream demand to upstream supply

To reduce the gap within the agro-food value chain, there is a need for better compilation and dissemination of information within the subsector. This initiative aims to address this information asymmetry by establishing a knowledge-sharing platform to disseminate market demand and supply information. The MyAgriculture Flagship that is being developed by the Ministry of Agriculture and Agro-based Industry can potentially serve as a knowledge-sharing platform to compile and disseminate information related to agriculture.

This platform will ensure that agro-producers are up-to-date on the demand for produce and are able to cater to those demands. Additionally, agro-manufacturers will be able to identify potential local producers who can provide them with raw product, hence reducing the reliance on imports. Through this platform, gaps within the value chain can also be identified and subsequently, players can be enabled and supported to move into the 'white spaces' within the value chain. This will help focus subsector players on value-adding activities which, in turn, will boost the productivity of the subsector as a whole. Beyond the setting up of the platform, roundtable talks to encourage linkages and collaboration between upstream and downstream players should also be encouraged.

**A2** Initiative A2: Embed robust contract-farming model across the subsector

This initiative seeks to promote market access for small farmers and reduce their dependence on middlemen by embedding a robust contract-farming model between leading industry players and small farmers. This will improve market access for small farmers and simultaneously build their capabilities through transfer of knowledge from larger players. However, past attempts to put in place contract farming have seen varying levels of success due to the unsustainable nature of the contracts.

Companies which have been successful in implementing contract farming have been identified, including Nestlé Malaysia (paddy and chilli contract farming) and Farm Fresh (dairy contract farming). Based on these best practices, a robust contract-farming model framework needs to be developed to ensure shared value for all parties, ensuring the sustainability of the contracts. For the smallholder, the benefits include increased market access, secure demand from established agro-food players, increased transfer of knowledge as well as better access to input and product support. Large players benefit from increased security of supply in terms of quality, quantity and timing.

## BOX 4-3



**The Nestlé Paddy Club**, a contract farming arrangement between Nestlé Malaysia and the local paddy farming community in Kedah, is an example of a success story that has boosted productivity in the agricultural sector whilst concurrently increasing the welfare of B40 households. One of the key initiatives of the Nestlé Paddy Club is the transfer of technology to local farmers – this has been done through the commercialisation of the Semi Aerobic Rice Intensification (SARI) method, a means of decreasing water usage in the planting of paddy while also decreasing the methane emissions of decaying submerged organic materials. SARI only requires that farmers release water from the paddy fields on the 50th day of each planting season, and that the soil is saturated, but not inundated with water. This has a water savings potential of up to 40% as well as reduction of methane emission by 74% from the conventional wet farming method. Despite the much reduced input of water, the output of the paddy fields running SARI achieved an average of 6.4 tonnes per hectare, higher compared to the national average of 3.7 tonnes per hectare.



The SARI method pioneered by Nestlé was first introduced to 20 pioneering farms in 2010, and is now applied across more than 800 hectares of farmland in Kedah. Nestlé started the Paddy Club in 2012 with more than 300 farmers joining the programme with the adoption of a contract-farming model that was mutually beneficial. The contract-farming model guarantees a set price for the produce of the farmers regardless of the spot price of the crop at the time of harvest, while allowing the transfer of technology and best practices from Nestlé to the smallholders that helps in increasing the paddy yield. The increased stability creates the space for smallholders to take a longer view and incentivises their compliance with Good Agricultural Practices (GAP). This raises the quality of their crops to global standards and increases the competitiveness of smallholders in the international marketplace.

As the truest affirmation of Nestlé's philosophy of Creating Shared Value (CSV), the Paddy Club has benefited both smallholders and Nestlé alike; farmers have seen their incomes sustainably increase, while Nestlé is able to manufacture and market a globally competitive food product that satisfies the discerning yet environmentally conscious millennial consumer.

**A3** Initiative A3: Push for enforcement and adoption of relevant standards and practices to strengthen end-to-end value chain

With increasing global food quality and safety standards, this initiative will combine efforts of the government, standards authorities, enterprises and agro-food associations to help agro-food players implement measures to comply and maintain food standards certifications. Among others, the relevant standards and practices include MyGAP, HACCP and GMP.

