



Malaysia's Digital Economy

A NEW DRIVER OF DEVELOPMENT



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List of Acronyms

ARCEP	Autorité de Régulation des Communications Électroniques et des Postes (French telecommunications regulatory authority)
ASEAN	Association of Southeast Asian Nations
B2B	Business to Business
B2C	Business to Consumer
B2G	Business to Government
B40	Bottom 40 percent (of the population)
BEPS	Base Erosion and Profit Shifting
BNM	Bank Negara Malaysia
CFC	Controlled Foreign Company
CIP	Cradle Investment Program
DAI	Digital Adoption Index
DCIS	Domestic Connectivity to International Services
DFTZ	Digital Free Trade Zone
DOSM	Department of Statistics Malaysia
DTA	Double Taxation Agreement
E&E	Electrical and Electronics
EPU	Economic Planning Unit (of the Ministry of Economic Affairs)
ETTH	Ethernet to the Home
EU	European Union
FMM	Federation of Malaysian Manufacturers
FTTH	Fiber to the Home
FTZ	Free Trade Zone
G20	Group of Twenty
Gbps	Gigabits per Second
GDP	Gross Domestic Product
GDPR	General Data Protection Regulations
GEM	Global Entrepreneurship Monitor
GLOW	Global Online Workforce Program
GNI	Gross National Income
GSM	Global System for Mobile Communication
GST	Goods and Services Tax
HSBB	High Speed Broadband
ICT	Information and Communications Technology
IoT	Internet of Things
IP	Internet Protocol

ITA	Investment Tax Allowance
ITU	International Telecommunication Union
MaGIC	Malaysian Global Innovation and Creativity Center
MAMPU	Malaysian Administrative Modernization and Management Planning Unit
MAVCAP	Malaysia Venture Capital Management
Mbps	Megabits per Second
MCMC	Malaysian Communications and Multimedia Commission
MDEC	Malaysia Digital Economy Corporation
MIFC	Malaysian International Islamic Finance Centre
MLI	Multilateral Instrument
MOF	Ministry of Finance
MSA	Mandatory Standard on Access
MSC	Multimedia Super Corridor
NFP	Network Facilities Provider
NSP	Network Services Provider
OECD	Organisation for Economic Cooperation and Development
OSA	One Stop Agency
PDPA	Personal Data Protection Act
PE	Permanent Establishment
PPP	Public Private Partnership
RBB	Rural Broadband
REP	Returning Expert Program
SMEs	Small and Medium Sized Enterprises
SST	Sales and Services Tax
STEM	Science, Technology, Engineering and Mathematics
SUBB	Sub Urban Broadband
TFP	Total Factor Productivity
TM	Telekom Malaysia
TVET	Technical and Vocational Education and Training
USP	Universal Service Provision
VAT	Value Added Tax
VDSL	Very High Bit Rate Digital Subscriber Line
WBES	World Bank Enterprise Surveys
WDI	World Development Indicators
WITS	World Integrated Trade Solution
WTO	World Trade Organization

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CHAPTER 1

Overview

Can digital technologies transform Malaysia the way microelectronics revolutionized the country fifty years ago? The founding of the Penang Free Trade Zone (FTZ) in 1969, the auspicious visit of Intel CEO Andy Grove, and the subsequent establishment of Intel Malaysia in 1972 are credited with transforming a plantation economy into a global manufacturing hub in electrical and electronics (E&E).¹ Advanced Micro Devices, Hewlett Packard, Clarion, National Semiconductor, Hitachi Semiconductor, Osram Opto Semiconductors, Bosch, and other companies followed Intel, establishing a presence in the Penang FTZ. Since then, Malaysia has progressively moved up the value chain, becoming more closely integrated into regionally distributed production networks. The country has also increasingly specialized in more complex tasks, while shedding simpler and more labor-intensive activities to other countries. In 2018, E&E accounts for some 38 percent of Malaysia's exports and provides close to 800,000 jobs.² Some of the ingredients that propelled the success of E&E are in place for a similar transformation of the digital economy. In 2016, Malaysia became the first country in the world to establish a Digital Free Trade Zone (DFTZ), a special trade zone that promotes the growth of e-commerce by providing a state-of-the-art platform for small and medium and other enterprises (SMEs). Jack Ma, CEO of Alibaba, the largest e-commerce company in the world, has committed major investments to the DFTZ.

This report examines three interrelated issues — digital connectivity, digital entrepreneurship, and taxation of digital platforms — that are closely aligned with Malaysia's goal of becoming the e-commerce hub of the region. By leveraging the internet, smartphones, Big Data, the internet of things, artificial intelligence, and other technologies, Malaysia can increase productivity, spur innovation, and improve livelihoods. Digital technologies can drive economic growth in Malaysia through three channels. First, they can promote inclusion by enabling existing firms and entrepreneurs to serve markets that are currently underserved. Second, they can lower costs and increase efficiency for existing firms and entrepreneurs to make them more competitive. And third, they can encourage innovation and scale economies, allowing entirely new forms of business and entrepreneurship to emerge.³

Malaysia needs to create a dynamic ecosystem for its digital economy that embodies changes to its infrastructure, regulations, skills, and public finance. The country needs to achieve ubiquitous, fast, and inexpensive internet connectivity for businesses and households; fix the way it regulates the internet so unfair and damaging business practices can be corrected; improve human capital through better curriculum and life-long learning opportunities; encourage more vibrant private sector finance so digital entrepreneurs can bring ideas to market; and take measures that will safeguard future tax revenues to improve public services and reinvest in areas that the economy needs most.

This report comprises five chapters in addition to this overview, which together demonstrate the promise of the digital economy and provide recommendations for unlocking its potential. Following an overview of the report in Chapter 1, Chapter 2 details digital adoption in Malaysia, with an emphasis on how businesses are using — but failing to fully exploit — digital technologies to communicate with customers, market goods, and meet other core business functions. Chapter 3 discusses the information and communications technology (ICT) infrastructure on which the digital economy is built, including persistent challenges related to the affordability and quality of fixed internet access that arise from high prices, market concentration, and an underperforming regulatory regime. Chapter 4 looks at the promise and challenges of digital entrepreneurship in Malaysia, highlighting the central role of government initiatives to date and what is required to fully empower the private sector. Chapter 5 explores options for taxing Malaysia's digital economy, including the impact of recent reforms to international standards. Finally, Chapter 6 presents a summary of key policy recommendations. The report covers an important, but by no means exhaustive, set of issues that Malaysia will need to address in order to maximize the opportunities provided by the advent of digital technologies and should be seen as the starting point in these endeavors.

1 Y.Bhg. Dato' Wong Siew Hai, "The Malaysian Electrical & Electronics (E&E) Industry – At an Inflection Point", July 2013, [http://dspace.unimap.edu.my/xmlui/bitstream/handle/123456789/28674/The%20Malaysian%20Electrical%20%26%20Electronic%20\(E%26E\).pdf?sequence=1](http://dspace.unimap.edu.my/xmlui/bitstream/handle/123456789/28674/The%20Malaysian%20Electrical%20%26%20Electronic%20(E%26E).pdf?sequence=1).

2 Department of Statistics Malaysia, Monthly External Trade Statistics, June 2018.

3 World Bank, World Development Report 2016: Digital Dividends, 2016, p. 45.

Economic Trends

Malaysia's remarkable transition from low-income to upper middle-income status has occurred in parallel to the microelectronics revolution. Growth in gross domestic product (GDP) averaged 6.3 percent per year during 1960–2016. Throughout this period, the government implemented ambitious development policies, fostering the rise of new industries and allowing the country to move up global value chains. At the national level, the government has adopted policies designed to promote macroeconomic stability, enhance the business and investment climate, foster the development of human capital, and encourage innovation. At the sector level, the government is striving to improve the efficiency of input and output markets, support the growth of a dynamic services sector, and further increase the stock of human capital through investment in skills and by encouraging greater female participation in the labor force. Gross national income (GNI) per capita climbed to \$9,650 by 2017.⁴ If these trends continue, Malaysia should reach high-income status between 2020 and 2024.⁵

Malaysia's early growth was driven largely by factor accumulation. Strong domestic and external demand, supported by favorable demographic dynamics, contributed to a 3.0 percent annual increase in employment and a 7.9 percent annual increase in the capital stock during 1960–2016.⁶ Until recently, Malaysia's policy of export-led industrialization, starting with FTZs in microelectronics, caused exports to rise in tandem with GDP, while its export basket evolved from primary products — including tin, crude oil, rubber, and palm oil — to manufactured goods. Today, the country is a leading exporter of E&E products, with the industry accounting for 37 percent of gross exports in 2017 and more than 2 percent of total employment.⁷

Increasing productivity has become more important since Malaysia's structural transformation in the 1970s and 1980s, but capital accumulation still accounts for most growth. During 1990–2016, labor quality was responsible for an estimated 8 percent of value-added growth and rising employment accounted for 18 percent. Over the same period, accumulation of non-ICT capital accounted for 65 percent of growth. ICT capital accounted for 18 percent overall and was higher after the Asian financial crisis than before, coinciding with technological developments in the country. Given the high degree of capital accumulation, the contribution to growth of total factor productivity (TFP) was actually negative over the entire period, but posted positive numbers in the intercrisis period of 1999–2006 (Figure 1.1).⁸

Malaysia is again at a crossroads: the economic model that successfully enabled it to reach upper middle-income status will not sustain robust growth indefinitely. Factor accumulation and productivity growth have declined in recent decades, punctured by the impact of the Asian financial crisis (1997–1998) and the global recession (2007–2009). Gross capital formation proved highly sensitive to both crises, dropping from 40 percent of GDP in 1997 to 20 percent in 2009. A large part of recent growth in the labor force has come from the increased participation by women, but that too has slowed, leaving the female-to-male ratio significantly lower than in the rest of the Association of Southeast Asian Nation (ASEAN) and Organisation for Economic Co-operation and Development (OECD) countries. Meanwhile, Malaysia's TFP growth rate has been consistently lower than the average for the rest of ASEAN since 1990, and less than the OECD average since the global recession. External shocks also slowed the growth of labor productivity, which dropped by 12 to 13 basis points after each crisis (Figure 1.1).⁹

4 World Bank, World Development Indicators, 2018.

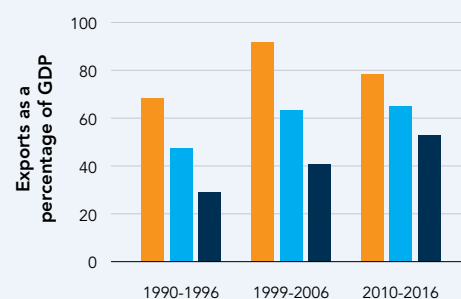
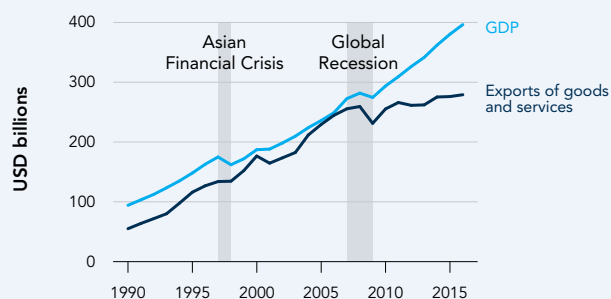
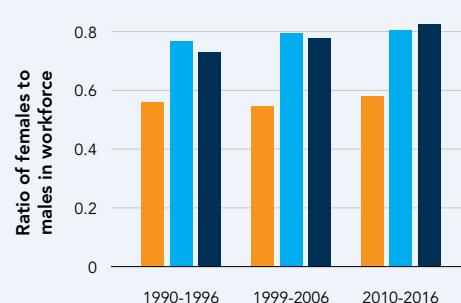
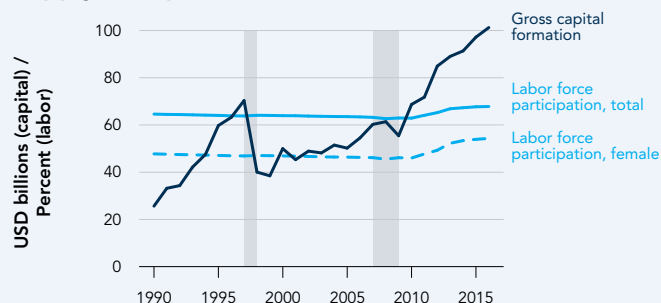
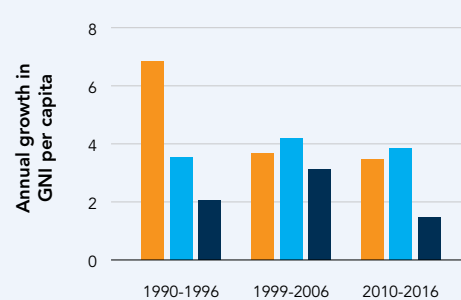
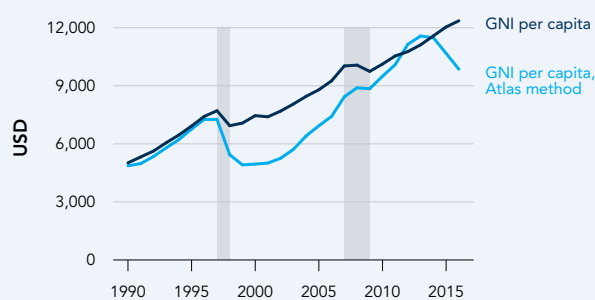
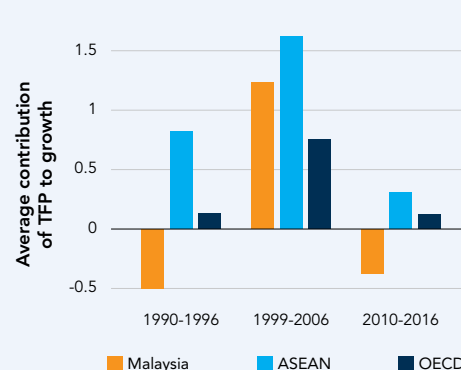
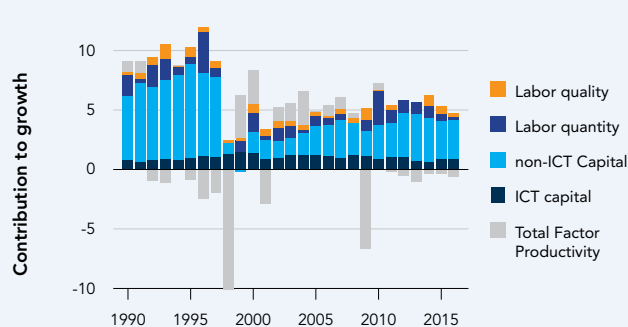
5 World Bank, Malaysia Economic Monitor, December 2017, p. 12.

6 World Bank, World Development Indicators, 2018; Conference Board, Total Economy Database, 2018. Capital stock assumes a 6 percent annual depreciation.

7 Department of Statistics Malaysia (DOSM), "Monthly trade statistics," December 2017; DOSM, "Principal statistics of selected manufacturing industries," March 2018; DOSM, "Labor force statistics," March 2018.

8 Conference Board, Total Economy Database, 2018. TFP is more significant if the growth decomposition does not account for labor quality or ICT capital. During 1990–2016, a simple Solow model assuming a 30 percent income share of capital estimates capital accumulation accounts for 35 percent of growth, growth in the labor supply another 35 percent, and TFP the remaining 30 percent. But that suggests the TFP contribution has declined from the period 1960–1989, during which capital accumulation accounted for 28 percent of growth, growth in the labor supply 34 percent, and TFP the remaining 38 percent (World Bank, World Development Indicators, 2018).

9 Conference Board, Total Economy Database, 2018.

FIGURE 1.1 Malaysia's growth story is remarkable, but it has been interrupted by shocks**a. GDP and exports****b. Supply of capital and labor****c. GNI per capita****d. Contributions to growth, by type**

Sources: World Bank, World Development Indicators, 2018; Conference Board, Total Economy Database, 2018.
 Note: GDP, exports, gross capital formation, and GNI per capita are expressed in constant 2016 U.S. dollars.

Diminishing returns to labor have also contributed to a growing sense that economic growth is not translating into meaningful improvements in living standards, resulting also in widespread concerns about a build up in the cost of living. Unlocking the potential of the digital economy will be key to ensuring Malaysia's successful transition to a high-income and developed economy. The adoption of digital technologies across the public and private sectors, in manufacturing, in services and in agriculture will be essential to enable the growth in productivity that Malaysia needs for broad-based improvements to living standards.

Policy makers now face the challenge of accelerating structural transformation to enhance productivity, promote diversification, and improve international competitiveness over the medium term. On the plus side, Malaysia's economic fundamentals remain strong and the institutional framework is conducive to productivity growth. The country boasts effective systems for protecting property rights and enforcing contracts. Its inflation rate is stable by regional standards, and fiscal consolidation efforts have led to a narrowing budget deficit. However, macroeconomic and fiscal risks persist, not least relating to the comparatively high levels of debt and contingent liabilities, and the country's workforce is not as prepared as it could be to thrive in the digital economy. A narrowing revenue base, vulnerable to swings in commodity prices, together with the growing spending needs of an aging society pose risks to fiscal sustainability. Despite strong performance on international measures of the costs of doing business, Malaysian firms frequently cite burdensome regulations as a key obstacle. And firms often have difficulty finding workers with the right skills. Recognizing these challenges, the 11th Malaysia Plan incorporates several goals related to productivity, including boosting the annual growth rates of TFP and labor productivity to 2.3 percent and 3.7 percent, respectively, during 2016–2020.¹⁰ Achieving those ambitions is crucial to establishing the digital economy as a growth engine in a knowledge-based, innovation-led economy.



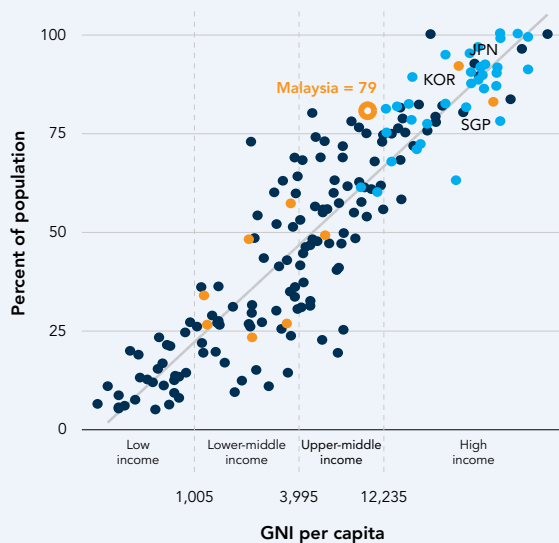
¹⁰ Economic Planning Unit, Eleventh Malaysia Plan: 2016–2020, 2015, p. 28, <http://www.epu.gov.my/en/rmk/eleventh-malaysia-plan-2016-2020>.

Digital Trends

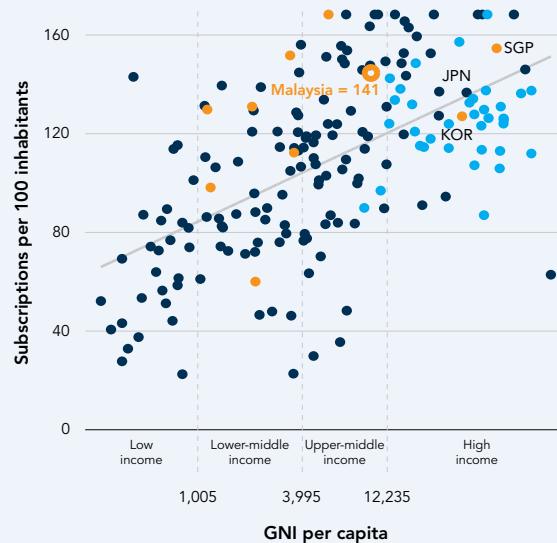
Most of Malaysia's citizens are connected to the internet, and there is more than one mobile cellular subscription for each individual. On both metrics, Malaysia is close to the frontier and performs better than would be predicted by per capita income (Figure 1.2). Within the region, only Japan, the Republic of Korea, and Singapore have higher internet penetration rates. Malaysia does better than other ASEAN countries and many OECD countries. Mobile cellular subscriptions are less correlated with income, and there are many middle-income countries where rates exceed one subscription per person. On this, Malaysia outperforms most ASEAN countries, as well as Japan and the Republic of Korea.¹¹ These positive trends are mitigated by relatively low adoption by businesses and poor fixed broadband quality — topics addressed in following chapters. Still, Malaysia has a solid mobile infrastructure.

FIGURE 1.2 Most people in Malaysia are connected to the internet or have a mobile cellular subscription

a. Individuals using the internet



b. Mobile cellular subscriptions



Source: International Telecommunication Union 2017.

Note: Mobile cellular subscriptions are capped at the 95th percentile.

The digital economy in Malaysia is expected to grow rapidly. From 2010 to 2016, the digital economy — as defined by the government — grew by 9 percent per year in value-added terms, faster than overall GDP, and is expected to approach 20 percent of the economy by 2020. e-commerce is growing particularly quickly, and is expected to exceed RM 110 billion by 2020, when it will comprise nearly 40 percent of the digital economy.¹² Although they indicate positive growth, especially for e-commerce, these headline figures overstate the current size of the digital economy relative to most high-income countries because of Malaysia's very broad definition of the digital economy (see Box 1.1).

¹¹ International Telecommunication Union (ITU), Measuring the Information Society Report, 2017.

¹² World Bank staff projections based on DOSM data, Information and Communication Technology Satellite Account, 2016.

BOX 1.1

Measuring the Digital Economy

Under most definitions, the digital economy encompasses the ICT sector and e-commerce. But the components of each differ by country. Malaysia has a broader definition than OECD countries. Its ICT sector includes ICT wholesale and retail trade, content and media activities, and other miscellaneous ICT services in addition to all the industries covered by the OECD definitions (Table 1.1). And Malaysia has notably large ICT manufacturing and telecommunication sectors, which constitute a sizable proportion of the headline figure for value added in the digital economy.

TABLE 1.1 Malaysia has a broader definition of the digital economy than the OECD

Component		OECD	Malaysia
Information and Communication Technology (ICT) Sector	Commonalities	ICT manufacturing; software publishing; telecommunications; computer programming, consultancy, and information and related activities	
	Differences		ICT wholesale and retail trade; Content and media activities; Other ICT services such as repair of machinery, E&E and optical equipment; Installation of industrial machinery and equipment, etc.
e-commerce	Commonalities	Wholesale and retail sectors	
	Differences	A broader measure can be derived, which includes all sectors across the economy for which data are available	The broader approach is used, comprising all sectors across the economy for which data are available

Source: World Bank 2018.