The goal will be to increase the proportion of players who are able to adopt the right measures to qualify for, achieve and maintain certification, while at the same time ensuring that certifying authorities are empowered and have the capacity to enforce the standards. At the same time, consumers must be educated to value high quality produce so that producers will be more incentivised to push for better standards.

Technical aid and financial assistance can be provided to companies who require support to achieve the right certification. At the same time, standards authorities need to be strengthened with transparent and easy processes as well as competent and sufficient manpower, support systems and equipment to be able to enforce certification. This will improve the effectiveness of the certifying authorities in pushing for higher compliance levels.

However, this initiative will only obtain buy-in and enhance productivity if there is a near universal consumer awareness and appreciation of food standards. The Blueprint proposes the launch of consumer campaigns to spread the importance of food standards.

**A4** Initiative A4: Boost awareness and adoption of technological upgrades and modern farming techniques

As land for agriculture becomes increasingly scarce, technology adoption has been the key driver to boosting agro-food yield and profitability around the world. This initiative aims to improve the awareness of technology applications in the agro-food subsector and support technological upgrades and modern farming techniques, particularly among SMEs.

The Blueprint calls for the development of tailored technologies that are suitable and cost efficient for small local players, such as digital tools from drones, robotics, remote sensing and cloud-based farm management systems under precision farming. Other modern farming techniques can include water management, usage of high quality seeds and fertilizers and weather management. To ensure SMEs understand the importance of technological improvements and are receptive to new ways of working with the tailored technology, information on programmes focused on technology adoption for agro-food players will be disseminated by leveraging on relevant stakeholders, such as Department of Agriculture (DOA), SME Corp, industry associations and other extension agencies.

Targetted training programmes will be launched to boost the adoption of productivity-enhancing technologies by SMEs. The impact of technology on productivity will be measured and tracked to extract key lessons for continuous improvements.

**A5** Initiative A5: Establish industry-led collaboration with educational institutions

The mismatch between talent required by industry players and that being supplied by educational institutions is a prevalent issue. Given the insufficient talent and poor commercialisation of R&D in the subsector, this initiative aims to develop strategic and mutually beneficial partnerships between leading agro-food industry players and relevant educational institutions to strengthen the talent pipeline and knowledge creation within the subsector.

Industry players must take the lead to attract and develop talent within the subsector and ensure the relevance of R&D. The Blueprint proposes identifying and matching suitable industry players and relevant educational institutes to design and launch customised programmes. The collaboration would include discussions on product research, competitions for commercialising R&D findings, sponsoring of final year projects that are relevant to enterprise needs as well as providing potential job offers for successful students. The increased role of industry in shaping the talent pipeline and creation of knowledge within the subsector will translate into greater industry relevance of agro-food related programmes in training and educational institutions as well as a higher commercialisation of related R&D conducted by educational institutions. Graduating students who join the agro-food industry will also be more industry-ready. To retain talent within the subsector, attractive career pathways must also be in place.

**A6** Initiative A6: Encourage agro-food players to move into high value add products and markets

There is a low focus on high value add products markets by agro-food players. However, food preferences are shifting towards more 'premium' products, such as organic, halal and processed foods. As consumer trends shift toward higher-end products and trade liberalisation becomes increasingly prevalent, support is necessary to empower agro-food producers to take advantage of these opportunities.

Market intelligence to move into higher value add products and markets need to be developed and provided to subsector players. Then, high potential players need to be identified and supported to ensure that they are able to take advantage of these new opportunities. Such companies would include SMEs with aspirations to move into different parts of the value chain or export overseas. Hence, industry best practices will need to be developed and communicated to industry players to provide relevant insights.

The Blueprint also proposes strategic partnerships between foreign companies and local producers to export products. This will act as a crucial scaffolding for SMEs as they venture to expand independently, creating a supportive ecosystem to help these enterprises move into international markets.

## BOX 4-4



**Biotropics** is an enterprise that engages in the R&D, discovery, identification, commercial extraction, manufacturing and marketing of high-value herbal based products. Its portfolio of successful products that it currently exports to the USA, Canada, Japan and Hong Kong include herbal supplements based on *Eurycoma longifolia* (Tongkat Ali) and *Labisia pumila* (Kacip Fatimah). The manufacturing arm of Biotropics, Phytes Biotek Sdn Bhd obtained the US Food and Drug Administration (FDA) certification for its extraction facility in 2012, assuring customers worldwide that the facility complies with international standards of health and safety.

In collaboration with Universiti Sains Malaysia from 2012 to 2015, Biotropics spearheaded a project to develop high-value nutraceutical products, which are all-natural non-modified health supplements. This project included providing funding for pre-clinical and clinical trials on the products, along with giving researchers the opportunity to present at symposiums. Such initiatives are necessary if the health benefits of products manufactured by Biotropics are to be scientifically substantiated in order to gain credibility among

the scientific community. Credibility from a scientific perspective in turn allows Biotropics to fulfill regulatory requirements and become competitive in the global market. The company has also been recognised by the American Botanical Council as a leading company in terms of research and promotion of local ingredients in the global market.

Biotropics has also been an active participant in industry conferences, with its Physta Tongkat Ali extract selected as the "Industry Success Story" in the "Healthy Aging" category at the Vitafoods Europe Conference 2016, the leading nutraceutical event globally. The Vitafoods Europe Conference is a platform bridging the gap between science and industry, facilitating the sharing of knowledge and formation of partnerships. Biotropics active collaboration with institutions of education and heavy investment into R&D are the main drivers for its strong reception in the US market, raising the productivity of its workers as the herbal products it manufactures are able to command a premium in export markets abroad.

Source: Biotropics Malaysia Berhad.



### Chemicals and Chemical Products Subsector

The chemicals and chemical products subsector contributed 2% to the GDP, employing less than 1% of the total employment in 2014. The sector comprises of basic chemicals, pharmaceuticals, other chemicals and man-made fibres.

A focused study on the chemicals and chemical products subsector is grounded on two main reasons:

1. The chemicals and chemical products subsector is fairly mature given the presence of large and successful GLCs, which contributed to raising subsector productivity. However, the subsector is fragmented with a large number of SMEs operating in different segments (such as petrochemicals, oleo chemicals, plastics, etc.) that can benefit from more guidance from large enterprises.
2. About 80% of the chemical manufacturers operate in the base chemical segment. Thus, the chemicals and chemical products subsector has many opportunities to significantly increase the subsector's value add by shifting towards higher value add segments.

#### Key Productivity Challenges for the Agro-food Subsector

The core issues that have been identified in chemicals and chemical products subsector are:

- Limited presence in high value add segments
- Insufficient talent
- Inability of SMEs to adapt to technological changes
- SMEs unequipped to effectively expand internationally

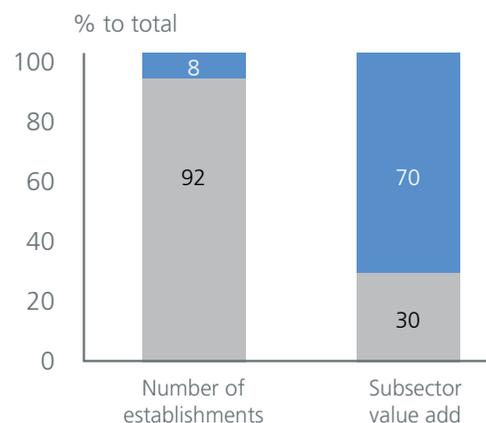
#### 1. Limited presence in high value add segments

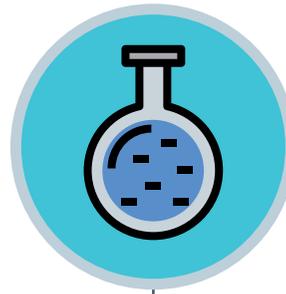
Although 90% of the chemicals and chemical subsector consists of SMEs, they contribute a small margin of the overall subsector's value add at about 30%. Market mapping studies have shown that this is due to the fact that almost 80% of chemical enterprises operate within the low value add segments, especially in base chemical manufacturing. This highlights the lost opportunities in leveraging off the higher margins in manufacturing specialty chemicals as well as the modification and formulation segments.