When the digital economy is decomposed, the differences between Malaysia's and other country definitions are clear. In 2015, 17.8 percent of Malaysia's GDP was attributed to the digital economy, of which 13.1 percent was from the ICT sector. This is much higher than the average 5.4 percent of total value added attributed to OECD countries' ICT sectors in 2015 (Figure 1.3). If Malaysia's ICT sector is approximated using the OECD's industry classifications and definition, it still accounted for 9.7 percent of GDP in 2015.

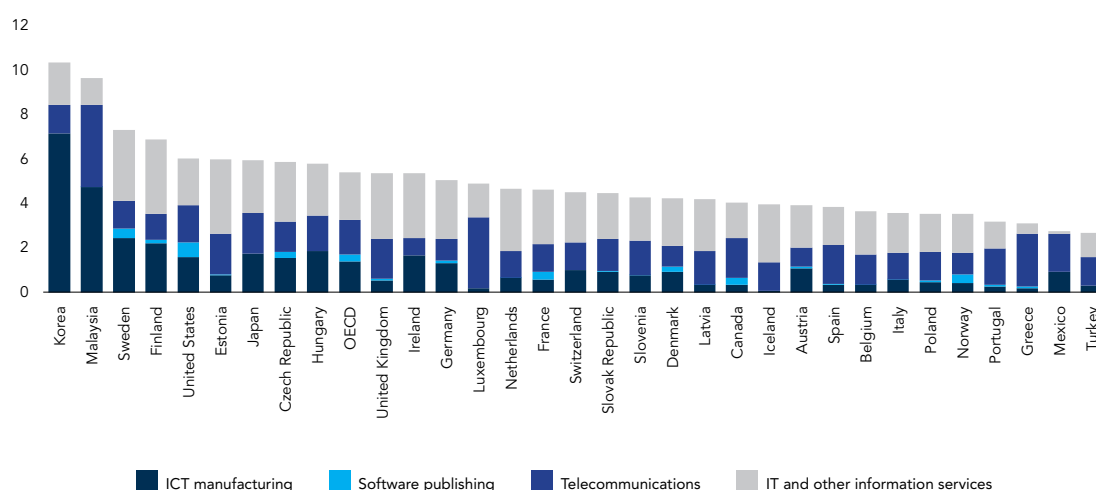
A key difference is the relative prominence of ICT manufacturing in Malaysia, which was among the top 8 manufacturers of computer, electronic and optical products globally in 2014. It alone accounted for 49 percent of the total ICT sector value added and 4.8 percent of GDP in 2015, versus the OECD average of 1.4 percent of total value added in the corresponding year. Malaysia's valued added

in telecommunication services was also exceptionally sizable at 3.7 percent of GDP in 2015, compared to 1.6 percent of total value added in OECD economies.¹³ By contrast, the contribution of Malaysia's computer programming, IT consultancy and other information services was relatively low at 1.2 percent of GDP in 2015, compared to 2.2 percent of total value added in OECD countries.

Cross-country comparability of valued added in e-commerce activities also remains limited given the considerable national differences in definition, methodology and scope. According to Malaysia's official definition which takes a broader view that comprises all sectors across the economy, not only wholesale and retail sectors, e-commerce accounted for 6.1 percent of Malaysia's GDP in 2016 (versus 0.7 percent of GDP in the U.S., based on the methodology used by U.S. Bureau of Economic Analysis).

FIGURE 1.3 Malaysia has a sizeable ICT sector compared to OECD economies due to the relative prominence of ICT manufacturing and telecommunication sectors

Value added of the ICT sector as a percentage of total value added at current prices, 2015



Source: OECD, Digital Economy Outlook, 2017; Government of Malaysia, Department of Statistics, Information and Communication Technology Satellite Account, 2016.

Note: The ICT sector is defined as the sum of industries ISIC rev.4: 26 Computer, electronic and optical products ("ICT manufacturing"); 582 Software publishing; 61 Telecommunications; and 62-63 IT and other information services. Data for Malaysia are calculated as value added as a percentage of GDP at current prices. Data for Germany, Latvia, Poland, Portugal, Spain and Switzerland are for 2014. Data for Canada and Korea are for 2013.

Malaysia's accounting for the digital economy is dominated by its traditional driver of growth — ICT manufacturing — which makes it less useful than it otherwise could be for tracking the development of the "new" digital economy. Retail e-commerce in Malaysia still comprises a relatively small share of the economy in fair comparison with the leading developed and regional counterparts. Nonetheless, it is the fastest growing component. As this report details, it has great potential if the infrastructure and entrepreneurship challenges can be overcome.

Source: OECD, Internet Economy Outlook, October 2012, Annex A, Box A.1; OECD, Digital Economy Outlook, October 2017, Figure 3.2; UNCTAD, Information Economy Report 2017: Digitalization, Trade and Development, October 2017, Table 11.2; Government of Malaysia, Department of Statistics, Information and Communication Technology Satellite Account 2016, October 2017, Table 1a; U.S. Department of Commerce, Bureau of Economic Analysis, Digital Economy Satellite Account 2005 - 2016, March 2018, Table 2.

In addition to the need to increase productivity, Malaysia faces a clear challenge of ensuring that the digital economy benefits all Malaysians and does not exacerbate inequality. Malaysia's large, export-oriented firms are leading the way, adopting e-commerce at higher rates than SMEs.¹⁴ Without the right complements, this could entrench their dominance and increase inequality. Alternatively, this process could represent just the first foray into a new market, with Malaysia's local champions setting an example for smaller firms and solo entrepreneurs. Improving access to affordable, reliable, and high-speed fixed broadband will help SMEs compete with better resourced and more sophisticated firms. The government has also launched numerous initiatives to support the digital economy — especially SMEs — including the world's first DFTZ, grant programs, and accelerators for digital entrepreneurs. And recent developments in international tax rules provide space for reforms that could level the playing field between domestic companies and their foreign competitors.

State of the digital economy

Access to the internet by businesses tripled during 2010–2015, but digital technologies have not yet made a commensurate impact on business practices. Every sector of the economy saw progress, but access grew the most for the manufacturing sector and in states that host export industries. Services saw the biggest proportional increase, which, given the sector's predominance, translated to a substantial increase for the economy as a whole.¹⁵ But despite improved access, Malaysian businesses have adopted associated technologies less readily than the Malaysian government or population (relative to expectations based on per capita income). And Malaysia has less international internet bandwidth, fewer businesses with websites, and fewer secure servers than per capita income would predict — ranking far behind OECD countries in these measures despite being comparable on measures related to adoption by the government and people.¹⁶ Within the country, slightly more than 70 percent of business establishments with an internet connection send or receive e-mail, by far the most common activity. Business establishments in the manufacturing sector are more likely than others to use the internet for banking, to get information from other businesses and the government, and to deliver products. In contrast, business establishments in the services sector are less likely than others to use the internet to communicate, despite being more likely to have a web presence.¹⁷

Much of the digital economy continues to be dominated by large firms, despite programs to encourage adoption and innovation by SMEs. Business-to-business transactions accounted for the vast majority of e-commerce transactions, and most of those were concentrated in the manufacturing sector. In 2015, Malaysian businesses earned RM 398 billion from e-commerce sales, 16 percent of total business income for the year. But only 5 percent of establishments were involved in e-commerce, implying a highly concentrated digital economy.¹⁸ Business establishments engaged in e-commerce tend to be much bigger than average. This runs counter to the common presumption that the internet allows newer, smaller, more entrepreneurial firms to enter the marketplace and thrive. Instead, establishments engaged in e-commerce have greater assets, more employees, and higher revenues than average — and the difference is especially large in the manufacturing and services sectors (Figure 1.4).¹⁹ Similarly, establishments owned by women and SMEs are less likely than the average business establishment to access and use the internet. The gap is particularly large for women-owned establishments: only 41 percent have access to the internet compared to 62 percent for all businesses.²⁰

13 Value added in Malaysia's telecommunications is especially large by international standards. This likely reflects the comparatively large returns due to limited competition, especially in the wholesale segment of the value chain. This issue is explored in more detail in Chapter 3.

14 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017.

15 Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017; Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017; Department of Statistics Malaysia, Economic Census 2011, select data, 2012.

16 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>.

17 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017, Table A5.

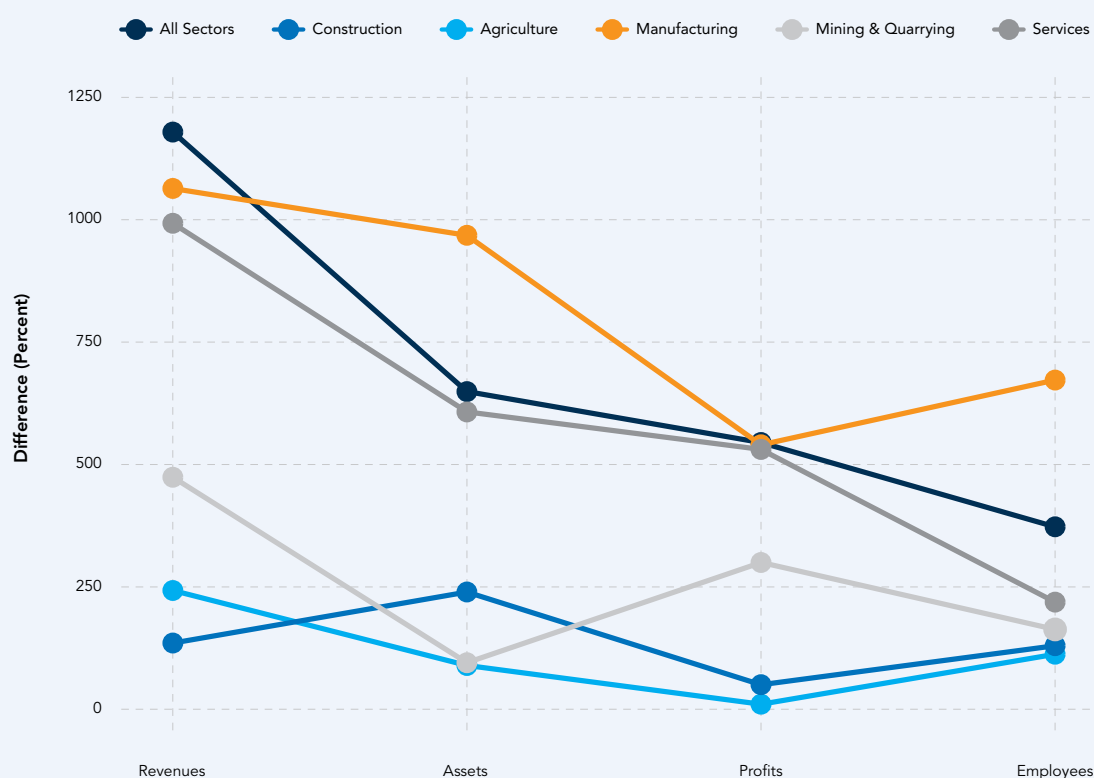
18 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017.

19 Profits for all business establishments are calculated as gross output minus the cost of intermediate output and wages. Profits for business establishments engaged in e-Commerce are calculated as total income minus total expenditure. The baseline against which the difference for establishments engaged in e-Commerce is calculated comprise all business establishments in the country, including those engaged in e-Commerce.

20 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017.

FIGURE 1.4 Business establishments engaged in e-commerce are much bigger than average

Percent difference between establishments engaged in e-commerce and total establishments, by sector and financial ratio



Source: DOSM 2016 and 2017.

For Malaysia to ensure that growth in the digital economy is broad-based and sustainable, the government will need to address key barriers related to infrastructure, entrepreneurship, and taxation.

Growth in basic digital adoption has been rapid but has contributed to a new digital divide: Malaysia continues to trail its international peers in digital adoption by businesses, especially as the country increasingly compares itself to high-income rather than upper-middle-income peers. Only 62 percent of business establishments are connected to the internet, 46 percent have fixed broadband (often of low quality), and just 18 percent have a web presence of some kind.²¹ Moreover, most of the measurable growth in the digital economy has been concentrated in the manufacturing sector in five states: Selangor, Kuala Lumpur, Putrajaya, Malacca, and Penang. These patterns risk entrenching existing inequalities and undermining the potential of the digital economy as an engine of broad-based growth if the right policies are not put in place (see Box 1.2). To increase the benefits and reduce the risks of the growing digital economy, the government needs to eliminate barriers to digital adoption, especially by increasing access to inexpensive, reliable, and high-speed internet, and encourage entrepreneurship, particularly among SMEs and women-owned businesses. And the government needs to ensure it collects enough revenue, in a manner that does not disadvantage domestic companies, to adequately fund the infrastructure, financing, and educational programs that sparked — and will sustain — growth in the digital economy.

21 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017.

BOX 1.2

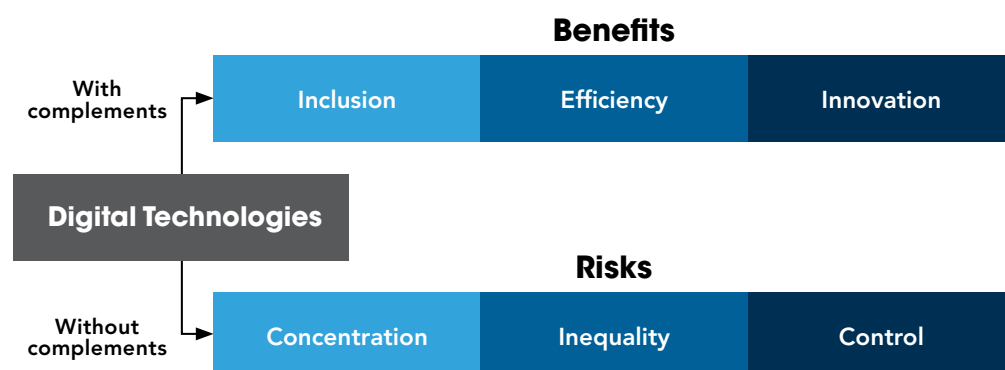
Embracing the Digital Economy Also Means Getting the Analog Components Right

The rapid growth of digital technologies has not yet been fully translated into digital dividends.

Nearly 60 percent of the world's population remain unconnected, leaving many people unable to participate in the digital economy. There are also persistent disparities in digital access along gender, geography, age, and income dimensions in almost all countries. And as the digital adoption increases, many economies are faced with increasingly polarized labor markets and widening inequality. In part, this is due to technology replacing routine jobs, which forces many workers to compete for lower paying employment. This is exacerbated by the absence of accountable institutions and a failure to establish a competitive business environment, which in turn creates an uneven playing field, favoring only the better educated and well-connected.

Risks and concerns related to the adoption of digital technologies surface when the main “analog complements” — rules, skills and institutions — are missing or inadequate (Figure 1.5). When there is an excessive concentration of market power that gives rise to monopolies, the use of the internet curtails competition in the market, thus constraining innovation. It could also result in widening inequality as a result of workers not having the right skills to complement existing and future technologies. Furthermore, despite a better flow of information from the internet, unaccountable governments could impede service delivery, leading to greater control rather than greater empowerment and inclusion among citizens. As such, while ensuring that the internet is accessible and affordable remains a priority, maximizing digital dividends requires an understanding of how technology interacts with these ‘analog complements’ of digital investments.

FIGURE 1.5 Digital technologies create both benefits and risks



Source: World Bank, World Development Report 2016 – Digital Dividends, 2016.



As countries continue to define their digital strategies, equal emphasis should be given to strengthening these analog complements. The quality of countries' analog complements is correlated with income, and policies should evolve as countries progress toward digital transformation. In countries where internet use is still limited, the focus should be on increasing access to digital technologies and promoting digital literacy. As countries transition to higher income levels, the focus should shift towards formulating effective competition regulation and enforcement and augmenting workers' skills. Developed countries should find ways to facilitate "new economy" competition, ensure lifelong learning, and use the internet to improve the efficiency and accountability of government functions. Countries that establish strong analog foundations will reap ample digital dividends, including increased growth, more jobs, and better services.

Infrastructure

Ensuring that Malaysia's digital infrastructure provides ubiquitous, reliable, and ultrafast broadband internet service is key to unlocking the potential of the digital economy. Nearly 80 percent of the population is online, primarily through mobile networks. But the country lags in the coverage and adoption of fixed broadband services, especially compared to its level of economic development.²² There were only 9 fixed broadband subscriptions per 100 inhabitants in 2016, less than income per capita would predict and only a fraction of Malaysia's 92 active mobile broadband subscriptions per 100 inhabitants.²³ Malaysia also has slower download speeds and higher prices than most advanced economies.²⁴ And it appears that Malaysia will become less competitive in the near future. Most advanced economies are actively rolling out ultrafast broadband internet connections, which operate at speeds over 100 megabits per second (Mbps), and provide the foundation innovations such as artificial intelligence, the Internet of Things, and Industry 4.0. For example, the European Union (EU) will provide 1 gigabit per second (Gbps) connectivity for all major urban centers, schools, transportation hubs, and public facilities, and a minimum of 100 Mbps (upgradeable to 1 Gbps) for all households, by 2025; Singapore is well on its way to providing download speeds of 1 Gbps and above; and the Republic of Korea plans to commercialize 10 Gbps broadband services by 2022.²⁵ In contrast, Malaysia's broadband initiatives call for a maximum download speed of only 100 Mbps, and even that is restricted to state capitals, major towns, and high-growth areas. The maximum speed in the suburbs and rural areas are not planned to exceed 20 Mbps and 4 Mbps, respectively.²⁶

High prices, low coverage, and limited ambitions for fixed broadband in Malaysia are driven by a lack of market competition. Telekom Malaysia (TM) controls 92 percent of fixed broadband subscriptions, making Malaysia's fixed broadband market more concentrated than that of any other country in ASEAN or the OECD (Figure 3.4).²⁷ As Malaysia's national champion, TM was instrumental in achieving widespread basic connectivity, but its dominance of the upstream market, control of the national backbone, and high degree of vertical integration gives it a structural advantage that is now inhibiting progress. In many countries, it is common for incumbents to use their market power to restrict access by other domestic companies. In Malaysia, there are reports that TM has cited security concerns in rejecting co-location arrangements at its cable landing stations, and instead provide point-of-access connection via fiber splicing and charging fees above the regulated price for transmission services elsewhere in Malaysia.²⁸ Meanwhile, national policies and diverse state-level arrangements for network deployment have prevented new competitors from emerging. The central government has awarded TM memorandums of understanding to deploy the urban and suburban broadband initiatives, leaving only the rural broadband initiative to be competitively tendered.²⁹ Many states have established a One-Stop Agency (OSA) to streamline the process of issuing and renewing permits, which have the potential to improve savings and efficiency. But in a number of cases, OSAs have made infrastructure

22 TeleGeography, GlobalComms Database, December 2017.

23 ITU, Measuring the Information Society Report, 2017.

24 Ookla, "Speedtest Global Index," April 2018; ITU, "Mobile-broadband prepaid handset-based (500MB) dataset," 2017; TeleGeography, GlobalComms Database, 2018.

25 European Commission, "Connectivity for a European Gigabit Society," September 2016, <https://ec.europa.eu/digital-single-market/en/policies/improving-connectivity-and-access>; Infocomm Media Development Authority, "Fact Sheet: Next Generation Nationwide Broadband Network," July 2013, <https://www.imda.gov.sg/~media/imedia/files/community/consumer%20education/fibre%20broadband/nextgennbnfactsheet.pdf>; Yonhap News Agency, "S. Korea pushes to commercialize 10-gigabit Internet service," March 18, 2018, <http://english.yonhapnews.co.kr/news/2018/03/16/0200000000AEN20180316010600320.html>.

26 Malaysian Communications and Multimedia Commission (MCMC), Annual Report: Universal Service Provision, 2015; https://www.skmm.gov.my/skmmgovmy/media/General/pdf/MCMC_USP_Report_2015_bi_1.pdf; MCMC, "Malaysia's Experience to Increase Broadband Penetration," 2017, <http://www.comcec.org/en/wp-content/uploads/2017/03/9-TRA-PRE-MLY.pdf>.

27 TeleGeography, GlobalComms Database, 2018.

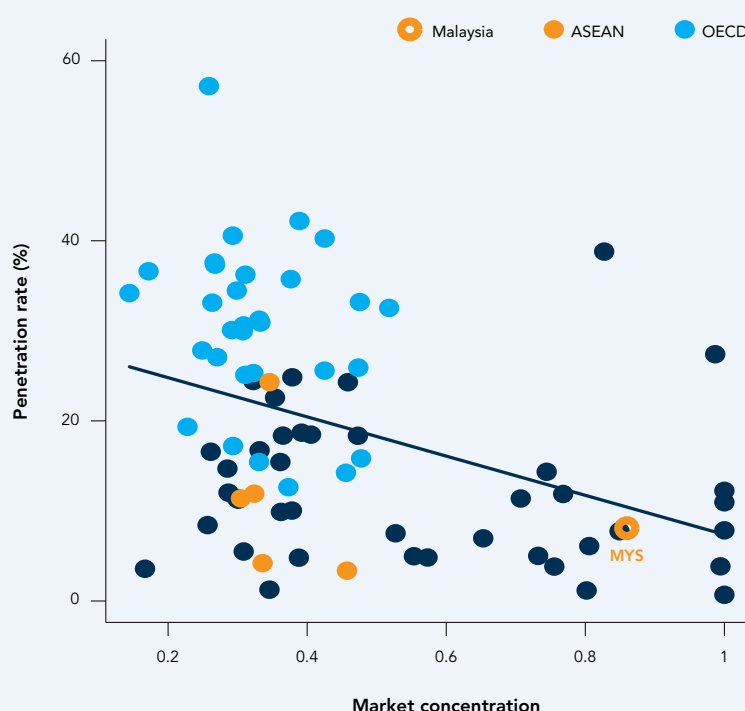
28 Anonymous private-sector representative, interview with the Malaysia Digital Economy Team, April–November, 2017.

29 The Star Online, "Telekom Malaysia invests RM2.3bil for better high-speed broadband", December 18, 2015; <https://www.thestar.com.my/business/business-news/2015/12/18/tm-to-invest-rm23bil>; CommsUpdate, "TM inks HSBB 2 and SUBB agreements with Malaysian government," December 21, 2015; <https://www.telegeography.com/products/commsupdate/articles/2015/12/21/tm-inks-hsbb-2-and-subb-agreements-with-malaysian-government/>.

deployment unnecessarily expensive or have compromised network coverage and quality.³⁰ Recent policy changes over the past year, including price hikes for processing fees and forced consolidation, have added to the cost of network buildout, limiting investment and undermining competition.³¹

FIGURE 1.6 Malaysia's fixed broadband market is highly concentrated

Fixed broadband market concentration relative to penetration rates



Source: Telegeography, GlobalComms Database, 2018.

Note: Market concentration is represented by the Herfindahl-Hirschman index for countries with at least 500,000 fixed broadband subscriptions.

The policy objectives for Malaysia's digital infrastructure are two-fold: enhance the quality and affordability of broadband services and improve access to ultrafast fixed broadband networks. More aggressive application of existing regulations would increase the efficiency of the existing fixed broadband infrastructure and drive down costs for consumers. The Malaysian Communications and Multimedia Commission (MCMC) — Malaysia's telecommunications regulator — needs the support of the government to identify and vigorously implement relevant provisions of the regulatory framework. Currently, section 139 of the Communications and Multimedia Act 1998 covers anticompetitive practices by operators, including practices conducted by a dominant operator that are substantially lessening competition. But it does not cover

30 Anonymous private-sector representative, interviews with the Malaysia Digital Economy Team, 2017.

31 Anonymous stakeholders, interviews with the Malaysia Digital Economy Team, April–November 2017. A wayleave is a type of easement used by a utility that allows a linesman to enter the premises to install or maintain infrastructure on private land in return for annual payments to the landowner.

ex-ante measures to allow for competition or prevent anticompetitive practices. The guidelines on dominance and lessening of competition are also silent on the remedies that could be imposed once an anticompetitive practice is proven, including regulatory conditions to prevent the practice from recurring.³² Recent policy decisions suggest a shift towards implementing existing regulatory tools and could lead to positive market outcomes through lower prices and better quality of services.³³

Looking to the future, the government needs to attract more private capital to multiply public investments, close coverage gaps, and set the stage for delivery of ultrafast broadband services at speeds of over 100 Mbps. Defining more aggressive and transparent goals for Malaysia's broadband networks would signal the country's intention to compete with more advanced economies. This is especially relevant for rural and low-growth areas of the country to ensure that the poorest Malaysians have access to broadband internet services. To this end, the government should consider crowding-in private investment and easing the creation of new network infrastructure through streamlined rules and regulations, including treating broadband as a utility under uniform building by-laws (similar to how water and electricity) and restructuring the Universal Service Fund to make it more transparent and flexible, and to encourage participation by a wider range of firms in network deployment (including through least-cost subsidy auctions or demand aggregation).³⁴

Entrepreneurship

Government initiatives — coupled with high-profile successes like Grab, iflix, and Fave — have generated great enthusiasm for entrepreneurship among Malaysians. About one-fifth of the population is engaged in some form of early-stage entrepreneurship activity, and they are overwhelmingly motivated by opportunity, rather than necessity.³⁵ The Malaysia Digital Economy Corporation (MDEC), Cradle, and the Malaysian Global Innovation and Creativity Center (MaGIC) stand out among the 6 ministries and 12 agencies that support entrepreneurship in some way.³⁶ MDEC facilitated investments by ICT companies in Cyberjaya, the country's science park and IT center, in 1996. Its mission has since evolved to encompass attracting investors and promoting local technology companies, catalyzing the digital ecosystem, building critical enablers of the digital economy, and driving inclusive adoption of technology.³⁷ Cradle was founded in 2003 as the government's primary funding mechanism for Malaysian entrepreneurs at the seed stage. It has funded more than 700 startups over its life, making it largely responsible for generating deal flow in the country.³⁸ And MaGIC was established in 2013 to nurture entrepreneurs who are seeking support and entry to the Southeast Asian market. It offers numerous programs, including the region's largest accelerator program, entrepreneurship training, conferences, and accreditation programs.³⁹

32 Malaysia Communications and Multimedia Act 1998 (Act 558), Section 149.

33 The Malaysian Reserve, "Deadline near for telcos to present cheaper packages," August 28, 2018: <https://themalaysianreserve.com/2018/08/28/deadline-near-for-telcos-to-present-cheaper-packages/>

34 See, for example, the EU's 2014 Directive to reduce the cost of high-speed broadband deployment or measures implemented in the Republic of Korea to ease in-building broadband roll out. European Commission, "Digital Single Market Policy: EU rules to reduce cost of high-speed broadband deployment," March 2, 2018, <https://ec.europa.eu/digital-single-market/en/cost-reduction-measures>; Stuart N. Brotman, "Embracing broadband policy innovation from abroad," May 27, 2015, <https://www.brookings.edu/blog/techtank/2015/05/27/embracing-broadband-policy-innovation-from-abroad/>. According to MCMC, Universal Service Provision (USP) Regulations are governed under the Communications and Multimedia Act 1998 identifying rural and low-growth areas known as "underserved groups within the community" and "underserved areas." USP Regulations are continuously being reviewed and revised over the years to ensure the relevancy and adherence to its current environment. MCMC, comments made to the Malaysia Digital Economy Team, July 2018.

35 Global Entrepreneurship Monitor, Global Report 2017/18, 2018, pp. 32–33, 78, 118–120, <http://www.gemconsortium.org/report>. Of those engaged in early-stage entrepreneurial activity, 20 percent were ages 18–24, 27 percent were ages 25–34, 22 percent were ages 35–44, 21 percent were ages 45–54, and 10 percent were ages 55–64.

36 MaGIC, presentation made to Malaysia Digital Economy team, June 2017.

37 MDEC, "Championing Malaysia's Digital Economy," 2017, <https://www.mdec.my/about-mdec/corporate-profile>; MDEC, "About MDEC," 2018, <http://www.digitalmalaysia.my/about-mdec/corporate-profile>.

38 Crunchbase, "Cradle Fund Sdn Bhd (Cradle)," 2018, <https://www.crunchbase.com/organization/cradle-fund#section=overview>; Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

39 MaGIC, "Programs," 2018, <https://mymagic.my/programs/>.

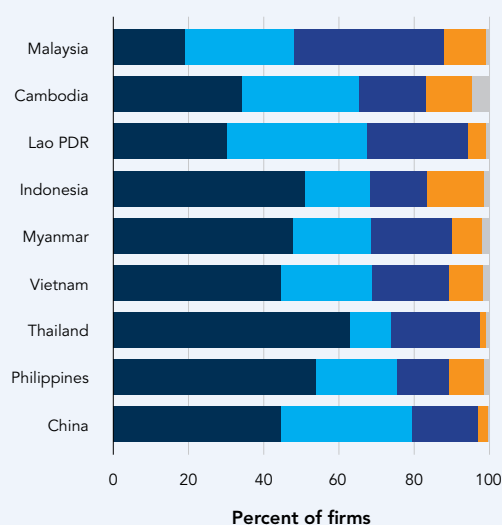
But digital entrepreneurship in Malaysia is constrained by shortages of human and financial capital.

Malaysia's education system and workforce training programs are not yet preparing enough workers with the right skills to meet the increasing demands of the digital economy. The problem is compounded by the emigration of many of Malaysia's most educated and skilled citizens. As a result, employers consistently report a gap between the knowledge, skills, and attitudes of available labor and what the workplace requires.⁴⁰ Meanwhile, more than half of firms ranked access to capital as a moderate to very severe problem (Figure 1.7).⁴¹ The shortage of funding becomes acute during firms' early growth stage. Malaysia hosts few private-sector venture capital firms, leaving firms to rely largely on funding from Singapore or the United States when they graduate from seed-stage funding provided by the government. This undermines the local market and deprives entrepreneurs of the expertise that typically comes with venture capital.

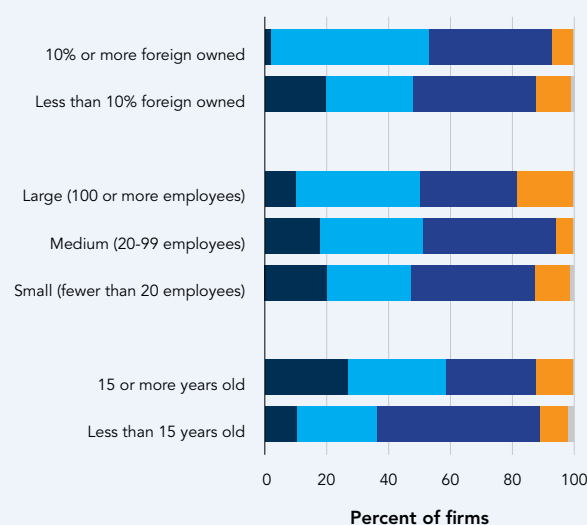
FIGURE 1.7 Access to capital is a moderate to very severe problem for more than half of firms in Malaysia

Severity of problems with access to capital, by country in the region and by firm characteristic in Malaysia

a. Regional, by country



b. Malaysia, by firm characteristic



Source: World Bank 2012–2016.

40 Economic Planning Unit, Eleventh Malaysia Plan, 2016–2020, p. 1-13.

41 World Bank, Enterprise Surveys, 2012–2016.

The spread of digital innovations is also hindered by several factors that reflect the sector's relative underdevelopment. First, a large share of Malaysians continue to prefer cash despite a high rate of financial inclusion, which adds inefficiencies and forces startups to accommodate the functionally “unbanked” population. Increasing the adoption of digital transactions requires overhauling regulations, adapting technologies, and increasing consumer comfort with the practice. Second, there are ongoing tensions between data protection and its legitimate use for commercial purposes. The Personal Data Protection Act (PDPA), which became effective in 2013, is an important first step, but the regulatory framework needs to continue evolving to meet future challenges as the digital economy grows. Third, it is difficult to access government data, undermining the potential of Big Data analytics. The government's open data initiative launched in 2014, when agencies were mandated to identify datasets to share under a license that allows users to reuse, modify, or commercialize the data.⁴² But the lack of a right to information law means agencies have wide discretion in what data they publish. Many have taken a cautious approach, citing security and privacy concerns, and even data sharing among agencies is decided on a case-by-case basis.⁴³ Fourth, quality mentors are hard to find in the digital economy. This leaves potential digital entrepreneurs without the social connections, role models, know-how, and guidance they need to succeed. Fixing the problem likely requires a complex cultural shift, without which Singapore will continue to attract talent from Malaysia. And fifth, there is no integrated plan for developing next-generation technologies with a plethora of agencies active in the digital economy space in an at times uncoordinated manner.

Taxes

The growth of the digital economy around the world has coincided with a realization that the rules of the international direct tax system need a major overhaul. The fast growth of the digital economy has been paralleled by or with limited taxation of the sector. Yet, as this part of the economy matures and accounts for a larger share of all economy activity, Malaysia's government will need to consider balancing the need to provide a supportive investment climate for the digital economy, with the need for fair and equitable taxation in order to support necessary public investments in physical and human capital.

Malaysia currently has limited means to tax cross-border transactions in the digital economy. There is an international consensus that indirect taxes should be levied where consumption takes place. This means that digital goods and services provided by foreign suppliers should still be subject to value added and sales taxes. It is not practical to expect consumers to account for the tax, so countries have developed mechanisms that require the foreign suppliers to account for indirect taxes. The application of direct taxes to the digital economy is more complex and controversial. Digital supply chains are often more convoluted and ephemeral than those for traditional goods and services, and identifying who has the right to tax and who owes the tax is challenging even when the economic activity is obvious. This is especially true when the ultimate supplier is nonresident — that is, residing outside the country — or a virtual provider — such as a digital platform that supplies content without human intervention. Tax avoidance strategies that artificially shift profits to low or no-tax jurisdictions where there is little economic activity have cost governments billions of dollars in lost tax revenues, harmed citizens through underfunding of public investments, and created an unfair competitive environment between domestic suppliers that pay the tax and foreign suppliers that do not.⁴⁴

⁴² MAMPU, “Our open data policy,” May 20, 2017, <http://www.data.gov.my/article/readiness#>.

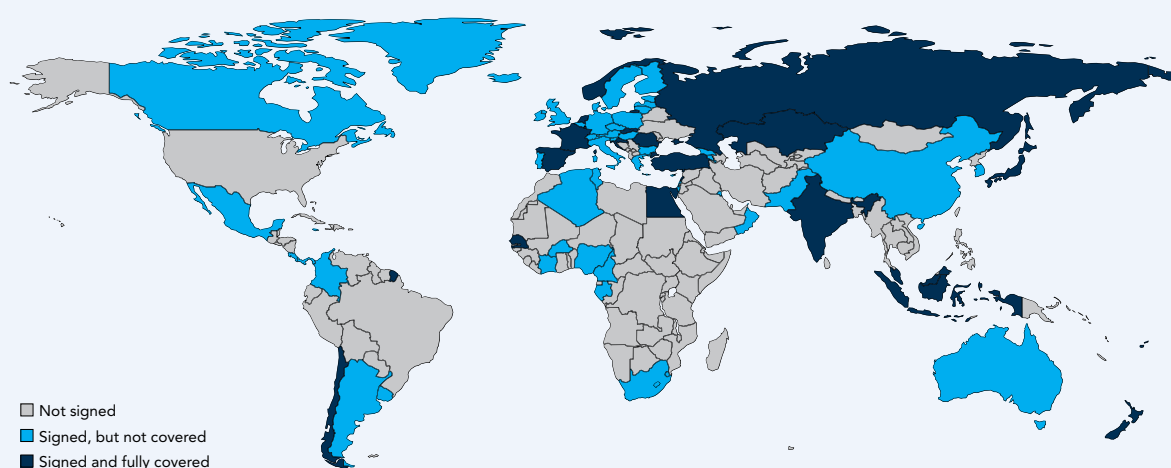
⁴³ World Bank, Open Data Readiness Assessment: Malaysia, May 2017, pp. 17, 26.

⁴⁴ OECD, Action Plan on Base Erosion and Profit Shifting, 2013, pp. 7–8, 10, <https://www.oecd.org/ctp/BEPSActionPlan.pdf>.

In January 2018, Malaysia took a major step in addressing the problem by signing a multilateral convention to update international tax rules. The convention allows countries that ratify it to quickly update provisions of tax treaties related to how permanent establishments are defined, and therefore what foreign enterprises are liable to be taxed on income from the digital economy.⁴⁵ Coupled with Malaysia's earlier stance on the use of facilities or maintenance of stock for delivery, the reforms should provide a sufficient legal basis for sustaining a direct tax charge.⁴⁶ However, only 18 signatories — representing roughly one-fifth of Malaysia's imports — signed the multilateral convention, accepted without reservations the relevant provisions, and have a covered tax treaty with Malaysia (Figure 1.8).⁴⁷ These are the only trade relations that will fully benefit from the multilateral reforms.

FIGURE 1.8 Most large economies have signed the multilateral convention, but only a quarter of them have tax treaties with Malaysia covered by its relevant provisions

Position on the multilateral convention and trade status with Malaysia, by country



Source: OECD, "Matrix of options and reservations," 2018.

Note: "Signed, but not covered" includes countries that have signed or that have expressed their intent to sign the multilateral convention but that either have not accepted Articles 12 and 13 or do not have a covered tax treaty with Malaysia. "Signed and fully covered" includes countries that have signed or expressed their intent to sign the multilateral convention, have accepted without reservation Articles 12 and 13, and have a covered tax treaty with Malaysia. The impact of these Articles is explained in more detail in Chapter 5.

Malaysia has three additional options: to expand the tax base to nonresident enterprises; level the playing field between domestic and foreign firms; and support mainstream taxation. The simplest and least controversial option is improving the legal framework for indirect taxes by requiring suppliers to account for digital transactions, including from abroad.⁴⁸ This approach is consistent with international best practice that allocates taxing rights to the jurisdiction where the final consumer resides, and has been successfully implemented by the EU and other economies in recent years. The second option is to establish in domestic

45 OECD, "Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting," <http://www.oecd.org/tax/treaties/multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf>. OECD, Model Tax Convention, 2017; OECD, Preventing the Artificial

46 Avoidance of Permanent Establishment Status, Action 7 Final Report, October 2015, <http://www.oecd.org/tax/preventing-the-artificial-avoidance-of-permanent-establishment-status-action-7-2015-final-report-9789264241220-en.htm>; Malaysia, "MLI position: provisional list of expected reservations and notifications to be made by Malaysia pursuant to Articles 28(7) and 29(4) of the Convention," January 24, 2018, <http://www.oecd.org/tax/treaties/beps-mli-position-malaysia.pdf>.

47 OECD, "MLI Database: Matrix of Options and Reservations," March 22, 2018, <http://www.oecd.org/tax/treaties/mli-database-matrix-options-and-reservations.htm>; World Integrated Trade Statistics, "Malaysia Trade Statistics," March 2018, <https://wits.worldbank.org/CountryProfile/en/MYS>.

48 The Malaysian government decided to zero-ize the Goods and Services Tax (GST) from June 1, 2018, pending the passing of new legislation for the establishment of a Sales and Services Tax (SST). The recommendations in this report apply equally to the tax treatment of digital services under a GST or under an SST.



law the authority to levy an income tax on nonresident suppliers. Malaysia could do this by expanding the withholding tax on technical services to include payments for digital goods and services or by defining permanent establishments so that nonresident suppliers would be liable to pay tax on the profits from digital goods and services they import. The third option is to establish a freestanding tax on foreign suppliers of digital services that is explicitly not part of the income tax code. This option potentially has the broadest scope, but could be challenged under existing trade rules. Any of these options could be pursued as alternatives or in combination with others. Whatever option it pursues, the government needs to develop an implementation strategy to register companies, communicate rules, and monitor compliance.

Unlocking the New Driver of Development

Malaysia is doing many things right to promote its digital economy and harness it as a new engine of growth. The government is an international leader in applying digital technologies to improve the efficiency of core administrative tasks and the delivery of public services. The country has made great strides in connecting people to the internet, especially through mobile, and has ambitious plans to expand broadband access to rural areas. The government's efforts to promote entrepreneurship are among the best in the region. And its stance on the multilateral convention is the best first step to addressing tax avoidance problems caused or exacerbated by the burgeoning digital economy.

But challenges remain. The business sector lags government and citizens in making effective use of digital technologies, especially when it comes to deep digital adoption in technologies. e-commerce is dominated by big firms, leaving SMEs with a small share of the rewards. Lack of competition in the fixed broadband market has resulted in expensive, poor-quality services. Entrepreneurs still lack the right skills and access to private capital and expertise they need to thrive. In addition, the government must match its multilateral commitments with domestic tax reform if it is to lay its fair claim to income from the digital economy, level the playing field between domestic and foreign firms, and stop tax evasion. Collectively these impediments will need to be addressed if Malaysia is to fully embrace the potential of the digital economy, particularly digital technologies — such as artificial intelligence, the Internet of Things, cloud computing and Big Data analytics — that are expected to drive future productivity growth.

Although Malaysia faces considerable challenges, its past performance justifies considerable optimism. Malaysians have shown impressive entrepreneurial talent, producing some of Southeast Asia's most recognizable digital startups. And deep digital adoption by the Malaysia's population provides the foundation for the takeoff of the digital economy. Enhancing productivity will require a coordinated approach involving multiple branches of the public administration, guided by a common vision of a dynamic and equitable economy that matches advanced technology with skilled workers in a context of predictable regulations, transparent public institutions, and competitive markets.

CHAPTER 2

State of the Digital Economy in Malaysia

Malaysia has rapidly expanded access to basic internet services over the last decade, but access to high-speed connections and business use of internet-enabled technologies has not kept pace. Malaysia is outperforming most of ASEAN in the adoption of digital technologies by people and the government. In these aspects, Malaysia is competitive with the OECD countries it seeks to join as a high-income country. However, adoption by businesses is low relative to international peers and Malaysia's progress in other dimensions of the economy.⁴⁹ Many businesses still do not have access to quality high-speed broadband, and most businesses do not have a web presence of any kind, in sharp contrast with businesses in Europe. E-mail is relatively widespread, but the use of the internet for other business functions, like banking or customer service is still low. And e-commerce is dominated by relatively large, sophisticated companies, leaving limited room for new entrepreneurs.

This chapter, comprising of three sections, examines the state of digital economy in Malaysia. The first ranks Malaysia against other countries in the world using the Digital Adoption Index, showing Malaysia's relative adoption of digital technologies across three agents: business, people, and government. The second section looks more deeply at business sector, drawing on census data to investigate trends in internet adoption and web presence; use of the internet by business establishments to communicate, access financial services, provide customer service, and perform other business functions; and e-commerce participation and output across different sectors of the economy. The third section explains the patterns outlined in the preceding sections, particularly the obstacles that limit smaller business establishments' ability to engage in and benefit from the digital economy.

Global Context

Digital technologies have been widely adopted across Malaysia. Malaysia ranks 41st out of 180 countries on the Digital Adoption Index (DAI), a worldwide index developed for the World Development Report 2016: Digital Dividends to measure the depth of digital adoption around the world across three dimensions of the economy: people, government, and business. The index measures countries on a 0–1 scale, and emphasizes the “supply-side” of digital adoption — rather than technology use or perceptions of utility — to maximize coverage and simplify theoretical linkages. Each DAI sub-index comprises technologies necessary for the respective agent to promote development in the digital era — expanding opportunities and improving welfare for people; increasing the efficiency and accountability of service delivery for government; and accelerating broad-based growth for business (Table 2.1). Although data and theoretical constraints prohibit any index from providing a comprehensive view of an economy, the DAI provides a useful framing mechanism for digital adoption in Malaysia relative to the rest of the world.⁵⁰

49 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>.

50 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>.

TABLE 2.1 The DAI comprises representative indicators for three agents of the economy: people, government, and business

Sub-index	Purpose	Indicator
People	Measures the extent and quality of individuals' connection to the digital world	Mobile-cellular subscriptions
		Mobile broadband
		Internet use
		Fixed broadband
Government	Measures the adoption of core administrative systems to automate and streamline government activities and digital identification systems and online public services that allow the government to better serve the public	Core administrative systems
		Digital identification
		Online public services
Business	Measures the quality of digital infrastructure needed for e-commerce and other business functions	Internet bandwidth
		Business websites
		Secure servers

Source: World Bank 2018.