Figure 4-15 shows that chemical enterprises operating within the focused specialty chemical segment gain the highest 10-year running return on net assets and revenue growth. This reinforces the point that chemical enterprises in Malaysia do have opportunities for significant gain, should there be focused effort and investment to move into higher value add segments.

**Figure 4-15 PERCENTAGE OF SMES IN THE CHEMICALS AND CHEMICAL PRODUCTS SUBSECTOR MAPPED TO THEIR VALUE ADD CONTRIBUTION**

Landscape of chemicals and chemical products companies in Malaysia and corresponding value add (2010)





**Figure 4-16 CHEMICALS AND CHEMICAL PRODUCTS SUBSECTOR**

**2%**

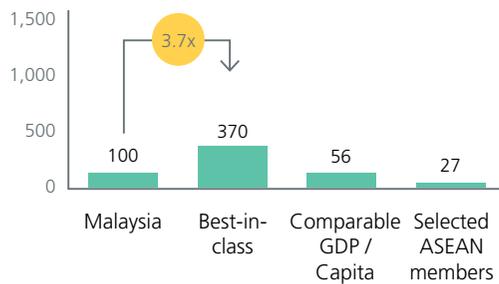
CONTRIBUTION TO TOTAL GDP

**0.8%**

SHARE OF TOTAL EMPLOYMENT<sup>1</sup>

**Labour productivity lags best-in-class by 3.7x**

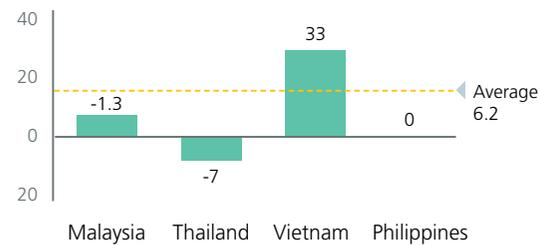
Labour productivity index (Malaysia=100)



- USA
- Korea
- France
- Mexico
- Argentina
- Turkey
- Poland
- Philippines
- Thailand
- Vietnam

**Productivity growth slightly below the regional average**

Labour productivity (% p.a.), 2011-2015

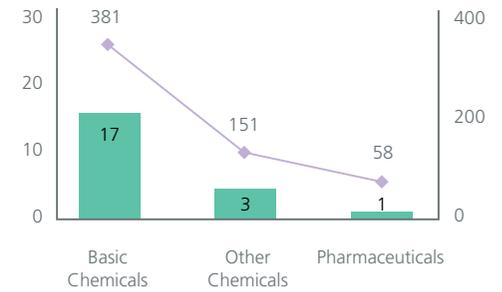


Index 100 41 3 37

**Basic Chemicals is the most productive subsector**

Value add (RM bn)

Labour productivity (RM '000 / worker)



● Value add

◆ Pharmaceuticals

1. 2015 figures.

## 2. Insufficient talent

Over 34% of survey respondents in the chemicals and chemical product subsector cited talent as the greatest challenge in efforts to raise productivity<sup>7</sup>. This is due to the lack of quality local graduates, who are not industry-ready and unable to meet the changing demands of the niche chemical industry. As a result, employers opt to hire foreign talent and there is also a high turnover rate of employees within the subsector.

In addition, there is insufficient relevant research on chemical manufacturing in universities. The limited capacity of the local academic community has a direct impact on the production and dissemination of current chemical research to industry, as local enterprises have no access to best practices. Hence, there is a crucial need for industry players and academic institutions to communicate their needs and form strategic partnerships that could drive national productivity.

## 3. Inability of SMEs to adapt to technological changes

The low levels of skilled talent within the chemicals and chemical products subsector also limits the adoption of technological changes by local SMEs. Unaware of investment benefits and unequipped with skills to manage the digital transition, SMEs rarely make the large investments associated with shifting to digitalisation and mechanisation.

As a result, they continuously perform below capacity. This is evident with chemical SMEs, which are currently far less productive than larger chemical enterprises due to the underutilisation of productivity-enhancing technology. To remain competitive, SMEs need to be better equipped with appropriate access to technology and digital tools.

7. Online Productivity Survey.

Figure 4-17 10-YEAR RUNNING RETURN ON NET ASSETS (RONA) AND 10-YEAR REVENUE CAGR BY REGION AND SUBSECTOR



Source: S&P Capital IQ.