According to the overall DAI, Malaysia has done more to embrace the digital figure than all ASEAN countries but Singapore. Countries above the fitted lines — including Malaysia for the overall index and the people and government sub-indexes — do better than income per capita alone would predict (Figure 2.1). Countries in the Organization for Economic Cooperation and Development perform better as a group than other countries, which is expected given their relatively high per capita incomes. Countries in the Association of Southeast Asian Nations, which cover a broad range of the middle-income tier, have similarly intermediate scores on the DAI and its sub-indexes.⁵¹ Malaysia's overall score of 0.69 is better than that of four OECD countries — Greece, Ireland, Mexico, and Turkey — and better than 71 percent of all countries in the East Asia and Pacific region. Regional countries that outperform Malaysia — Australia, Japan, Korea, New Zealand, and Singapore — all have considerably higher per capita incomes (Figure 2.1, panel A).⁵²

Malaysians are among the most digitally connected in the world, and the Malaysian government has invested heavily on digital technologies to modernize its systems and processes. Malaysia's score of 0.64 (0.81 standard deviations above the global mean) on the people sub-index places it ahead of all but two countries in ASEAN (Singapore and Thailand) but behind all but four countries in the OECD (Chile, Mexico, Slovenia, and Turkey) (Figure 2.1, Panel B). Meanwhile, Malaysia's score of 0.87 (1.66 standard deviations above the global mean) on the government sub-index places it ahead of all but one country in ASEAN (again, Singapore) and ahead of 29 of the 35 OECD countries (all except Chile, Germany, Italy, Japan, Korea, and Portugal) (Figure 2.1, panel C). In fact, Malaysia ranks 10th in the world on the government sub-index, with particularly strong performance in core administrative systems and digital identification (the Republic of Korea, Singapore, and Japan comprise the top three countries in DAI-Government worldwide.) In both the people and government sub-indexes, Malaysia does better than per capita income would predict.⁵³

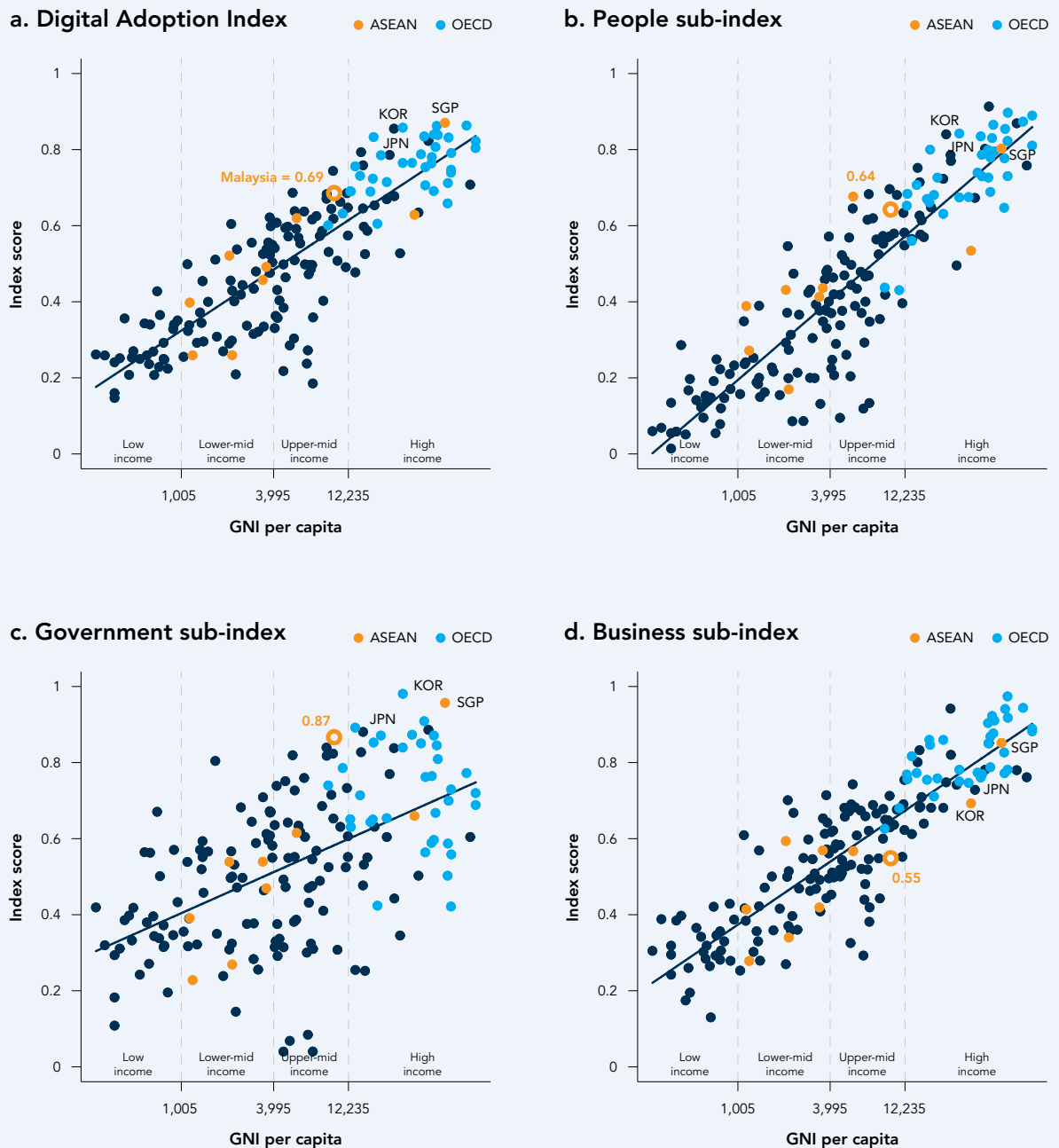
51 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>.

52 The positive correlation between GNI per capita and the DAI is partly attributable to GDP per capita being used to impute missing observations (along with geographical region and household internet use).

53 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>. Data for core administrative systems and digital identity come from the World Bank's Public Financial Management and e-Services Database and the Identification for Development Global Dataset, respectively. Data for online public services is provided by UNDESA's Online Service Index. Cem Dener, "Public Financial Management Systems & e-Services" database, January 2017, https://team.worldbank.org/FMIS/SiteAssets/SitePages/FMIS%20CoP/WB_PFM_eServices_dataset_Jan2017.xlsx; Cem Dener, "Identification for Development Global Dataset", June 2017, <http://data.worldbank.org/data-catalog/id4d-dataset>; UN Department of Economic and Social Affairs, "United Nations e-Government Survey 2016: e-Government in Support of Sustainable Development," 2016.

FIGURE 2.1 Malaysia's overall digital adoption is high, but is relatively low for business

Digital adoption, by country and income level



Source: World Bank, Digital Adoption Index, 2018.

Malaysia's businesses underperform relative to peer countries and the relative performance of other dimensions of the economy. At 0.55 (0.14 standard deviations below the global mean), Malaysia's score on the business sub-index is lower than most ASEAN countries (with the exceptions of Cambodia, Indonesia, Lao PDR, and Myanmar), and below that of all OECD countries.⁵⁴ Moreover, the business sub-index is unique among the sub-indexes for underperforming expectations based on per capita income. This outcome is surprising given Malaysia's strong performance on the people and government sub-indexes and its status as a leading exporter of high-technology goods. The apparent contradiction between the impressive growth in the number of Malaysian businesses connected to the internet in 2010–2015 and the relatively low score on the business sub-index is attributable to the specific indicators comprising the business sub-index and the pattern of internet use by businesses in Malaysia. Malaysia has less international internet bandwidth, fewer businesses with websites, and fewer secure servers than per capita income would predict.⁵⁵ Recent growth in connectivity has been impressive, but it is impossible to say how Malaysia would rank globally because comparable data do not exist. But national-level data, detailed in the next section, suggest that connectivity is concentrated in a few sectors and states and that businesses engaged in e-commerce, internet banking, and other activities that would affect Malaysia's measures for internet bandwidth and secure servers are even more concentrated.

Business Profile

Malaysia's national statistics reveal that adoption and use of digital technologies by businesses is concentrated in a few sectors and states. Most businesses still lack access to fixed broadband, which puts them at a disadvantage as the digital economy grows. More productive sectors and states are more likely to use internet-enabled tools to supplement core businesses functions, such as banking, internal communication, customer service, and sales. And e-commerce — though lucrative — is highly concentrated and used mostly for business to business transactions among large Manufacturing establishments.⁵⁶

Internet access

The percentage of business establishments connected to the internet more than tripled in the period 2010–2015, with growth in every sector of the economy. Nationwide, 62 percent of business establishments reported using the internet in 2015, led by Manufacturing (88 percent) and Mining and Quarrying (76 percent). Manufacturing saw the biggest percentage point increase, up 60 points from 28 percent of business establishments in 2010 (Figure 2.2). Meanwhile, Services saw the biggest proportional increase, with internet adoption growing at more than 25 percent per year. Given the sector's predominance — it accounts for 89 percent of all business establishments in the country — this translated to a large increase for the economy as a whole.⁵⁷

54 World Bank, Digital Adoption Index, 2018, <http://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index>. Data for the percentage of businesses with a website comes from two sources: Eurostat and the World Bank Enterprise Surveys (WBES). International internet bandwidth is from the ITU's annual Measuring the Information Society report. Eurostat, "Websites and functionalities [isoc_ciweb]," last updated May 11, 2017, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_ciweb&lang=en; World Bank, Enterprise Surveys, "Innovation and Technology," <http://www.enterprisesurveys.org/data/exploretopics/innovation-and-technology>; International Telecommunication Union, "Measuring the Information Society," 2016.

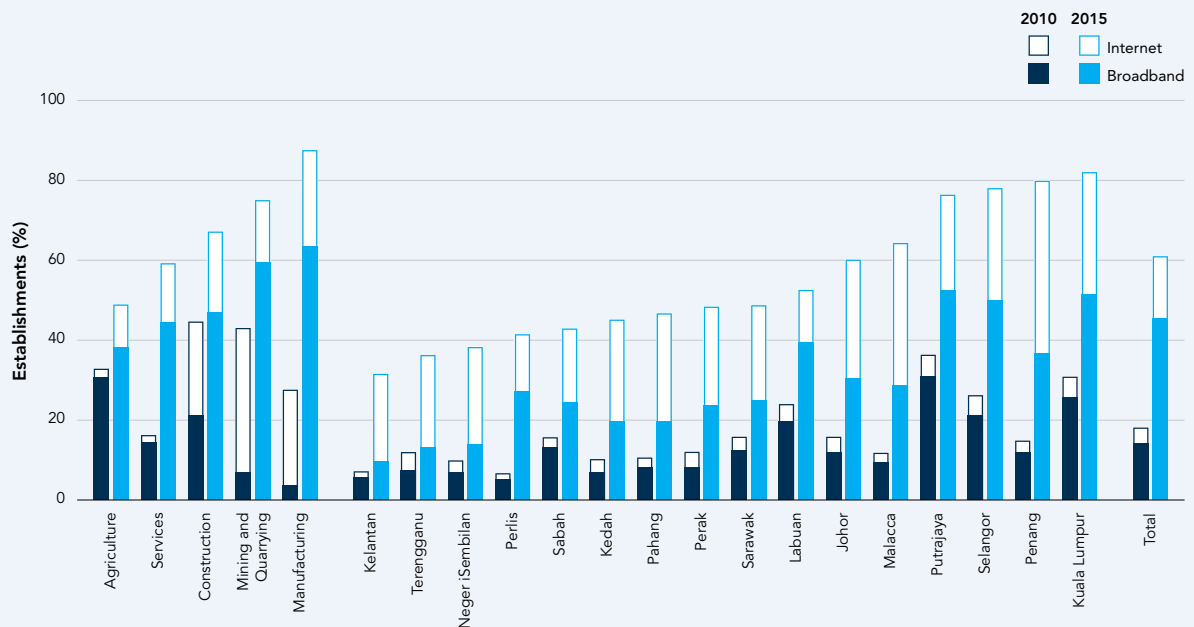
55 International data on businesses with websites (33 percent) is comparable to estimates of the number of beneficiaries of government programs aimed at getting Malaysian businesses online (33–44 percent) and the Department of Statistics's tally of business establishments with a web presence of some kind (28 percent). Interviews with MDEC officials, November 2017; Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 15, 2017; WBES, Malaysia, 2014.

56 Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017; Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017; Department of Statistics Malaysia, Economic Census 2011, select data, 2012.

57 Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017; Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017; Department of Statistics Malaysia, Economic Census 2011, select data, 2012.

FIGURE 2.2 The manufacturing sector — and states that host export industries — are more likely to be connected to the internet

Percent of business establishments with internet and broadband connections, 2010 and 2015



Source: Government of Malaysia, Department of Statistics, Business Establishments Survey, 2010 and 2015.

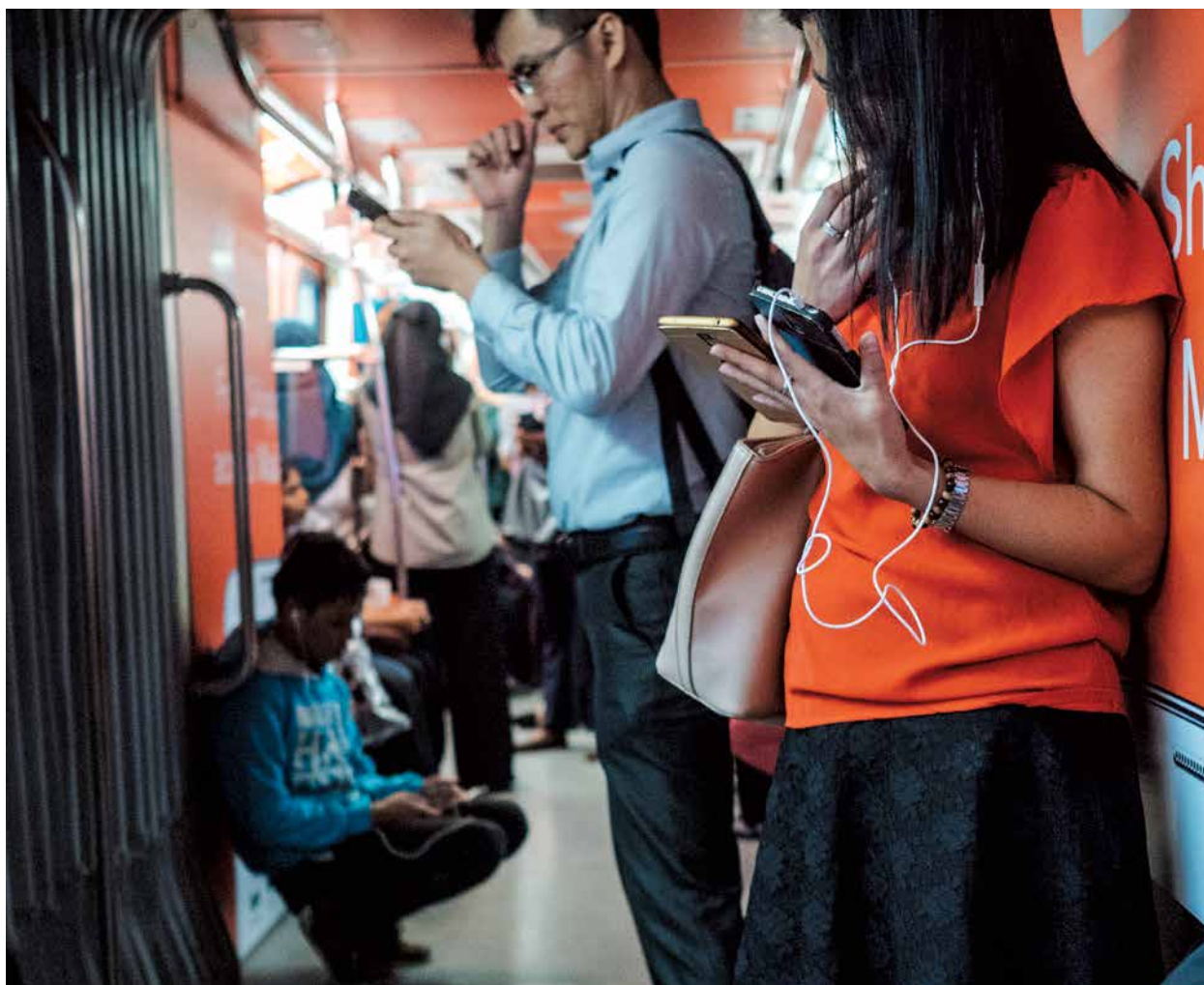
Note: Broadband rates for 2015, by sector, refer to fixed broadband as a percentage of all fixed internet connections. Broadband rates for 2015, by state, are estimates provided by the GOM, Department of Statistics; they underrepresent broadband access rates, on average, compared to sector values. Totals are weighted averages of sector values.

Adoption rates are strongly correlated with urban states and export-oriented industries. About 80 percent of business establishments in Kuala Lumpur, Penang, Selangor, and Putrajaya used the internet in 2015. Along with Malacca and Johor, these states experienced growth in internet use exceeding 40 percentage points over the period 2010–2015. In general, urban areas are cheaper to connect because the density of population lowers per-unit infrastructure costs, and the government’s HSBB initiative reinforced those market incentives with public funding.⁵⁸ Some of the leading states also benefited from high-profile government campaigns specifically geared to improving connectivity, including the Multimedia Super Corridor in Selangor and Iskandar Malaysia in Johor. Smaller states, like Perlis, Kedah, and Pahang, tended to grow more proportionally, because they started out at lower adoption rates. But Malacca and Penang again stand out, more than quintupling internet access rates.⁵⁹

Internet adoption is also positively correlated with productivity. As of 2015, business establishments in Manufacturing and Mining and Quarrying — sectors with above-average output and productivity — are more likely than others to have an internet connection. The positive relationship breaks down somewhat at the state level, given the predominance of establishments in the Services sector. For the most part, businesses are more likely to be connected to the internet in states where the Services sector has greater output or higher value

⁵⁸ MCMC, “HSBB: Malaysia’s Drive for High Speed Broadband,” *MY Convergence*, 3:1, January 2009, p. 5.

⁵⁹ Department of Statistics Malaysia, *Malaysia in Figures 2017*, August 2017; Department of Statistics Malaysia, *Economic Census 2016: Usage of ICT by Businesses and e-Commerce*, November 2017; Department of Statistics Malaysia, *Economic Census 2011*, select data, 2017.



added on a per-establishment basis, with 4 out of the top 5 most-connected states among the 5 states with the biggest or most productive Services sector. In sum, all sectors and states have shown remarkable growth over the last five years, but business establishments in more dynamic sectors and states are doing better.⁶⁰

Fixed broadband access also tripled over the period 2010–2015, but certain sectors still lag in access to higher speeds. Growth was particularly strong for the Manufacturing sector, which grew by nearly 60 percentage points.⁶¹ As of 2015, 46 percent of business establishments had a fixed broadband connection, although commonly used definitions of broadband in Malaysia are low by international standards.⁶² The sectoral pattern for broadband access was similar to internet use, albeit less pronounced. However, fixed broadband as a proportion of all internet connections actually declined for the Agriculture and Services sectors, suggesting a delay in rollout of higher capacity connections to smaller or more rural business establishments.⁶³

60 Department of Statistics Malaysia, *Malaysia in Figures 2017*, August 2017; Department of Statistics Malaysia, *Economic Census 2016: Usage of ICT by Businesses and e-Commerce*, November 2017; Department of Statistics Malaysia, *Economic Census 2011*, select data, 2017.

61 Growth at the state level is less certain. The Department of Statistics did not provide microdata, and their state-level estimates of broadband access appears low in 2015.

62 MCMC, *Network Performance Report 2017*, January 2018, <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Network-Performance-2017-latest.pdf>. European Commission, "Broadband Europe," <https://ec.europa.eu/digital-single-market/en/broadband-europe>; Yonhap News Agency, "S. Korea pushes to commercialize 10-gigabit Internet service," March 18, 2018; <http://english.yonhapnews.co.kr/news/2018/03/16/0200000000AEN20180316010600320.html>.

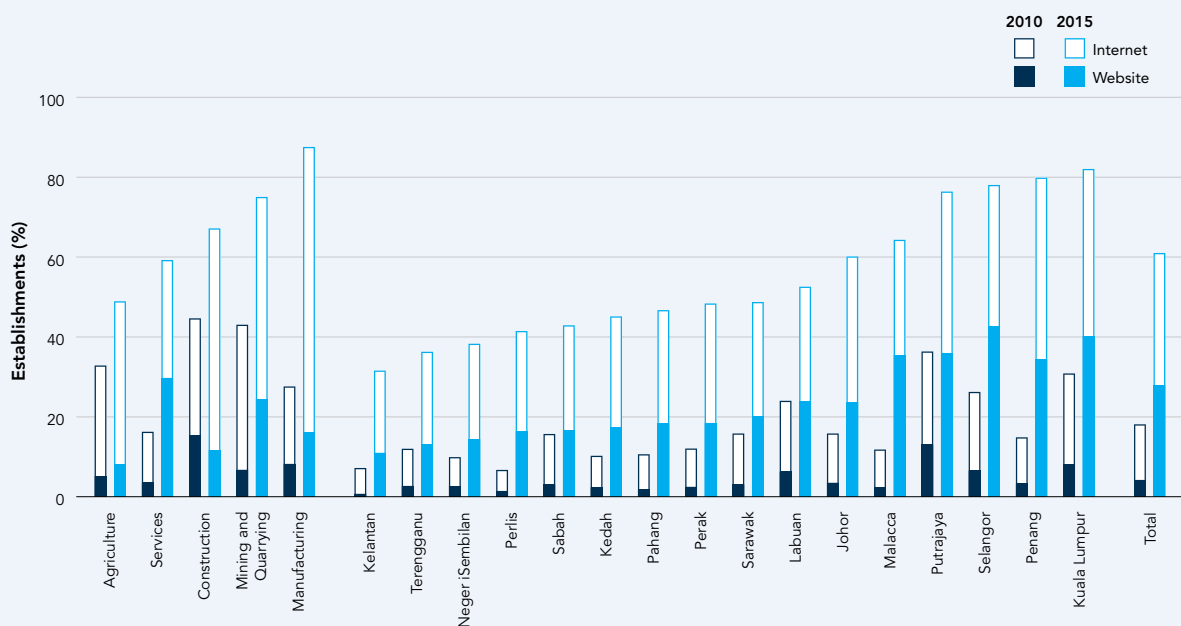
63 Department of Statistics Malaysia, *Malaysia in Figures 2017*, August 2017; Department of Statistics Malaysia, *Economic Census 2016: Usage of ICT by Businesses and e-Commerce*, November 2017; Department of Statistics Malaysia, *Economic Census 2011*, select data, 2017.

Business use of the internet

Malaysia's impressive growth in connectivity has not yet translated to increased web presence for businesses in most sectors of the economy, and what growth did occur suggests the familiar cluster of export- and service-oriented states are pulling ahead of the rest of the country. Nationwide, only 29 percent of business establishments had a web presence of some kind in 2015. Only five states — Selangor, Kuala Lumpur, Putrajaya, Malacca, and Penang — had web presence rates exceeding one-third of business establishments. These are the same states (minus Johor) that have internet access rates in excess of 60 percent, and they are the states that experienced the most growth over the period 2010–2015. Among sectors, Services led the rest of the economy with over 30 percent of business establishments on the web in 2015. Likewise, Services showed significant growth in web presence relative to internet access, driving most of the observed changes at the state level. Overall, web presence did not keep pace with growth in internet access: for every 2 businesses that got access to the internet, only 1 established a presence online. Moreover, no state or sector achieved parity, and the relative web presence in the Construction sector actually declined.⁶⁴

FIGURE 2.3 The services sector — and states that host export industries — are more likely to have business establishments with a web presence

Percent of business establishments with internet connections and a web presence, 2010 and 2015



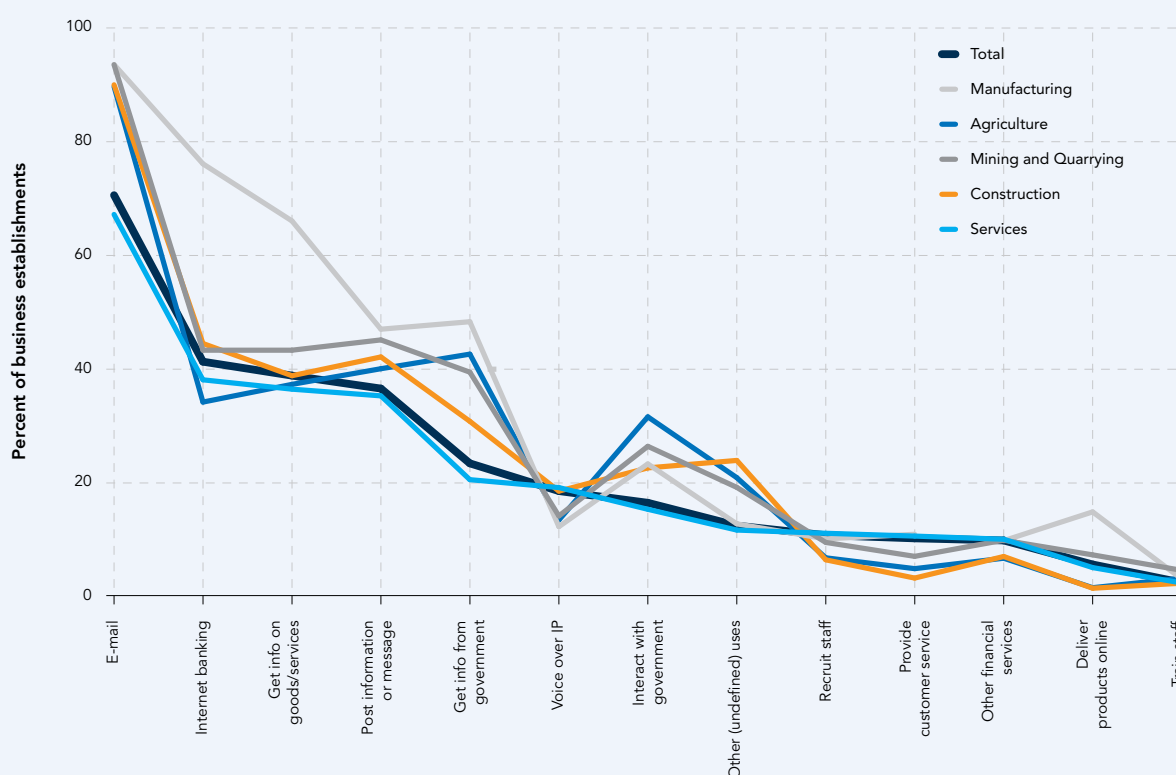
Source: Government of Malaysia, Department of Statistics, Business Establishments Survey, 2017.
Note: Totals are weighted averages of sector values.

64 Department of Statistics Malaysia, 2017.

Aside from web presence, Malaysian business establishments use the internet mostly to communicate, access financial services, and get information. Overall, slightly more than 70 percent of business establishments with an internet connection send or receive e-mail, by far the most common activity (Figure 2.4). Rates are even higher outside the service sector, at 90 percent or above. Business establishments in the manufacturing sector are more likely than others to use the internet for banking, to get information from other businesses and the government, and to deliver products — reflecting the more sophisticated nature of Manufacturing firms in Malaysia relative to the broader economy. Business establishments in the service sector are less likely than others to use the internet to communicate, either through email, posting information or instant messaging, or interacting with the government, despite being more likely to have a web presence. The Agriculture, Construction, and Mining and Quarrying sectors follow patterns similar to each other.⁶⁵

FIGURE 2.4 Communicating, gathering information, and banking are the most common activities pursued by businesses online

Percent of establishments with internet that use it for specified purposes, by sector



Source: Government of Malaysia, Department of Statistics, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017, Table A5.

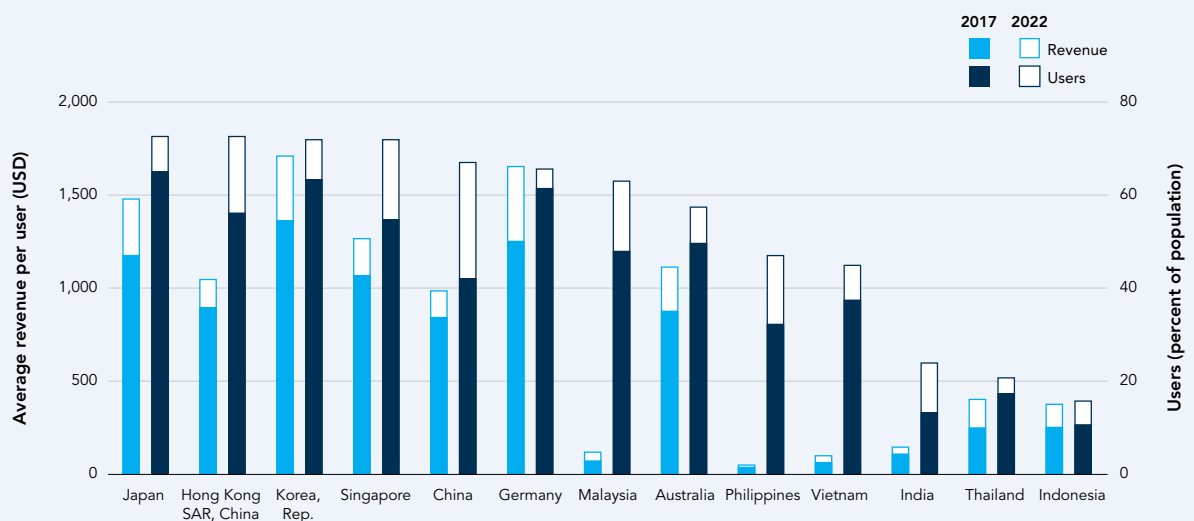
⁶⁵ Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017, Table A5.

e-commerce

ASEAN trails other major export markets in e-commerce, but is growing rapidly. Worldwide, 1.66 billion people (75 percent of internet users) purchased something online in 2017, up from 1.32 billion in 2014. Over the period 2016–2021, e-commerce is expected to grow from \$1.85 trillion (8.6 percent of all retail sales) to \$4.88 trillion (17.5 percent of all retail sales).⁶⁶ ASEAN accounted for less than 1 percent of the retail e-commerce market in 2014,⁶⁷ despite comprising 9 percent of the world's population and 3 percent of its economic output.⁶⁸ But that is expected to change quickly as Chinese tech giants enter the market. Across the region, e-commerce is expected to outpace brick and mortar growth by 10 times.⁶⁹ Indonesia, Malaysia, Philippines, Thailand, and Vietnam are expected to see retail e-commerce sales grow by more than 15 percent per year during the period 2016–2021, with Malaysia leading the pack at nearly 24 percent per year.⁷⁰ Already, almost half of Malaysians shop online, spending \$71 per person in 2017. User penetration is expected to increase to 63 percent in 2022, with spending per person increasing to nearly \$118.⁷¹

FIGURE 2.5 e-commerce participation is expected to grow rapidly in the region

Average revenue per user and number of users per population, 2017 and 2022 (projection)



Source: Statista, "Digital Market Outlook: eCommerce," selected countries, 2018.

⁶⁶ Statista, "E-commerce worldwide," 2018, <https://www.statista.com/study/10653/e-commerce-worldwide-statista-dossier/>. E-commerce data from Statista include only a subset of business-to-consumer sales and exclude other channels. It therefore understates total e-commerce sales volumes in Malaysia but does provide a comparable international metric.

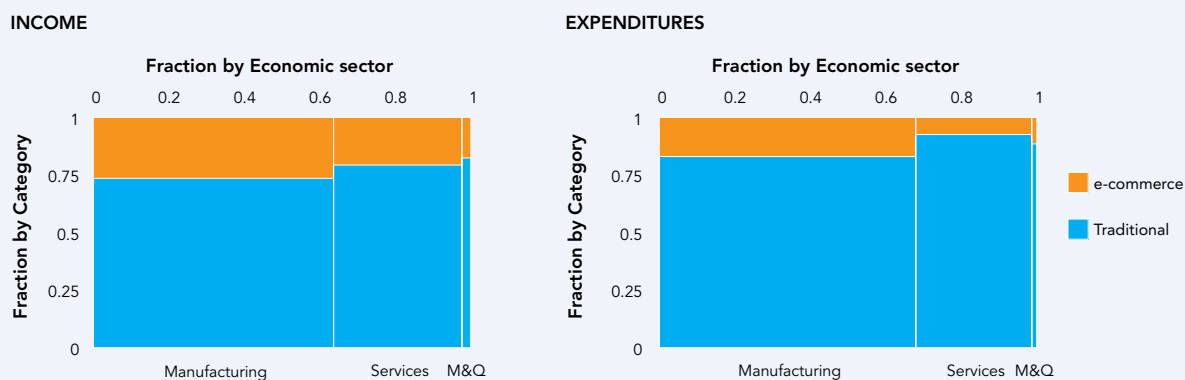
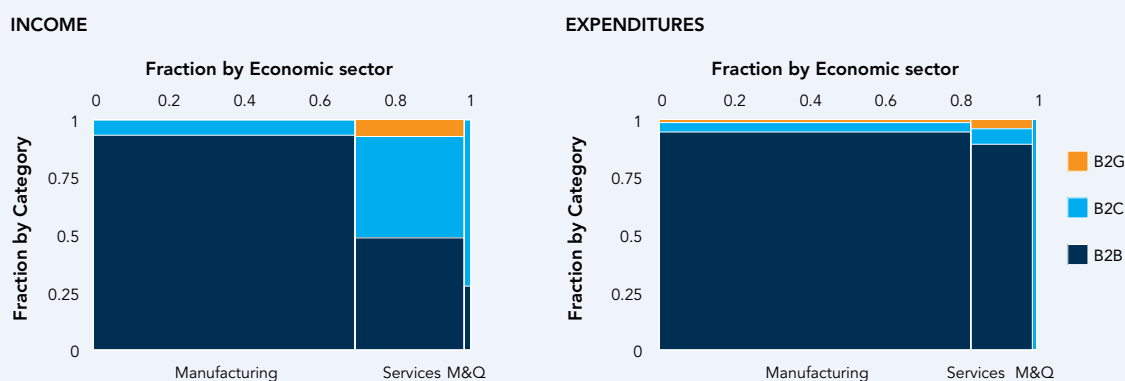
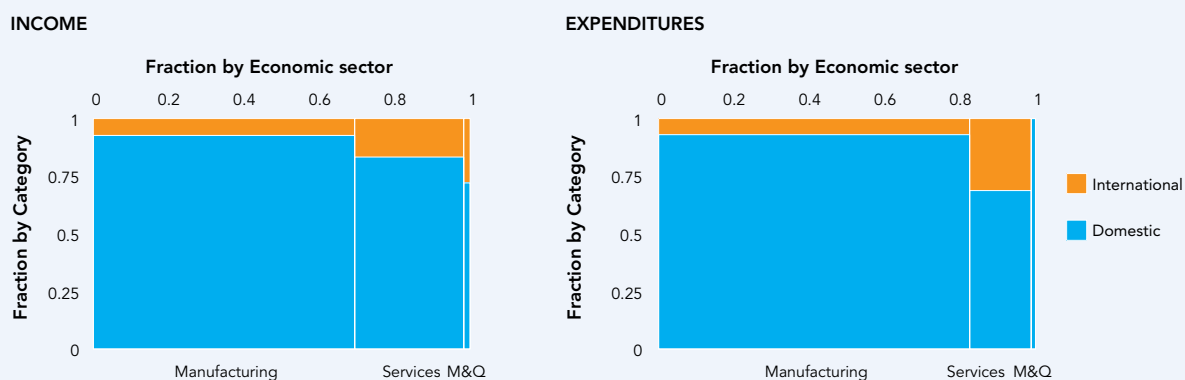
⁶⁷ A.T. Kearney and Axiata, *The ASEAN Digital Revolution*, 2015.

⁶⁸ World Bank, *World Development Indicators*, 2017.

⁶⁹ Stanislaus Jude Chan, "ASEAN e-commerce poised for explosive growth on the back of China's tech dragons," *The Edge Singapore*, January 31, 2018.

⁷⁰ Statista, "E-commerce worldwide," 2018, <https://www.statista.com/study/10653/e-commerce-worldwide-statista-dossier/>.

⁷¹ Statista, "Digital Market Outlook: eCommerce," Malaysia, 2018, <https://www.statista.com/outlook/243/122/e-commerce/malaysia>.

FIGURE 2.6 The Manufacturing and Service sectors dominate e-commerce**a. Source of income and expenditures for businesses engaged in e-commerce, by type****b. e-commerce income and expenditures, by customer****c. e-commerce income and expenditures, by market**

Source: Government of Malaysia, Department of Statistics, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017.
 Note: M&Q = Mining and Quarrying. Only those sectors that comprise at least 1 percent of the total are shown, effectively excluding the Agriculture and Construction sectors.

Relatively few Malaysian business establishments engage in e-commerce. In 2015, there were 47,556 business establishments involved in e-commerce — 5.2 percent of all business establishments in the country. Participation ranged from 0.7 percent in the Agriculture sector to 7.9 percent in the Manufacturing sector.⁷² In contrast, 24 percent of business enterprises in the European Union purchased online and 17 percent sold online in 2015. Only a handful of EU countries — Bulgaria, Greece, Italy, and Luxembourg — had e-commerce participation rates as low as the best-performing sector in Malaysia, and all exceeded the Malaysian average.⁷³ Compared to the entire Malaysian economy, Manufacturing establishments were more than 50 percent overrepresented among firms engaged in e-commerce; Services and Mining and Quarrying were about equal, and Construction and Agriculture were underrepresented by more than 85 percent.⁷⁴

e-commerce accounts for a significant share of total business revenue, despite low participation. In 2015, Malaysian businesses earned RM 398 billion from e-commerce sales, 24 percent of income for the relatively few establishments involved (Figure 2.6, panel A) and 16 percent of the total output for all Malaysian businesses.⁷⁵ Given the relatively few firms involved, Malaysia's e-commerce output for participating establishments compares favorably to Europe, where business enterprises get only 17 percent of their income from e-commerce.⁷⁶ Meanwhile, Malaysian businesses spent 195 billion on e-commerce purchases, roughly half what was earned through e-commerce and 14 percent of economy-wide business expenditures. e-commerce comprised a larger share of both income and expenditures in the Manufacturing sector than others, followed by Services.⁷⁷

Business to business (B2B) transactions dominated Malaysian e-commerce in 2015, accounting for more than 79 percent of all income and 93 percent of all expenditures. Manufacturing establishments again accounted for the majority; nearly 65 percent of all income and 78 percent of all expenditures are attributable to B2B transactions between Manufacturing establishments. The Services sector was the next most active, and comprised a larger share of income than of expenditures. Customers for establishments in the Services sector were also more diverse: almost half of income came from B2B transactions, but business to consumer (B2C) sales accounted for a robust 44 percent, and business to government (B2G) sales the remaining 7 percent. Across sectors, e-commerce expenditures were more skewed than income — almost all came from B2B transactions. But Malaysian businesses still spent RM 10.9 billion on goods and services from non-business vendors (7 percent of expenditures for the Service sector and 4 percent for the Manufacturing sector), including RM 1.3 billion that establishments in the Services sector spent on purchases of goods and services from government (B2G) vendors. For the small sliver of e-commerce market attributable to establishments in the Mining and Quarrying sector, most of the income and virtually all expenditures were attributable to B2C transactions.⁷⁸

72 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017; Department of Statistics Malaysia, Economic Census 2015, select data, 2017.

73 Eurostat, Enterprises having purchased online (at least 1 percent), 2017; Eurostat, Enterprises having received orders online (at least 1%), 2017. Participation data for Malaysia is not broken out by sales and purchases, so a direct comparison is not possible. This comparison likely overstates Malaysia's performance, since the number of firms engaged in e-Commerce is at least as large as the number of firms engaged in e-Commerce sales or e-Commerce purchases, and likely larger (since some firms will do one and not the other).

74 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017, p 27. Manufacturing establishments represent 5.3 of all business establishments in the economy and 8.1 percent of establishments engaged in e-Commerce, meaning they're 52.0 percent overrepresented in e-commerce. The ratio for Service is 88.9 percent to 91.0 percent (2.4 percent overrepresented); Mining and Quarrying 0.1 percent to 0.1 percent (0.0 percent overrepresented); Agriculture 1.3 percent to 0.2 percent (86.5 percent underrepresented); and Construction 4.4 percent to 0.6 percent (87.0 percent underrepresented).

75 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017. Part of the explanation for lower than expected e-commerce adoption might lay in how Malaysia collects data. Business surveys are done at the establishment level in Malaysia, whereas other countries survey business enterprises. If a business enterprise does not engage in e-commerce at all if its establishments (or at least the establishments that are sampled), this will undercount e-commerce activities in Malaysia.

76 Eurostat, "Share of enterprises' turnover on e-commerce - %", 2017.

77 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017. Department of Statistics Malaysia,

78 Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017.

BOX 2.1

Malaysia's Digital Free Trade Zone

Malaysia's Digital Free Trade Zone (DFTZ) was launched in March 2017 and "went live" in November of that year. The government financed the initiative, partnering with Alibaba, Maybank, and other logistics, finance, and technology companies. The DFTZ features an integrated e-services platform to facilitate access to government and private-sector business services. MDEC also plans to offer trade assurance mechanisms (including buyer and seller ratings) and trade financing through the portal.

A primary goal of the DFTZ is facilitating the entry of small and medium-sized enterprises into the e-commerce market by simplifying regulations, reducing barriers, and providing support. As of November 2017, approximately 2,000 SMEs have been onboarded under the banner of DFTZ to upskill their e-commerce capability, expand market access, and participate in promotions and campaigns to drive demand of Malaysian products.

The DFTZ is too new to judge its impact, but it has potentially instructive parallels with China's more established Taobao Villages. Residents of Taobao Villages are heavily engaged in e-commerce, primarily through Alibaba's Taobao Marketplace. Growth has been rapid since the first Taobao Village emerged in 2009. As of 2015, there were more than 200,000 active online shops in 780 Taobao Villages across the country. By definition, each of these villages exceeded RMB 10 million (\$1.6 million)

in e-commerce transactions and had either 100 active shops or 10 percent of village households engaged in e-commerce. More than 30 villages had achieved sales of RMB 100 million and some had e-transactions totaling in the billions of yuan. e-commerce provides alternative employment opportunities for rural populations, supplementing farming and stemming urban migration. Villages typically specialize in the manner of the earlier "One Village, One Product" movement; apparel, furniture, shoes, and automobile accessories are the best-selling products.

Many factors are associated with the emergence of Taobao Villages, including local resource endowments, geography, and economic conditions. Most are in coastal provinces, especially Zhejiang, Guangdong, and Jiangsu. Basic infrastructure and services are a prerequisite, including internet access, transportation, and logistics. There must also be a cost advantage, typically lower wages relative to urban workers. With these conditions in place, Taobao Villages are typically seeded by a few entrepreneurs who successfully produce goods and sell them online. Their success provides a demonstration effect and imitators enter the market, often led by relatives, friends, and neighbors. As the number of online shops increase, agglomeration attracts supportive industries, including logistics, financing, marketing, legal services, consulting, and training.

Continued growth requires the intervention of government or industry groups to eliminate market failures, build expertise, and provide services.

Governments serve as policymakers, service providers, and conveners. As policymakers, they establish supportive regulations, including financing guarantees or reduced interest rates and loan fees. As service providers, they provide access to land, utilities, transportation, and other infrastructure, as well as business registration, network installation, and escrow. And as conveners, they foster links between online shops and outside expertise and training. Industry groups set standards and impose penalties to avoid price wars, deteriorating quality, and the reputational harm to village industries that would result. They also provide training, promote the village brand, and provide monopsony power in negotiations for raw materials, telecommunications, logistics, and other services. Successful intervention requires facilitating, rather than supplanting, the market forces that gave rise to local online shops.

Malaysia is not explicitly modeling the DFTZ on China's Taobao Villages, and the initiatives are different in several important respects.

As a high-profile government intervention, it is proactive rather than reactive, attempting to create the conditions necessary for e-commerce to flourish without specific obstacles to redress or a unified beneficiary to serve. The large number of SMEs enrolled in the DFTZ indicates strong

demand for the training, services, and access it provides. However, it is not clear if these SMEs are those which the government hopes to promote or if their needs and interests are similar enough to be amenable to national policies and a unified e-commerce platform. Moreover, the DFTZ's intervention will likely not be as fine-tuned as the responses of local governments to the largely homogenous industries of Taobao Villages. On the other hand, Malaysia has the benefit of more developed infrastructure, greater connectivity, and higher human capital. And by being proactive, the DFTZ might prevent some of the obstacles that limited the growth of Taobao Villages from even emerging. Most importantly, the DFTZ should focus on supporting the market forces driving e-commerce in Malaysia. These are almost certainly different than the rural, cost-driven dynamics of China. The DFTZ must therefore also be responsive to needs as they arise. To this end, the government should ensure that all companies have equal access to the DFTZ so that preferential treatment for the initial partners, notably Alibaba, does not inhibit competition and innovation.

Sources: MDEC, "Malaysia launches world's first digital free trade zone," March 22, 2017, <https://www.mdec.my/news/malaysia-launches-worlds-first-digital-free-trade-zone>; MDEC, "DFTZ Goes Live," 2017, <https://mydftz.com/dftz-goes-live/>; Alizila, "An Introduction to Taobao Villages," January 17, 2016; Zeng Yiwu, Qiu Dongmao, Shen Yiting, and Guo Hongdong, "Study on the formation of the Taobao Village: taking Dongfeng Village and Junpu Village as examples," *Economic Geography* (35: 12), pp. 90–97, December 2015.

Domestic e-commerce transactions far exceeded international e-commerce transactions in volume.