#### 4. SMEs unequipped to effectively expand internationally

The chemicals and chemical product subsector is also constantly threatened by the shrinking size of the domestic market. Currently, Malaysia has a limited local market, and up to 90% of larger company output is exported. With SMEs constituting approximately 90% of the local industry landscape, it is essential that these enterprises expand their business internationally.

However, many SMEs are still unequipped to expand internationally and form strong partnerships with foreign players. The lack of access to finance, skilled human capital and technological innovations drastically limit SMEs ability to effectively compete globally. Thus, competitive spaces need to be identified and promoted to allow domestic SMEs to build recognisable brands, boosting international visibility and competitiveness.

To address these issues, the Blueprint recommends five sector-specific initiatives, which directly correspond with the aforementioned national thrusts:

- |    |  |
|----|--|
| C1 | Establish chemicals Centre of Excellence built on clear strategies for chemicals and chemical products subsector |
| C2 | Deepen collaboration between industry players and education institutions offering chemical-related courses       |
| C3 | Provide technical, digital and management support to enhance SME capabilities                                    |
| C4 | Enable SMEs to move towards high value add components in the chemical value chain                                |
| C5 | Provide support to high potential SMEs to expand internationally   |

**C1** Initiative C1: Establish chemicals Centre of Excellence built on clear strategies for chemicals and chemical products subsector

To address the gap between theoretical chemical research and solutions feasible for industry, a chemicals Centre of Excellence will be established to spearhead chemical productivity improvement initiatives. This Centre will provide an immersive experience in advanced technologies, help enterprises navigate relevant technology vendors and enable easy access to best practice benchmarks and information on future industry trends, with the end goal to ensure enterprises move to high value production and enable continuous productivity improvement.

Furthermore, the Centre of Excellence will enable collaborative relationships between academia, large enterprises and SMEs through the sharing of experiences and key lessons from research or ventures undertaken. This will aid the development and launch of various pilot projects between the Centre and industry. By evaluating past experiences, reviewing current trends and periodically tracking effectiveness, these pilot projects will be designed to encourage domestic enterprises to collaborate with the Centre and further enable continuous productivity improvements.

**C2** Initiative C2: Deepen collaboration between industry players and educational institutions offering chemical-related courses

The Blueprint proposes a collaboration framework between selected industry players and relevant education and training institutions, with effective tracking mechanisms. This pilot scheme will ensure that educational institutions receive input on updated technological advances and trends related to the industry to enable more targetted curriculum planning as well as research funding. The collaboration will also allow industry players to articulate their required skill sets and provide input on the feasibility of proposed research based on experience on the ground. It will also include a comprehensive framework that will outline potential

collaborations for long apprenticeships, sponsored research and industry-led workshops to develop soft skills, focusing on developing industry-ready graduates. By providing university students the opportunity to experience practical training in the industry, it will also encourage them to develop a career in chemicals in the future, creating a quality pipeline of talent for the sector.

**C3** Initiative C3: Provide technical, digital and management support to enhance SME capabilities

A systematic evaluation of industry SMEs is recommended to identify enterprises with high potential for growth and operational improvement. These SMEs will then be supported through mentorship programmes with large enterprises to improve their portfolio mix, operational efficiency, commercial strategies and general management. Ultimately, these SMEs will be supported in improving their competitive advantage by strategically leveraging on available digital capabilities and incorporating new business models to explore new ways of working. The support framework and training content will be streamlined through partnerships with relevant bodies such as the HRDF and the aforementioned chemicals Centre of Excellence to ensure the accountability and transparency of the processes.

**C4** Initiative C4: Enable SMEs to move towards high value add components in the chemical value chain

The Blueprint recommends identifying competitive spaces where domestic SMEs can thrive and setting a clear, attainable pathway for them to conduct thorough analysis of downstream supply gaps. By systematically addressing the barriers that prohibit enterprises from moving towards high value add segments, better targeted support can be provided to encourage vertical integration of the currently fragmented chemicals and chemical products subsector. This will steer chemical SMEs away from focusing solely on low value add primary manufacturing.