Nearly 90 percent of all income came from sales to domestic customers and 89 percent of all expenditures were made to domestic vendors. Transactions in the Manufacturing sector were overwhelmingly domestic, with 93 percent, by volume, occurring between Malaysian counterparts. Establishments in the Services and the Mining and Quarrying sectors were more active internationally.⁷⁹

Malaysia also has a large e-commerce trade surplus. Malaysia's RM 41.3 billion in international e-sales were almost double its RM 21.1 billion in international e-purchases. The RM 20.2 billion surplus accounted for roughly a quarter of Malaysia's positive balance of payments for goods and services in 2015. Of that surplus, the Manufacturing and Services sectors account for 44 and 46 percent of the surplus, respectively. The Construction sector had a small deficit; all others earned more than they spent internationally.⁸⁰ In 2017, Malaysia launched the world's first DFTZ to support small and medium-sized enterprises in innovation and e-trade of goods and services. The government expects DFTZ to contribute to its goal of doubling e-commerce growth, increasing its contribution to GDP to RM 211 billion (Box 2.1).⁸¹

e-commerce in Malaysia is primarily a Manufacturing phenomenon by volume and a Services phenomenon by establishment count, with the Agriculture, Construction, and Mining and Quarrying barely registering. Only 81 Agriculture establishments and 272 Construction establishments engaged in e-commerce — less than 1 percent of establishments in either sector. Moreover, the sectors accounted for less than 1 percent of total e-sales and e-purchases. Manufacturing and Quarrying establishments are few in number, but fairly represented among those engaged in e-commerce, comprising 0.1 percent of establishments in each realm. From this perspective, they slightly outperform in e-commerce volume, accounting for 1.7 percent of income and 1.1 percent of expenditures.⁸²

Overall, businesses are increasingly connected to the internet, but gaps in use remain. Over the period 2010–2015, states that host Malaysia's export-oriented industries joined the political and economic heart of the country — Putrajaya and Kuala Lumpur — at the top of the rankings for connectivity. This suggests that the National Broadband Initiative and other government programs are starting to yield results. But use of the internet by businesses varies considerably. Manufacturing establishments, which tend to be larger and more sophisticated, are using ICT tools to supplement core businesses functions, such as banking, internal communication, customer service, and sales. Establishments in the Services sector, which tend to be much smaller, are using digital tools largely for marketing. Meanwhile, e-commerce is dominated by establishments in the Manufacturing sector, which buy and sell mostly with other Manufacturing firms in the domestic market. Establishments in the Services have more diverse e-commerce customers and are more likely to transact in the international market, but have a much smaller market share by volume. The rapid growth in connectivity since 2010 might translate to broader adoption of digital tools in the coming years. But as of now, obvious manifestations of the digital economy seem largely restricted to large establishments in Malaysia's traditional engine of growth — Manufacturing — with more limited applications for the Services sector.⁸³

79 Trade surplus calculations are based on exports of \$22,712 billion and an exchange rate of 3.9 RM per U.S. dollar in 2015. Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; World Bank, WDI, 2018.

80 Trade surplus calculations are based on exports of \$22,712 billion and an exchange rate of 3.9 RM per U.S. dollar in 2015. Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; World Bank, WDI, 2018.

81 MDEC, "Malaysia launches world's first digital free trade zone," March 22, 2017, <https://www.mdec.my/news/malaysia-launches-worlds-first-digital-free-trade-zone>.

82 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017.

83 E-commerce development in Malaysia is currently coordinated by the National E-commerce Council, established in December 2015. The Council is led by the Ministry of International Trade and Industry and consists of 26 ministries and agencies that are involved in e-commerce-related issues including eProcurement, logistics and fulfillment, eCommerce adoption, SME exports, trade facilitation, consumer rights awareness and online payments.



Jobs in the digital economy

From a labor market perspective, the adoption of digital technologies by businesses presents both opportunities and challenges. Digital technologies (the internet, artificial intelligence, robotics, drones) have either already become widely used, or are expected to diffuse in ways that will fundamentally change how businesses and economies operate. The improving capabilities of these technologies and their increasing adoption globally may lead businesses to automate some tasks or jobs, or shift work to new locations. The quality of jobs could deteriorate as workers bear more risk in a “gig economy,” or as wages stagnate or fall, as technology allows employers to automate or trade more tasks. Industries such as manufacturing, on which countries such as Malaysia have depended for job creation, might see job losses due to automation, as well as shifts in patterns of global trade. But these technologies also create opportunities for individuals and businesses: they reduce transaction costs, connect firms and individuals to each other and to markets, enable innovation, and support improvements in productivity. In sum, technological change will affect different businesses, individuals, and economies differently, depending on their level of preparedness.

Malaysia has done well in creating jobs related to the digital economy in the past; the semiconductor revolution created jobs and boosted high-value exports. Indeed, more than 20 percent of job titles under ICT operations and user-support technicians emerged in Malaysia from 1998 to 2008, indicating the emergence of new occupations fueled by the production and use of digital technologies.⁸⁴ And programs such as eRezeki and eUsahawan (see Box 4.2) show the potential to use e-commerce and online work — enabled by digital platforms — to create income generating opportunities and include the bottom-40 percent in the digital economy.

Malaysia needs to ensure that it positions itself well with adequate hard and soft digital infrastructure. This entails allowing more individuals and businesses to connect to the internet, creating flexible labor market regulations and skills development programs that permit businesses and workers to remain competitive in an increasingly dynamic economy, and social protection programs to support displaced workers through transitions and that prevent a deterioration in job quality.⁸⁵

84 Asian Development Bank, Asian Development Outlook (ADO) 2018: How Technology Affects Jobs, pp. 85-86. <http://dx.doi.org/10.22617/FLS189310-3>

85 Raja, Siddhartha; Christiaensen, Luc. 2017. The Future of Work Requires More, Not Less Technology in Developing Countries. Jobs Notes; No. 2. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/>.

A New Digital Divide

Growth in basic digital adoption has been rapid, but has contributed to a new digital divide: Malaysia continues to trail its international peers in digital adoption by businesses, and recent progress has been concentrated in the Manufacturing and Services sectors of a handful of states. This does not discount the great strides made in overall levels of digital adoption, as detailed in the DAI rankings above. Nor does it discount the rapid growth in connectivity, which is the basic prerequisite for participating in the digital economy. Malaysia is doing better than any other country in ASEAN, except Singapore, in adopting digital tools.⁸⁶ The number of business establishments connected to the internet tripled in the period 2010–2015.⁸⁷ And the digital economy is expected to comprise more than one-fifth of Malaysia's economic output before 2020.⁸⁸ But Malaysia still trails high-income countries, particularly in the business sector.⁸⁹ Despite recent growth, only 61 percent of business establishments are connected to the internet, 46 percent have fixed broadband, and 28 percent have a web presence of some kind. These rates are low compared to the EU average of 96 percent of business enterprises connected to the internet, 95 percent with broadband, and 75 percent with a website.⁹⁰ Moreover, growth in the digital economy has been highly concentrated in the Manufacturing and, to a lesser extent, the Service sectors in five states: Selangor, Kuala Lumpur, Putrajaya, Malacca, and Penang. Identifying obstacles to broader participation can promote further growth while spreading the benefits to a larger share of the economy.

Low business uptake is partly explained by how individuals access and use the internet. Nearly 87 percent of Malaysians use the internet at least once per day, 10 percent use the internet at least once per week, and the remaining 3 percent use the internet less than once per week. But most of that use is at home or by mobile; only 41.5 percent use the internet in the work place. The most common activities were participating in social networks (84 percent), getting information about goods and services (80 percent) and downloading images, movies, videos, music, or games (76 percent). And the most common means of connecting was by mobile device (62 percent), with only a quarter (25 percent) of the population connecting by fixed broadband.^{91a} Moreover, mobile phones — the most common means of access the internet — are ill-suited for many economic activities. Across the country, only 14.7 percent of the population has use the internet to look for a job or submit a job application, 1.9 percent have done a formal online course, and 3.5 percent have sold goods or services.^{91b} The gap between men and women's use of the internet is fairly small, at 73 percent to 69 percent, but the urban-rural divide is more significant, at 71 to 55 percent respectively.⁹²

Business characteristics are also significant, with women-owned and small- and medium-sized establishments less likely than the average business establishment to access and use the internet. The gap is particularly large for women-owned establishments; only 41 percent have access to the internet, versus 62 percent for all businesses — a gap of 21 percentage points. More common activities — like internet access,

86 World Bank, Digital Adoption Index, 2017.

87 Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017; Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017.

88 MDEC, "National Budget 2018: MDEC's Budget Commentary", October 27, 2017, <https://www.mdec.my/news/national-budget-2018-mdecs-budget-commentary>.

89 World Bank, Digital Adoption Index, 2017.

90 Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and e-Commerce, November 2017; Eurostat, "ICT usage in enterprises", 2017. The percentage of Malaysian business establishments that post information on line or use instant messaging (37 percent) is less to the percentage of business enterprises in Europe that use some type of social media (45 percent), such as social networks, blogs, and content-sharing sites on which they can post information or use instant messaging.

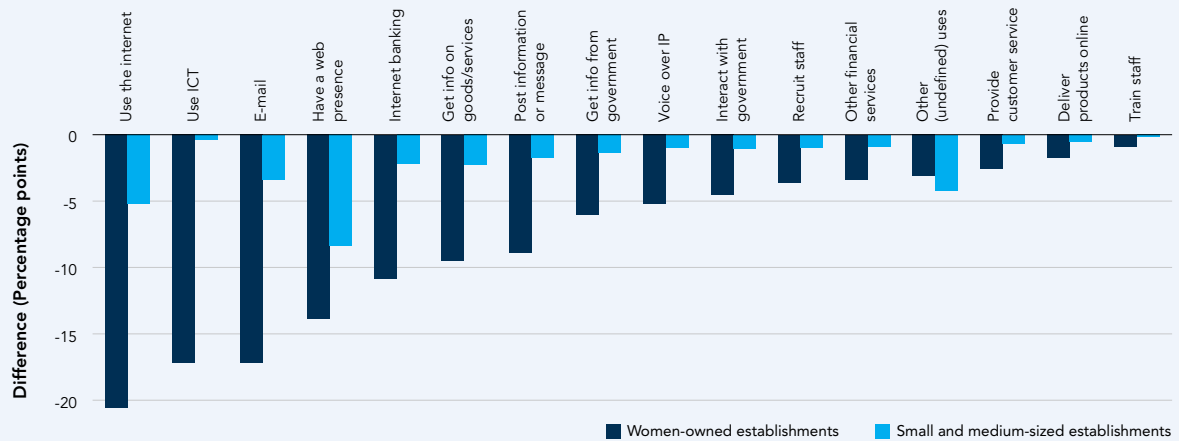
91a Department of Statistics Malaysia, "ICT Use and Access by Individuals and Households Survey Report: 2015", July 2016, p. 14.

91b Department of Statistics Malaysia, "ICT Use and Access by Individuals and Households Survey Report: 2015", July 2016, p. 37.

92 Department of Statistics Malaysia, "ICT Use and Access by Individuals and Households Survey Report: 2015", July 2016, pp. 27, 41.

FIGURE 2.7 Women-owned and small-and medium-sized establishments use the internet less

Percentage-point difference between listed types and the average business establishment



Source: Government of Malaysia, Department of Statistics, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; Government of Malaysia, Department of Statistics, Malaysia in Figures 2017, August 2017.

web presence, and e-mail — obviously have greater overall rates and thus higher gaps in general. Differences are not so extreme for SMEs, but there is not a single indicator on which they outperform the general population despite many government programs specifically designed to help them access and use the internet.⁹³

In addition, businesses engaged in e-commerce tend to be much larger than the average establishment.

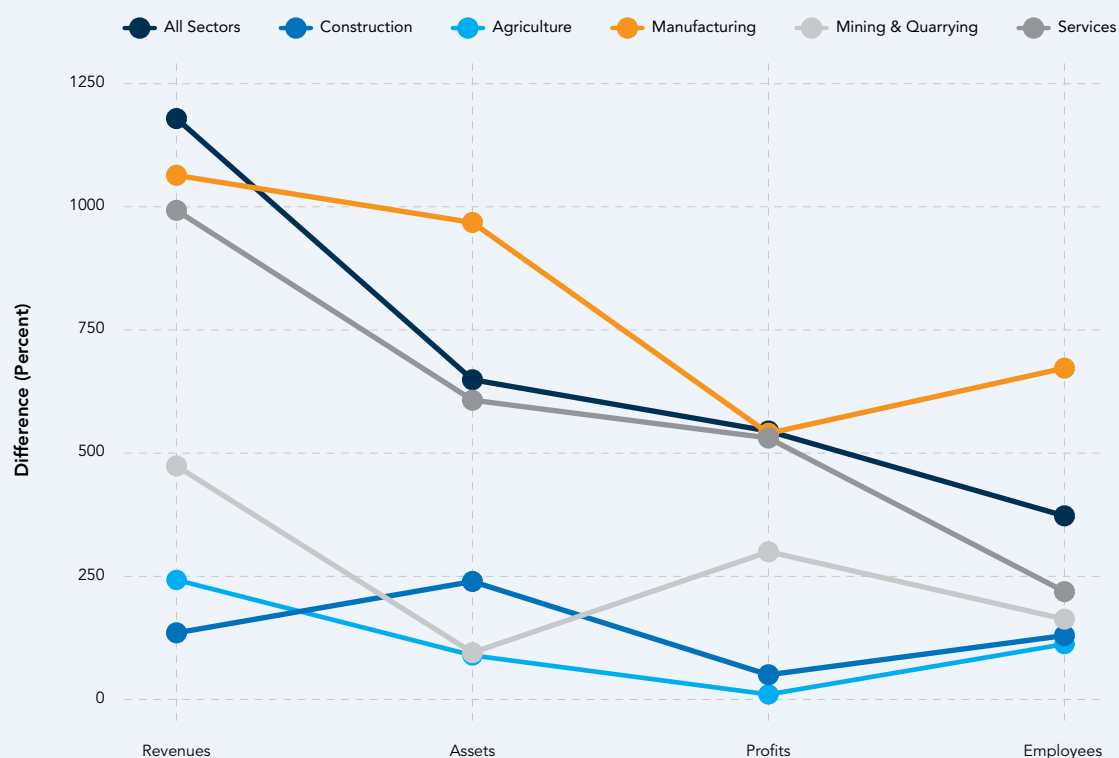
This runs counter to the presumption that the internet allows newer, smaller, more entrepreneurial firms to enter the marketplace and thrive. Instead, establishments engaged in e-commerce have greater assets, more employees, and higher revenues than establishments in the economy at large. The difference is huge in the Manufacturing and Services sectors. For example, there were 49,101 Manufacturing establishments in Malaysia at the end of 2015 (including those engaged in e-commerce), with assets valued at RM 296.8 billion, or RM 6 million on average. In contrast, only 3,856 Manufacturing establishments were engaged in e-commerce, but they held RM 249.0 billion in assets, or RM 65 million on average — a 968 percent difference. Establishments engaged in e-commerce are also more profitable, but because they have more employees that profitability is attenuated in per employee terms. Finally, compensation of employees is also slightly higher.⁹⁴

⁹³ Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017.

⁹⁴ Department of Statistics Malaysia, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; Department of Statistics Malaysia, Malaysia in Figures 2017, August 2017. Some of these trends, particularly wages per employee, might be explained by the location of businesses in wealthier states, but it is not possible to isolate those effects without establishment-level data.

FIGURE 2.8 Business establishments engaged in e-commerce are much bigger than average

Percent difference between establishments engaged in e-commerce and total establishments, by sector and financial ratio



Source: Government of Malaysia, Department of Statistics, Economic Census 2016: Usage of ICT by Businesses and E-Commerce, November 2017; Government of Malaysia, Department of Statistics, Malaysia in Figures 2017, August 2017.

Note: Profits for all business establishments are calculated as gross output minus the cost of intermediate output and wages. Profits for business establishments engaged in e-commerce are calculated as total income minus total expenditure. The baseline against which the difference for establishments engaged in e-commerce is calculated comprise all business establishments in the country, including those engaged in e-commerce.

And, despite recent growth, Malaysia continues to trail most high-income countries in digital adoption and use, and there is a growing digital divide within the country. These patterns risk entrenching existing inequalities and undermining the potential of the digital economy as an engine of broad-based growth. To increase the benefits and reduce the risks of the growing digital economy, the government needs to eliminate barriers and encourage digital adoption by lagging sectors. Already, there are numerous government initiatives and programs to just that. However, as the remaining chapters show, Malaysia can benefit greatly by more rigorous application of its existing regulatory regime, making space for a vibrant and competitive private-sector, and updating its tax laws to reflect new international norms.



CHAPTER 3

Digital Infrastructure

Ensuring that Malaysia's digital infrastructure provides ubiquitous, reliable, and ultrafast broadband internet service is key to unlocking the potential of the digital economy. Malaysia has made substantial progress in connecting people to basic internet services. Nearly 80 percent of the population is online, primarily through a competitive mobile telecoms market. But the country lags in the coverage and adoption of fixed broadband services, especially compared to its level of economic development; the equivalent of 36 percent of households have fixed broadband access, lagging China (79 percent), Australia (77 percent), Vietnam (42 percent), and other regional peers.⁹⁵ Moreover, Malaysian businesses are less likely to use the internet than their counterparts in advanced economies; only one-third of enterprises had a website in 2015, compared to 44 percent globally.⁹⁶ The fixed broadband market, though open, remains highly concentrated with Telekom Malaysia maintaining its dominance. As a result, relatively unaffordable prices and low quality limit technology adoption.⁹⁷ And diverse and often unfavorable state-level arrangements for network deployment slow down investment, especially by alternative networks. Looking to the future, Malaysia needs to enhance the quality and affordability of these fixed broadband services to set the stage for delivery of ultrafast broadband services at speeds over 100 Mbps. To achieve these objectives, the Government and the regulator, the Malaysian Communications and Multimedia Commission, needs to consider public policies and regulations that boost competitive pressure in the market by using existing infrastructure more efficiently, and attracting private capital to close remaining coverage gaps.

This chapter, comprising of three sections, explores the state of digital infrastructure in Malaysia. The first section provides an overview of digital connectivity in Malaysia, highlighting the country's widespread availability of basic internet access, but also relatively slower speeds and higher prices than the average high-income country, with slow growth in ultrafast broadband services. The second section examines limited competition as the main impediment to developing the high-quality digital infrastructure that the modern digital economy requires. It also discusses the impact of Malaysia's market structure and regulatory regime for digital connectivity in creating and sustaining the market power of the incumbent telecommunications company. The final section provides recommendations for increasing connectivity so the digital economy can thrive.

95 TeleGeography, GlobalComms Database, December 2017.

96 Department of Statistics of Malaysia, "Economic Census 2016," 2017, https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=RDRSYVRzK1JFcmh0dm5mV114NkFJQT09; Formal (registered) companies with 5 or more employees are targeted for interview, World Bank, "Enterprise Survey," 2015, <http://www.enterprisesurveys.org/data/exploreeconomies/2015/malaysia#innovation-and-technology>

97 MDEC and FMM, "The Adoption of ICT among FMM Members," 2016.

Digital Connectivity in Malaysia

Ultrafast broadband internet connections are becoming the critical foundation of the digital economy, and advanced economies are aiming to make them ubiquitous. These connections, which operate at speeds over 100 Mbps, enable individuals to stream videos and engage in e-commerce, businesses to manage their supply chains on cloud computing platforms, and governments to coordinate across agencies in real time. Without ultrafast broadband, innovations such as artificial intelligence, the Internet-of-Things, and Industry 4.0 will not be feasible. The EU's Digital Single Market strategy calls for 1 Gbps connectivity for all major urban centers, schools, transportation hubs, and public facilities, and a minimum of 100 Mbps (upgradeable to 1 Gbps) for all households, by 2025.⁹⁸ Malaysia's regional competitors are also planning to rapidly increase broadband speeds. Singapore's Next Generation Nationwide Broadband Network was initiated in 2008 and reached 95 percent of homes and businesses by 2013. When complete, it will provide ultrafast broadband access of 1 Gbps and above, which is expected to facilitate new applications, including software as a service, remote data backup and restoration, high-definition video conferencing, and improved online gaming.⁹⁹ Meanwhile, the Republic of Korea plans to commercialize 10 Gbps broadband services by 2022.¹⁰⁰

Malaysia underperforms in the provision of high-quality, fixed-line infrastructure

Ultrafast connectivity requires high-quality, fixed-line infrastructure from the point where international cables land in a country to where consumers connect. Even if the last-mile connection is wireless — a Wi-Fi or mobile network — antennas need to connect to faster fixed lines to carry multiple users' data to the rest of the world.¹⁰¹ As consumers shift toward ever higher data-consumption for streaming and cloud computing applications, demands on networks will increase. For those last mile connections to be fast, all upstream networks also need to be fast. To meet that demand, service providers are beginning to "fiberize" their networks. Since 2015, subscriptions to fiber internet services grew 2.5 times across 145 countries.¹⁰² While other high-capacity technologies can serve the last-mile, such as DSL, cable internet, or 4G mobile broadband networks, fiber internet is typically the first choice for reliable speeds above 100 Mbps. Fiber will also be required for densification of high-speed mobile broadband and the 5G networks of the future. To remain competitive in the digital economy, Malaysia needs to focus on this transition.

Despite the economic importance of an ultrafast fixed-line network, Malaysia remains a mobile-first country. As of 2016, Malaysia had 141 mobile cellular subscriptions and 92 active mobile internet subscriptions for every 100 inhabitants, making it one of the most connected countries among its income peers in ASEAN and the OECD (Figure 3.1, panels a and b). The mobile market has benefited from competition among four major operators, which together have about 95 percent market share. Service providers offer affordable packages to consumers and regularly upgrade their networks' technologies.¹⁰³ Several other ASEAN countries also exhibit this mobile-first pattern. Indonesia and Thailand have more mobile subscriptions, despite having

98 European Commission, "Connectivity for a European Gigabit Society," September 2016, <https://ec.europa.eu/digital-single-market/en/policies/improving-connectivity-and-access>.

99 Infocomm Media Development Authority, "Fact Sheet: Next Generation Nationwide Broadband Network," July 2013, <https://www.imda.gov.sg/~media/imda/files/community/consumer%20education/fibre%20broadband/nextgennbnfactsheet.pdf>.

100 Yonhap News Agency, "S. Korea pushes to commercialize 10-gigabit Internet service," March 18, 2018; <http://english.yonhapnews.co.kr/news/2018/03/16/0200000000AEN20180316010600320.html>

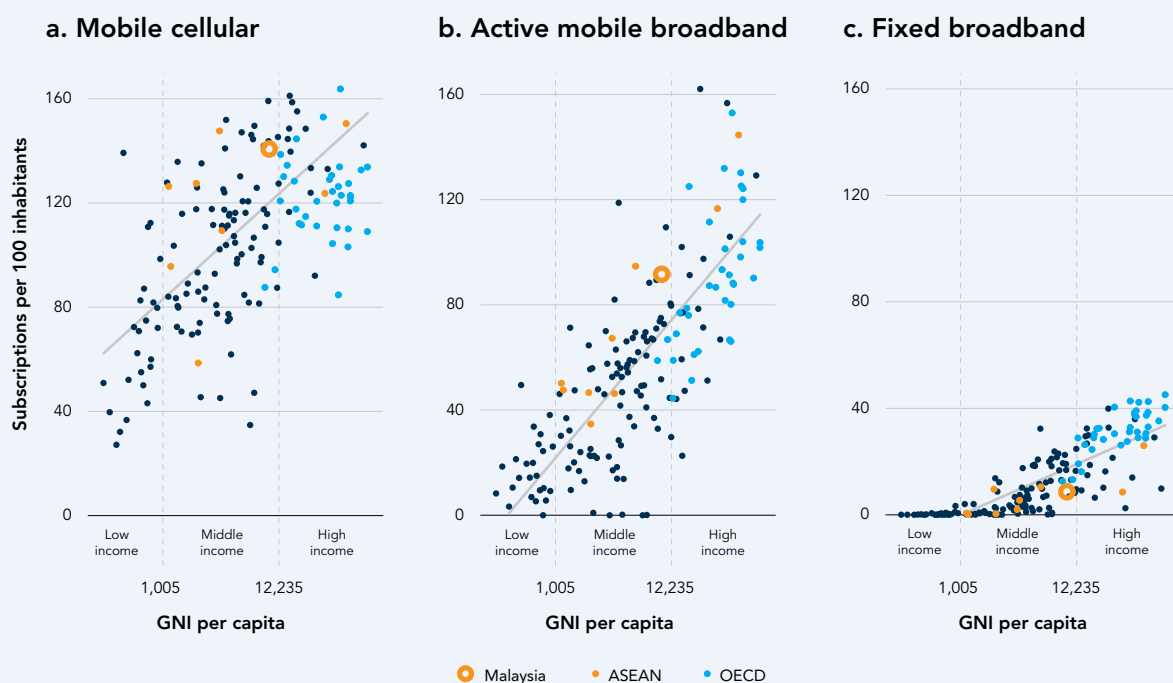
101 International connections link a country to the rest of the world. The national backbone links population centers. Municipal networks extend access to neighborhoods. And last-mile connections reach households, businesses, and individuals.

102 TeleGeography, GlobalComms Database, 2017. Evidence of a continuing trend comes from the rapid growth in demand for fiber optic cables from leading manufacturers, such as Corning. Sales for its optical communications products in 2017 were up 18 percent from the preceding year, riding on increasing demand from major telecommunications networks. Sean Buckley, "Corning ramps production to meet Verizon, other large customers' fiber demands," January 30, 2018, <https://www.fiercetelecom.com/telecom/corning-ramps-fiber-production-to-meet-verizon-s-fiber-demands>.

103 TeleGeography, GlobalComms Database, 2017.

FIGURE 3.1 Malaysia is a mobile-first country

Mobile cellular, active mobile broadband, and fixed broadband subscriptions



Source: ITU 2017.

lower per capita income than Malaysia, and Cambodia and Vietnam are close. Thailand also has more mobile-cellular subscriptions.¹⁰⁴

Deployment of fixed broadband has been much slower. There were only 9 fixed broadband subscriptions per 100 inhabitants in 2016, less than income per capita would predict and only a fraction of Malaysia's 92 active mobile broadband subscriptions per 100 inhabitants (Figure 3.1, panels b and c).¹⁰⁵ Thailand and Vietnam have 10 fixed broadband subscriptions per 100 inhabitants, slightly more than Malaysia, but at lower per capita income. Meanwhile, Hungary has a similar per capita income as Malaysia but boasts a fixed broadband penetration rate that is almost three times as high. The slow development of the fixed broadband market is especially concerning since Malaysia has invested more, per capita, than any other country in ASEAN for which data are available during 2010-2016.¹⁰⁶

Malaysia has slower download speeds than most advanced economies. At 18.6 Mbps, Malaysia's average download speed for mobile broadband is slightly slower than the median. Chile is the only OECD country with slower mobile download speeds; those with comparable per capita incomes — Hungary, Turkey, Mexico, and Poland — are all faster. Within ASEAN, Singapore, Myanmar, and Vietnam have faster mobile download speeds, and most other countries are close. At 26.9 Mbps, Malaysia's average download speed for fixed broadband is slightly faster than the median. Only three OECD countries have slower fixed speeds — Greece, Mexico, and Turkey — with the latter two also having the lowest per capita incomes in the group. Within ASEAN, Singapore and Thailand have much faster fixed download speeds, and Vietnam is comparable.¹⁰⁷

¹⁰⁴ ITU, Measuring the Information Society Report, 2017.

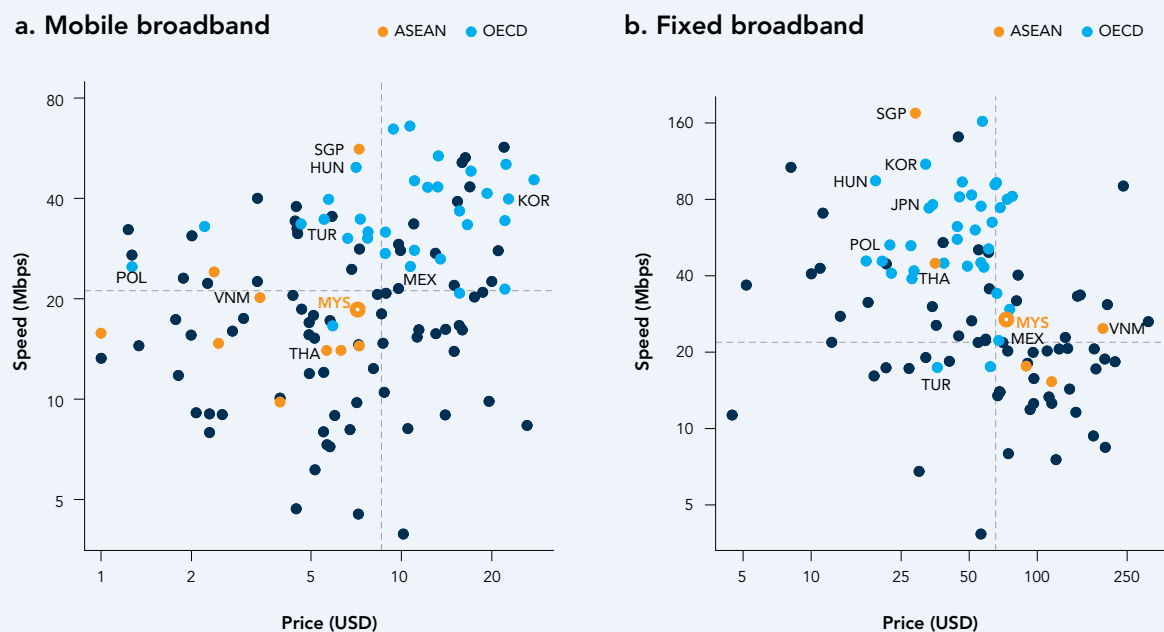
¹⁰⁵ ITU, Measuring the Information Society Report, 2017.

¹⁰⁶ World Bank, Private Participation in Infrastructure Database, 2017.

¹⁰⁷ Ookla, "Speedtest Global Index," April 2018.

FIGURE 3.2 Malaysia's performance is fairly average in terms of broadband speed and price

Average download speeds (Mbps) and prices for common packages (2016 USD), by country



Sources: Ookla 2018; ITU 2017; Telegeography 2018.

Note: Speeds represent average download speeds for mobile and fixed broadband for April 2018. Mobile broadband prices represent ITU's estimate for 500 MB of prepaid, handset-based mobile broadband in 2016. Fixed broadband prices are calculated as the median price for a 100 Mbps plan during 2016–2018 using data from Telegeography.

Malaysian consumers also pay more than consumers in most other ASEAN countries for similar mobile and fixed broadband plans. At \$7.16 per month for 500 MB of prepaid, handset-based mobile broadband, Malaysia is slightly below the global median, but well above the ASEAN median. Within ASEAN, only consumers in Singapore and Brunei Darussalam pay more, and the gap is only 8 cents.¹⁰⁸ Higher prices — and lower affordability — is likely the major factor responsible for lower adoption.

If Malaysia continues at its current rate of development, it will not have competitive speeds in the next decade. The national target of 100 Mbps for broadband is lower than the emerging standard in advanced economies. Moreover, the higher speeds are restricted to urban areas such as state capitals, major towns, and high-growth areas. The maximum speed in the suburbs and rural areas are not planned to exceed 20 Mbps (Table 3.1).¹⁰⁹ These speeds still lag the ambitions of Malaysia's competitors, including the EU's Gigabit Society minimum of 100 Mbps connectivity and the Republic of Korea's goal of 50 percent coverage at 10 Gbps by 2022.¹¹⁰

¹⁰⁸ ITU, "Mobile-broadband prepaid handset-based (500MB) dataset," 2017; Telegeography, GlobalComms Database, 2018.

¹⁰⁹ MCMC, Annual Report: Universal Service Provision, 2015; https://www.skmm.gov.my/skmmgovmy/media/General/pdf/MCMC_USP_Report_2015_bi_1.pdf; MCMC, "Malaysia's Experience to Increase Broadband Penetration," 2017, <http://www.comcec.org/en/wp-content/uploads/2017/03/9-TRA-PRE-MLY.pdf>.

¹¹⁰ European Commission, "Broadband Europe," <https://ec.europa.eu/digital-single-market/en/broadband-europe>; Yonhap News Agency, "S. Korea pushes to commercialize 10-gigabit Internet service," March 18, 2018, <http://english.yonhapnews.co.kr/news/2018/03/16/020000000000AEN20180316010600320.html>; The regulator's definition for broadband for purposes of quality monitoring is also relatively low: downstream speeds equal to or greater than 650 Kbps on wireless networks, with wireline internet speeds of 1 Mbps referred to as broadband in official reports. The breach of these standards entails enforcement action. MCMC, Network Performance Report 2017, January 2018, <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Network-Performance-2017-latest.pdf>.

TABLE 3.1 According to the rollout plan, Malaysia's less-populated areas will be the last to get access to high-speed broadband

Broadband goals and progress, by initiative

Initiative	Targets	
	Connections	Speed
High Speed Broadband (HSBB) (2008–2012)	Provide 1.3 million new ports for the Inner Klang Valley, industrial areas, and Iskandar Malaysia.	10 Mbps and above
High Speed Broadband 2 (HSBB2) (2015–2017)	Provide 390,000 new ports for state capitals, major towns, and high growth areas using FTTH, ETTH, and VDSL2.	Up to 100 Mbps
Sub-Urban Broadband (SUBB) (2015–2019)	420,000 new ports from 421 exchanges and upgrading of existing copper lines to provide broadband in suburban and rural areas outside HSBB and HSBB2 areas.	Up to 20 Mbps
Rural Broadband (RBB) (2015–2018)	Broadband service in underserved rural areas. Replaced Broadband for General Population initiative.	Up to 20 Mbps

Source: MCMC, Annual Report: Universal Service Provision, 2015; https://www.skmm.gov.my/skmmgovmy/media/General/pdf/MCMC_USP_Report_2015_bi_1.pdf; MCMC, "Malaysia's Experience to Increase Broadband Penetration," 2017, <http://www.comcec.org/en/wp-content/uploads/2017/03/9-TRA-PRE-MLY.pdf>; MCMC, comments provided to the Malaysia Digital Economy Team, July 2018.

Regional disparities

Malaysia has large broadband coverage gaps at the state level. Nationwide, there are 108 mobile broadband subscriptions for every 100 inhabitants. But the range between states is considerable, from a high of 217 in Kuala Lumpur to a low of 77 in Kelantan. Many fewer people have access to fixed broadband, with 8 subscriptions per 100 inhabitants nationwide. Again, the range is considerable, from a high of 15 in Putrajaya to a low of 4 in Terengganu (Figure 3.3, panel a). These disparities mean that depending on where they are, Malaysians will have a different digital experience, and consequently different opportunities to benefit from digital technologies.¹¹¹

The quality of mobile broadband networks also varies across states, but the performance gap between service providers is greater. Nationwide, the average download speed for mobile broadband is 16.7 Mbps. Johor has the fastest average download speed at 20.7 Mbps and Sabah the lowest at 11.9. But the performance gap between companies is nearly 3.5 times as big in Johor, where best performing company has average download speeds of 38.5 Mbps and the worst performing country only 8.4 (Figure 3.3, panel b). Variance among service providers aside, Sabah's poor performance and Johor's good performance mirrored the pattern seen for penetration rates. In contrast, some states had good average quality compared to their penetration rates, including Terengganu, Kedah, and Kelantan. Factors such as the number of users as well as the time of the day may affect the download speed, but the patterns are consistent enough to warrant concern.¹¹²

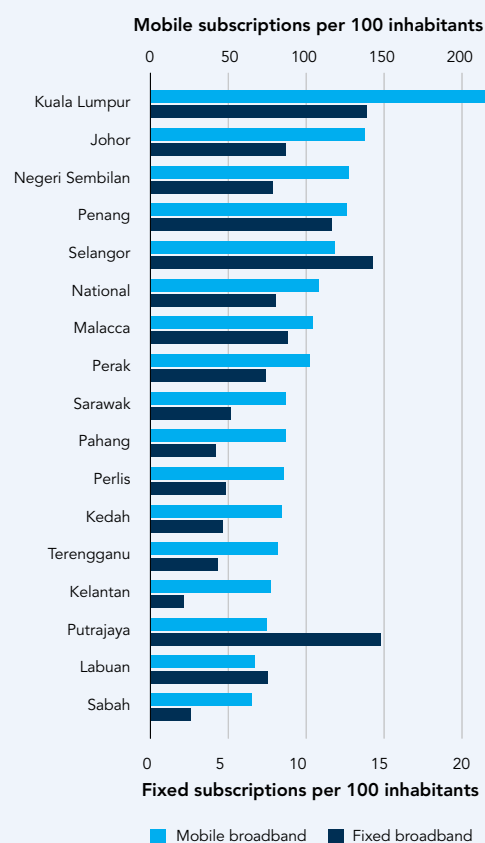
111 MCMC, "Communications and Multimedia: Facts & Figures", First Quarter 2018; Department of Statistics Malaysia, "Demographic Statistics," First Quarter 2018.

112 MCMC, Network Performance Report, 2017.

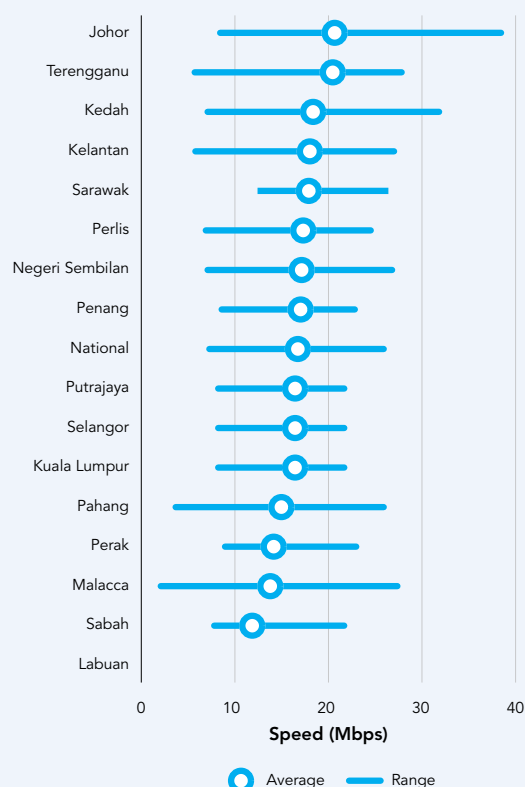
FIGURE 3.3 Penetration rates across states are positively correlated, but the relationship with speed is weaker

Mobile and fixed broadband penetration rates and mobile broadband download speeds

a. Penetration rates



b. Mobile download speeds



Sources: MCMC, Network Performance Report, 2017; MCMC, "Communications and Multimedia: Facts & Figures", First Quarter 2018; Department of Statistics Malaysia, "Demographic Statistics," First Quarter 2018.

Note: MCMC's Network Performance Report does not include speed data for Labuan. The average download speed is the simple average across four carriers: Celcom, DiGi, Maxis, and U Mobile. Webe and Yes are excluded from this analysis.

Although Malaysia's fixed broadband services generally meet the regulator's speed requirements, there is some variation across regions. At the regional level, download and upload speeds for DSL and Fiber met the speed requirements in at least 90 percent of trials. However, MCMC's network performance review in 2017 reported an unsatisfying browsing experience for users, with slow long load times compared to mobile broadband. It concluded that improvements were needed to reduce network latency and congestion.¹¹³ Going forward, there is a risk that quality might suffer further as the number of connections and bandwidth consumption per user increases.

Regional disparities are likely to continue in the near term. While total fiber optic networks across Malaysia are more than 830,000 route-km in length, the actual geographical spread of the fixed broadband networks is unknown.¹¹⁴ Still, rural areas will likely lag urban. Broadband network rollout requires large upfront capital

¹¹³ MCMC, Network Performance Report, 2017, pp. 60–69. State level data and average speed data are not available for fixed broadband.

¹¹⁴ Telekom Malaysia, Annual Report, 2012.

expenditure. Service providers looking to recoup the high cost of investment tend to prioritize high-density areas. Conversely, sparsely populated rural areas do not offer as much revenue opportunities to offset the high upfront capital expenditures, rendering uneven broadband deployment across the country. Despite the Government's efforts to roll out optic fiber networks nationally through various initiatives such as HSBB and SUBB, Telekom Malaysia's (TM) rollout plans suggest that some parts of the country will be stuck with slower speeds for some time to come.

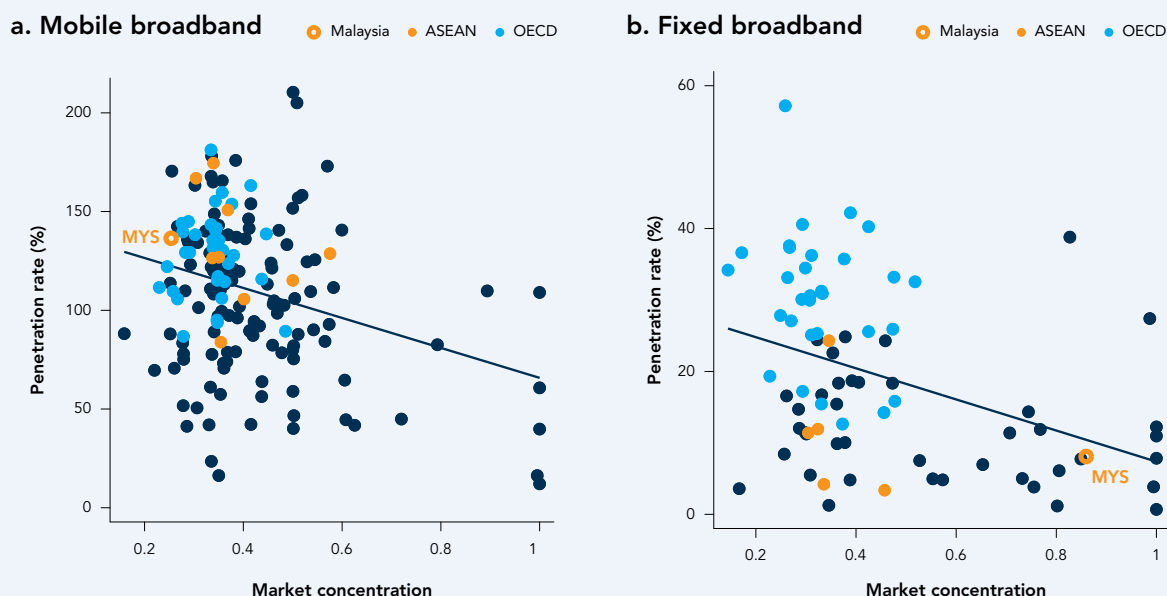
Underlying Challenges

High prices and low coverage for fixed broadband in Malaysia is driven by a lack of market competition.

Global evidence suggests that lower levels of competition are associated with higher prices, lower quality, and limited innovation in services.¹¹⁵ With a few exceptions, retail mobile broadband markets are competitive, and there has been rapid uptake, especially in developing countries. Malaysia — a mobile-first country — is among the more competitive, with three companies controlling between one-quarter and one-third of the mobile broadband market. In contrast, Malaysia's fixed broadband market is highly concentrated, with TM controlling 92 percent. This makes Malaysia's fixed broadband market more concentrated than that of any other country in ASEAN or the OECD. Only a handful of countries are more concentrated: Algeria, Ethiopia, Lebanon, Libya, Morocco, and Uruguay (Figure 3.4).

FIGURE 3.4 Malaysia's fixed broadband market is highly concentrated

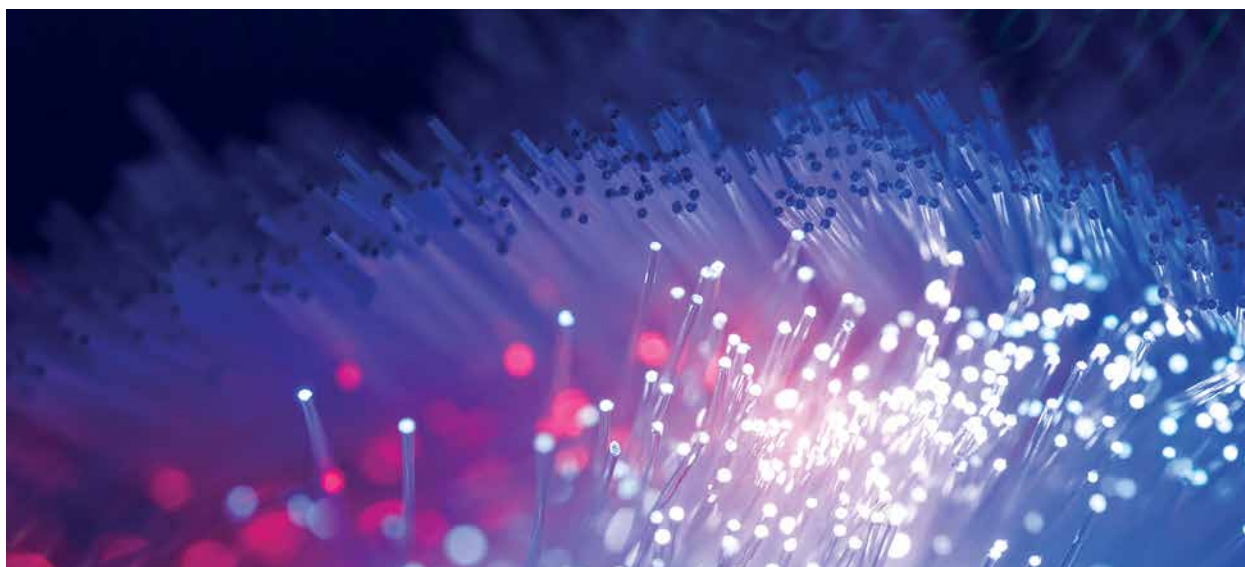
Market concentration of the mobile and fixed broadband market relative to penetration rates



Source: Telegeography, GlobalComms Database, 2018.

Note: Market concentration is represented by the Herfindahl-Hirschman index for countries with at least 500,000 mobile or fixed broadband subscriptions, respectively.

115 European Commission, Study on National Broadband Plans in the EU-28, 2014, page 203; http://ec.europa.eu/newsroom/document.cfm?doc_id=43390. A World Bank analysis of average fixed broadband prices in 12 economies across East Asia and the Pacific found a strong correlation (0.62) between prices and the market share of the largest service provider.