To ensure the success of SMEs within this initiative, comprehensive strategic partnerships between chemical SMEs and larger downstream chemical players will be encouraged and facilitated to enable knowledge and technology transfers. The Centre of Excellence will be the cornerstone driving the initiative, ensuring continuous focus on productivity improvements of all enterprises regardless of their position in the value chain.

**C5** Initiative C5: Provide support to high potential SMEs to expand internationally

The gradual saturation of the local chemicals market coupled with the lack of resources by SMEs to internationalise creates a challenging landscape for the subsector. To address this concern, there is a need to provide strategic support to high potential chemical SMEs to expand internationally.

Hence, the Blueprint proposes the compilation of a list of chemical SMEs with the potential to expand internationally, especially those that successfully completed up-skilling programmes as proposed in Initiative C2. Through collaboration with the Centre of Excellence, these enterprises will be primed with growth strategy guidance and the relevant knowledge for internationalisation. Additionally, the Centre of Excellence will be a significant resource centre for SMEs within the subsector to seek aid and assistance for expansion.

## Collaboration with leading global industry player

## BOX 4-5



**BASF PETRONAS Chemicals** is a Malaysian-based joint venture between BASF of Germany and Malaysia's state owned Petroliaam Nasional Berhad (PETRONAS) under its subsidiary PETRONAS Chemicals Group (PCG). Incorporated in 1997, BASF PETRONAS Chemicals currently operates an integrated petrochemical complex at the Gebeng industrial zone in Kuantan, Pahang. The company's share of capital is 60% held by BASF and 40% by PCG with a total initial investment of about RM3.4 billion in production facilities for *Acrylic monomers, Oxo products and Butanediol*.

The range of chemicals produced by BASF PETRONAS Chemicals meet the growing demand in various industries, including plastics, adhesives, lacquers, dyestuff, automobile and industrial coatings, paper, diapers, water treatment, textile and leather.

In April 2014, the company broke ground on its new integrated aroma ingredients complex, which will house facilities to produce citral, citronellol and L-menthol. The aroma ingredients produced will be used as flavours and fragrances for the F&B, fabric and homecare and personal care industries. The RM1.5 billion complex will be developed in phases, where the first plants of the complex are expected to be fully operational in 2017.

Source: BASF PETRONAS Chemicals Sdn Bhd.



This cutting-edge technological investment will make Malaysia an important hub in Asia Pacific for the world-wide supply of aroma ingredients.

In June 2015, the company started the construction of a production plant for 2-Ethylhexanoic Acid (2-EHAcid). The plants has started operation since 2016 with a total annual capacity of 30,000 metric tonnes. 2-EHAcid is a chemical intermediate used as a compound, for example, in the production of synthetic lubricants and oil additives. It is also used for functional fluids like automotive coolants, metal salts for paint dryers, plasticisers, stabilisers, catalysts and other applications in various industries including cosmetics.

In March 2016, the company began building a new world-scale production plant for highly reactive polyisobutene (HR-PIB) at the BASF PETRONAS Chemicals site. The plant, which will be the first of its kind in South East Asia with a total annual capacity of 50,000 metric tonnes of HR-PIB, is expected to start production in the fourth quarter of 2017. HR-PIB is an important intermediate product for the manufacturing of high performance fuel and lubricant additives, including additives for sludge prevention.

## Collaboration with academia

## BOX 4-6



**The Chemical Company of Malaysia Berhad (CCM)** mooted the Programme CCM JATI (*Jalinan Universiti dan Industri*) in 2011 as one of its initiatives to boost productivity efforts among young graduates in addressing the growing concern of unemployment among pharmacy graduates.

CCM JATI is a collaboration between CCM and public universities to train and groom pharmacy undergraduates on entrepreneurship in community retail pharmacies. It started off with Universiti Sains Malaysia (USM) as the pioneer university and expanded to Universiti Malaysia Sabah (UMS), Universiti Teknologi MARA (UiTM), International Islamic University Malaysia (IIUM) and Universiti Kebangsaan Malaysia (UKM).

Source: CCM Berhad.

This programme is a 3-year capacity building programme that offers pharmacy undergraduates a holistic immersion in the industry and empowers them with entrepreneurial capabilities as they venture into the working environment. They will be given exposure in marketing, business management and hands-on retailing through training and interaction with CCM professionals.

CCM JATI recruits 50 pharmacy undergraduates annually. Since its inception, more than 200 students have successfully undergone the programme. It targets to develop 500 pharmacy undergraduates to become competent entrepreneurs in community retail pharmacies by 2020.

Figure 4-18 OVERVIEW OF 43 SECTOR-LEVEL INITIATIVES ACROSS PRIORITY SECTORS

		AGRICULTURE	MANUFACTURING		
		Agro-food	Chemicals and Chemical Products	Electrical and Electronics	Machinery and Equipment
SECTOR-LEVEL INITIATIVES		Facilitate better matching along the supply chain by linking downstream demand to upstream supply 	Establish chemicals Centre of Excellence built on clear strategies for chemicals and chemical products subsector 	Accelerate collaboration and strengthen knowledge sharing between industry players through Centre of Excellence 	Set up partnership between government and industry associations to up-skill existing employees 
		Embed robust contract-farming model across the subsector 	Deepen collaboration between industry players and educational institutions offering chemical-related courses 	Promote higher value add activities, including Research, Development and Design and produce complex products 	Update of domestic product standards to be at par with international standards and enforce compliance
		Push for enforcement and adoption of relevant standards and practices to strengthen end-to-end value chain 	Provide technical, digital and management support to enhance SME capabilities 	Strengthen collaboration between industry, government and universities to ensure supply of industry-ready engineers	
		Boost awareness and adoption of technological upgrades and modern farming techniques 	Enable SMEs to move towards high value add components in the chemical value chain 		Set up more product testing facilities to ensure standards are met
		Establish industry-led collaboration with educational institutions 	Provide support to high potential SMEs to expand internationally	Up-skill workers to prioritise innovative thinking to foster productive culture 	
		Encourage agro-food players to move into high value add products and markets 		Enforce minimal guaranteed service level for utilities and infrastructures in key industrial zones 	Set up Centre of Excellence for skilled professionals to share industry expertise and develop new technologies 

 Workforce   
  Technology   
  Industry Structure   
  Eco-system   
  Initiatives involving enhancement / acceleration of existing efforts   
  Initiatives that are new, involving key efforts yet to be coordinated / implemented

SERVICES

		Retail and F&B	Tourism	Private Healthcare	Professional Services	ICT
SECTOR-LEVEL INITIATIVES	Provide support for digitalisation of business operations and build e-commerce capabilities		Strengthen collaboration efforts between industry and academia to match industry needs	Review policies to ease foreign skilled healthcare professionals work in the subsector	Provide input to colleges and universities to ensure curriculum and training are industry-relevant	Raise awareness of available incentives to ensure proper utilisation and adoption of ICT
	Promote opportunities for sharing economy		Establish a certification / accreditation programme for tourist sites, to boost tourist volume and improve service delivery	Set up networks to provide high-quality coordinated patient care to reduce medical errors and improve patient care quality	Address regulatory constraints to enable set up of alternative business models that are in line with global trends	Centralised and coordinate efforts between relevant agencies to ensure proper utilisation of initiatives and programmes
	Strengthen Retail and F&B competencies		Product owners to review pricing system of sites	Develop and rollout a national database to facilitate patient transfer between public and private healthcare providers	Form cross-country professional services consortiums to increase capability to compete abroad	
	Provide assistance to Retail and F&B players to grow internationally		Review industry standards and regulations with industry's input	Streamline regulations and ensure robust implementation of regulatory reforms	Encourage adoption of technology solutions, such as to track progress digitally rather than on paper	Strengthen collaboration between industry and academia to reduce mismatch of supply and demand of workforce
		Align marketing strategy on targetted tourist segments	Strengthen coordination between medical schools and industry to ensure supply/demand match of professions	Encourage adoption of operational metrics and performance-linked KPIs by professional services firms	Improving the access Pricing Framework for providers	

-  Workforce
-  Technology
-  Industry Structure
-  Eco-system
-  Initiatives involving enhancement / acceleration of existing efforts
-  Initiatives that are new, involving key efforts yet to be coordinated / implemented