Telekom Malaysia Berhad has played a critical role in the development of Malaysia's telecommunications sector, but the effects of its continued dominance pose a challenge to market development. TM evolved from the Telecommunications Department of Malaya, established in 1946 and privatized in 1984.¹¹⁶ Listed shareholders include Khazanah Nasional (26 percent), the Employees Provident Fund Board (18 percent) and Amanahraya Trustees (12 percent) — all of which are wholly owned by the government.¹¹⁷ In the early 2000s the company launched a globally linked fiber-optic backbone. Today, TM owns more than 830,000 km of fiber-optic cable, and since 2009 has started to roll-out High-Speed Broadband (HSBB) networks. While offering a full range of retail and wholesale services TM is serving more than 4.1 million customers. Today, TM accounts for 92 percent of market share in the fixed broadband market,¹¹⁸ and has exclusive agreements with the Government to implement strategic national programs such as High-Speed Broadband Project Phase 2 (HSBB2) and the Sub-Urban Broadband Project (SUBB). In addition to its vast national connectivity network, TM is an investor in a number of submarine cable systems, giving it access to over 190,000 km of submarine cables worldwide. TM's strong position in the telecommunications sector has reflected in its consistently positive economic performance, with the group meeting its generous dividend payout commitments to shareholders (\$203 million in 2017) even during times of economic hardship. By entering the mobile market through its recently launched 4G service, TM has further solidified its position as a major broadband connectivity provider.¹¹⁹

Telekom Malaysia's dominance of the upstream market and its vertical integration give it a structural advantage, and inconsistent rules at the state level have prevented new competitors from emerging. Although Malaysia's national champion was instrumental in achieving widespread basic connectivity, its market power has hindered affordability, coverage, quality, and innovation of services as the market has matured. The impact of is most pronounced for fixed broadband, due to TM's strength in each of the sub-markets of the broadband value chain, including retail. Less concentrated markets tend to deliver better outcomes. Recognizing this, many countries with dominant incumbents (often erstwhile state-owned monopolies), such as France (Box 3.1), have successfully transformed their broadband markets through vigorous regulation. Recognizing that TM alone may be stretched to deliver all of the broadband targets for Malaysia — especially if the country sets new and aggressive targets for coverage and quality — will mean adjusting the company's strategy towards being an enabler of the next stage of digital development, and not solely responsible for it.

¹¹⁶ Telekom Malaysia Annual Report 2017, https://www.tm.com.my/annualreport/downloads/TM_IAR2017_Corporate_Overview.pdf

¹¹⁷ Telegeography, GlobalComms Database, 2018.

¹¹⁸ Telegeography, GlobalComms Database, 2018.

¹¹⁹ Telekom Malaysia, Annual Reports, 2012–2016; TeleGeography, GlobalComms Database: Malaysia, October 2017.

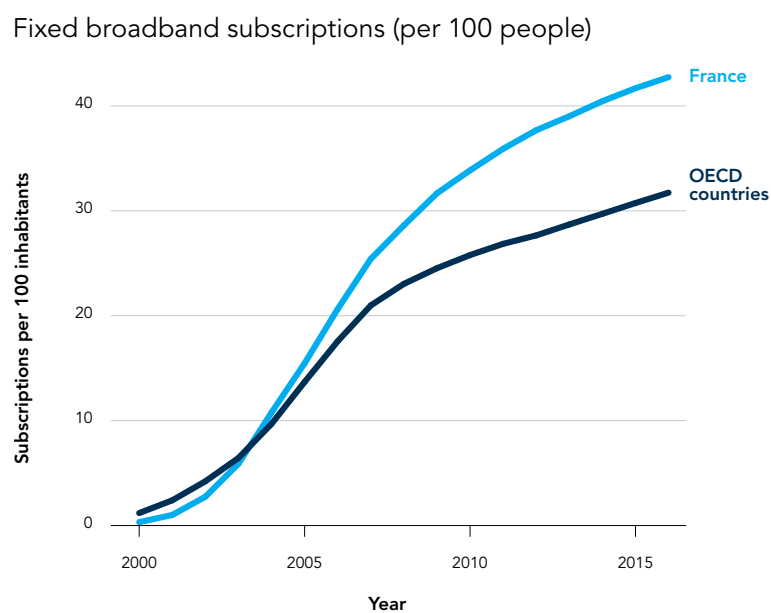
BOX 3.1

Fixed Broadband Development in France: From Monopoly to Competition

The fixed broadband market in France has transformed, in large part due to more vigorous regulation. Before the mid-1980s, France Telecom was a vertically integrated public monopoly. Strict regulatory enforcement by telecommunications regulatory authority (ARCEP) and the Competition Authority allowed for the provision of France Telecom's fiber infrastructure to its competitors. In 2003, ARCEP mandated local loop unbundling and infrastructure sharing. And in 2008, ARCEP issued a decision to mandate duct access to alternative operators to mitigate the significant market power of France Telecom on the wholesale market of access to infrastructure.

As envisioned by the French government, these regulatory measures allowed market forces to spur broadband development. Small alternative operators could deploy services riding on the France Telecom (now Orange) legacy network, and then deploy fiber optic cables. Deployments have grown rapidly in this competitive market, and subscribers' uptake has been significant (Figure 3.5). By 2017, France had one of the highest levels of household broadband penetrations in Europe.

FIGURE 3.5 In France, regulation increased competition and led to faster growth in fixed broadband penetration



Source: WDI 2017.

Source: Audrey Loridan-Baudrier, "France", in eds. Lemstra and Melody, *The Dynamics of Broadband Markets in Europe: Realizing the 2020 Digital Agenda*, 2015; Yongsoo Kim, Tim Kelly, and Siddhartha Raja, "Building broadband: Strategies and policies for the developing world", 2010, World Bank Group.

Market structure

Telekom Malaysia has an outsized presence in the international connectivity market, and appears to have used its market power to restrict access by other domestic companies. As the incumbent, it has an ownership stake in 12 out of the 20 submarine cable networks that land in Malaysia.¹²⁰ Citing security concerns, TM has not allowed co-location arrangements for its cable landing stations, despite the MCMC's regulation on Domestic Connectivity to International services (DCIS). Instead, it provides point of access connection via fiber splicing outside the cable landing stations and charges fees well above the regulated price for transmission services elsewhere in Malaysia.¹²¹ This is a discriminatory practice that not only violates the open-access requirements, but also contributes to the higher cost of broadband rollout by access seekers downstream. For this reason, international organizations such as ITU have long promoted non-discriminatory, open access at the international gateway level.¹²² MCMC tightened regulations for co-location in its review of Mandatory Standards on Access (MSA) in 2016. The MSA now has specific provisions to address security and critical national information infrastructure,¹²³ and MCMC has the power to resolve disputes arising from negotiations among service providers on access agreements.¹²⁴ Yet, industry players have suggested that the efficacy of regulation could be improved, noting that dispute resolution might not be sufficient to address these issues.¹²⁵

Telekom Malaysia's control of the national backbone and high degree of vertical integration has also allowed it to dominate the middle-mile segment of the market. As the incumbent, it has the country's most extensive broadband network, which allows it to deploy additional fiber networks at lower marginal costs than its competitors. The government has accordingly treated TM as a national champion, awarding it exclusive memorandums of understanding to deploy the HSBB1, SUBB, and HSBB2, leaving only more specific local programs to be delivered by multiple operators.¹²⁶ This trend has continued. The National Fiberization Plan of 2017 resulted in a seemingly exclusive agreement between TM and Tenaga Nasional Berhad to utilize the electricity utility's national fiber optic network,¹²⁷ which would have repeated the exclusive agreement TM previously made with Fiberail.¹²⁸ According to MCMC, it is not clear that newer players could meet the speed and quality of TM.¹²⁹ But this approach runs counter to the strategy of other countries, where telecommunications assets or capacity on utility networks are opened to non-incumbent providers or competitively leased.¹³⁰

Stakeholders report that Telekom Malaysia has used its market power to restrict access and charge higher prices than would prevail in a competitive market. TM allows interconnection and leases backhaul facilities to other operators. But it reportedly routes data through circuitous paths on leased networks — a practice known as “tromboning.” TM also does not lease “dark fibers” — which are unlit, therefore representing excess capacity — to other broadband operators.¹³¹

120 TeleGeography, Global Internet Geography and Global Bandwidth Research Service Database, 2017.

121 Fiber optic splicing is an important method of joining two fiber optic cables together. It is a preferred solution when an available fiber optic cable is not sufficiently long for the required run. Splicing is also used to repair broken cables.

122 ITU, “Global Symposium for Regulators – Best practice guidelines,” 2016, http://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2017/GSR17_Best%20Practice%20guidelines_E.pdf.

123 MCMC, Commission Determination on the Mandatory Standards on Access, Determination No. 3 of 2016, Subsection 6.9.31 of the MSA.

124 MCMC, comments provided to the Malaysia Digital Economy Team, July 2018.

125 Anonymous private-sector representative, interviews with the Malaysia Digital Economy Team, April–November, 2017.

126 The Star Online, “Telekom Malaysia invests RM2.3bil for better high-speed broadband”, December 18, 2015; <https://www.thestar.com.my/business/business-news/2015/12/18/tm-to-invest-rm23bil>; CommsUpdate, “TM inks HSBB 2 and SUBB agreements with Malaysian government,” December 21, 2015; <https://www.telegeography.com/products/commsupdate/articles/2015/12/21/tm-inks-hsbb-2-and-subb-agreements-with-malaysian-government/>.

127 The Star Online, “Telekom inks MoU with TNB to deliver Nationwide Fiberisation Plan,” January 16, 2018; <https://www.thestar.com.my/business/business-news/2018/01/16/telekom-inks-mou-with-tnb-to-expand-high-speed-broadband-access>. As of July 2018, this MOU was reported as being ‘aborted’ in the media. See The Star Online, “TNB, TM abort joint Nationwide Fiberisation Plan,” July 24, 2018; <https://www.thestar.com.my/business/business-news/2018/07/24/tnb-tm-abort-nfp-project/>.

128 Fiberail, “About Us,” 2018, <http://www.fiberail.com.my/about.html>.

129 MCMC, comments provided to the Malaysia Digital Economy Team, July 2018.

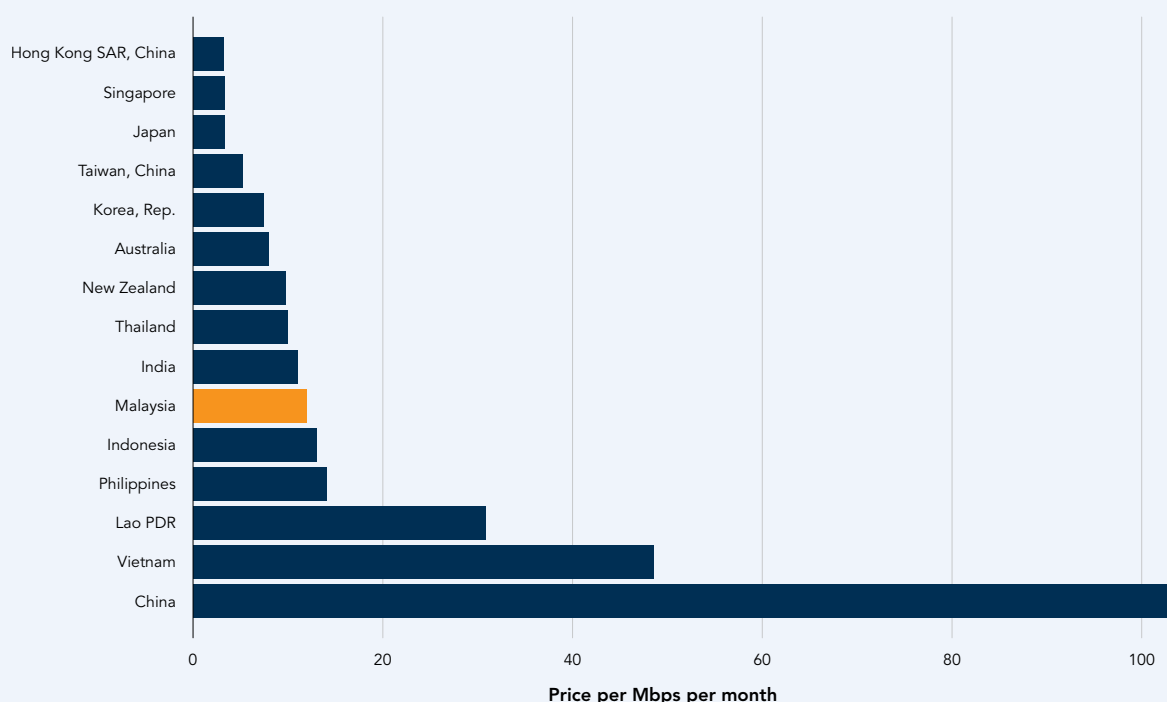
130 World Bank, “Toolkit on Cross-Sector Infrastructure Sharing,” 2017; https://ppiaf.org/documents/4709?ref_site=ppiaf; Andrea Faggiano, Lokesh Dadhich, Jaap Kalkman, and Carlo Stella, “Utilities’ contribution to national fiber development,” August 2017; Arthur D. Little, “Utilities’ contribution to national fiber development: How utilities and telecom operators can cooperate to accelerate fiber deployment,” July 2017, http://www.adlittle.com/sites/default/files/viewpoints/adl_utilities_contribution_to_fiber_deployment.pdf.

131 Anonymous private-sector representative, interview with the Malaysia Digital Economy Team, April–November, 2017. According to MCMC, backhaul charges are no longer based on distance in the Mandatory Standard Access Pricing, so this should alleviate the issue of tromboning. MCMC, comments provided to the Malaysia Digital Economy Team, July 2018.

The level of competition in the international connectivity market also influences prices. Global evidence suggests that greater competition leads to lower wholesale prices. This is true for competition among infrastructure owners (submarine cable providers) and among service providers (carriers). Malaysian service providers pay relatively higher IP transit prices than those in neighboring countries (Figure 3.6). These costs are passed downstream, making broadband less affordable at the retail level. As a result, fixed wholesale costs paid to the incumbent remain as high as 70 percent of retail costs in Malaysia as opposed to 50 percent in the United Kingdom).¹³²

FIGURE 3.6 Malaysia pays higher IP transit prices than many of its neighbors

Median cost for a full commit 10GigE connection, USD per Mbps per month, 2017



Source: TeleGeography, IP Transit Pricing data, 2017

Malaysia has a legal framework to prevent dominant operators from distorting competition, but regulators have not been able to take the specific actions needed to implement them. Currently, section 139 of the Communications and Multimedia Act 1998 covers anticompetitive practices by operators, including practices conducted by a dominant operator that substantially lessen competition. But, at present, it does not cover ex ante measures to allow for competition or prevent anticompetitive practices. There is scope to define the remedies imposed once an anticompetitive practice is proven, including regulatory obligations that would prevent the practice from recurring. Furthermore, the penalties for noncompliance seem very low. The maximum fine that can be imposed is RM 500,000 (approximately \$125,000), much less than the typical international standard of 10 percent of annual turnover, which limits its efficacy as a deterrent.¹³³ Recent developments, however, do suggest a shift towards more effective regulation of the wholesale market — implementation of the Mandatory Standard on Access Pricing started in January 2018.¹³⁴

¹³² Anonymous stakeholders, interviews with Malaysia Digital Economy Team, April–November 2017.

¹³³ Malaysia Communications and Multimedia Act 1998 (Act 558), Section 149.

¹³⁴ The Malaysian Reserve, “Deadline near for telcos to present cheaper packages,” August 28, 2018: <https://themalaysianreserve.com/2018/08/28/deadline-near-for-telcos-to-present-cheaper-packages/>; The Star Online, “Broadband prices to drop 25% by year’s end,” June 20, 2018: <https://www.thestar.com.my/news/nation/2018/06/20/broadband-prices-to-drop-25-percent-by-year-end/>

State-level regulation of connectivity infrastructure

Deploying broadband requires service providers to work with the state governments and local councils, who have the authority to issue permits and rights-of-way in their territory. While incumbent networks have extensive existing rights of way or infrastructure, competitive networks have been building their own networks and cell towers only in the past few decades. Many states have established a One-Stop Agency to streamline the process of issuing and renewing permits, which has the potential to improve savings and efficiency for both the local government and telecommunications operators. The state government in Penang, for example, established an OSA explicitly to promote infrastructure sharing among telecommunications in the new buildout.¹³⁵ But there is often little public information about how these companies came to be the exclusive deployment partners of the state government.¹³⁶

OSAs can slow network deployment where rent-seeking opportunities exist. Networks face increasing uncertainty and rising costs due to the way some states have organized the construction permitting and implementation process.¹³⁷ In many cases, OSAs have made infrastructure deployment unnecessarily expensive or have compromised network coverage and quality. Frictions around rights-of-way at the state level, including delays and high fees, slow down networks' deployments or upgrades, especially dampening new entrants or additional capital investments, as this implies the need to acquire land or rights of way for network expansion. One state government appointed two private companies to operate as the OSA, imposing additional security deposits and increasing costs without consulting the telecommunications providers.¹³⁸ In other states, mobile operators reported that they have not been able to build any new towers in the last 2–3 years due to difficulties in securing permissions for sites or to construct the towers themselves.¹³⁹

During recent years, policy changes have added to the cost of network buildout, limiting investment and undermining competition. This includes cases of hiking processing fees without warning and forced consolidation of telecommunications infrastructure by state-backed companies. In one state, a newly authorized state-backed company issued a plan to consolidate 392 towers into 262 by decommissioning, dismantling, and replacing them with their own. Telecommunications providers were left with no choice but to lease facilities from state-backed companies at a cost 25 percent higher than market rates.¹⁴⁰ One stakeholder reported that the Ministry of Public Works increased the wayleave deposits by 200 times for new fiber works along roads in January 2017 without prior consultation with the telecommunications operators.¹⁴¹ The City Council of Kuala Lumpur also imposed an increase in the permit fees for mobile towers in 2017.¹⁴²

135 Penang State government officials, interviews with the Malaysia Digital Economy Team, 2017.

136 Letter from the major telecommunications operators addressed to Y.Bhg. Dato' Sri Dr. Halim Shafie, Chairman of MCMC, February 2015

137 Anonymous private-sector representative, interviews with the Malaysia Digital Economy Team, 2017.

138 Anonymous private-sector representative, interviews with the Malaysia Digital Economy Team, 2017.

139 Anonymous private-sector representative, interviews with the Malaysia Digital Economy Team, 2017.

140 Letter from the major telecommunications operators addressed to Y.Bhg. Dato' Sri Dr. Halim Shafie, Chairman of MCMC, February 2015

141 Anonymous stakeholders, interviews with the Malaysia Digital Economy Team, April–November 2017. A wayleave is a type of easement used by a utility that allows a linesman to enter the premises to install or maintain infrastructure on private land in return for annual payments to the landowner.

142 Interviews with the Malaysia Digital Economy Team, April–November 2017.

Recommendations

The policy objectives for Malaysia are two-fold: enhance the quality and affordability of broadband services and improve access to ultrafast fixed broadband networks. To achieve these objectives, the government should consider using existing infrastructure more efficiently through regulatory action and closing remaining coverage gaps by creating the enabling environment to attract more private capital (Table 3.2). These high-priority measures are necessary to jumpstart the development of the ultrafast broadband market. Implemented correctly, they can reduce entry barriers for more investments and increase competitive pressure on the market.

TABLE 3.2 Regulatory actions and new initiatives to expand coverage could help Malaysia transform its digital infrastructure

Recommendation, by type, with international examples

Purpose	Recommendation	International examples
Enforce regulations to use existing infrastructure more efficiently	Impose appropriate obligations for fees levied at cable landing stations and for the conditions of physical co-location to ensure non-discriminatory access and pricing	India regulates pricing and resale of international data connectivity to promote competition ¹⁴³
	Promote open access across all levels of the broadband value chain to increase the ability of competitive providers to lease capacity or facilities on non-discriminatory terms	France imposed strict obligations on the incumbent to share its infrastructure, reducing entry barriers and the costs of network deployment ¹⁴⁴
	Promote sharing of passive infrastructure to lower entry barriers and increase levels of competition and service innovation in the retail and wholesale market	Portugal and Lithuania enforce open access to dominant operators' ducts ¹⁴⁵
	Utilize the fiber networks of energy, transport utilities, and federal agencies by issuing them network facilities provider (NFP) or network services provider (NSP) licenses and facilitating non-exclusive, bilateral agreements with telecom companies	Utilities in Estonia, Spain, Tunisia, and other countries have leased access to their passive assets ¹⁴⁶

143 Department of Telecommunications, Government of India, "Resale of IPLC," <http://www.dot.gov.in/relatedlinks/resale-iplc>; Telecom Regulatory Authority of India, Recommendations

On "Terms & Conditions for Resale in International Private Leased Circuits (IPLC) Segment," March 23, 2007; <http://www.trai.gov.in/sites/default/files/recomIPIC.pdf>.

144 Bertrand Vandeputte, "FtTH in France: orientation of regulation, OECD Workshop on Fibre Investment and Policy Challenges," April 2008, <http://www.oecd.org/internet/broadband/40460875.pdf>.

145 Natalija Gelvanovska, "Lithuanian broadband developments," April 2009, www.rtt.lt/rrt/download/9406/lithuanian%20broadband%20developments.pdf; Carlos

146 Costa, "Portugal Next Generation," September 2014, <http://www.intt.tn/upload/files/Portugal.pdf>.

World Bank, "Toolkit on Cross-Sector Infrastructure Sharing," 2017, https://ppiaf.org/documents/4709?ref_site=ppiaf.

Purpose	Recommendation	International examples
Enact new policies to attract private capital to close coverage gaps	Define more aggressive goals for national broadband connectivity	The EU, Korea, Singapore, and others are aiming for speeds many times faster than Malaysia's current targets ¹⁴⁷
	Increase competition for public-private partnership (PPP) projects to deploy high-speed broadband networks in otherwise commercially non-viable areas.	The Republic of Korea leveraged a 2.5 percent public investment in broadband development programs that mobilized \$32 billion in investments ¹⁴⁸
	Restructure the Universal Service Fund to make it more flexible and encourage participation by a wider range of firms in network deployment, including through least-cost subsidy auctions or demand aggregation	The EU's State Aid programs have increased the participation of private sector firms in network deployment ¹⁴⁹
	Treat broadband as a utility under the Uniform Building By-Laws, including it in all new construction to reduce the cost of network deployment and streamline broadband rollout at the state level	The Republic of Korea's Broadband Building Certificate has promoted "cyber-ready" real estate construction practices since 1999 ¹⁵⁰

More aggressive application of existing regulations would increase the efficiency of the existing fixed broadband infrastructure and drive down costs for consumers. MCMC needs the support of the government to identify dominance and vigorously implement relevant provisions of the regulatory framework. A formal regulatory analysis is needed for each market segment: international connectivity, domestic middle-mile wholesale connectivity, and last-mile connectivity. Based on the findings, MCMC would need to vigorously act to foster more competitive pressure on the dominant operator, especially through lowering barriers for entry. The remedies — such as local loop unbundling or access obligations — to address the effects of dominance in each of these market segments are well-defined by international best practices, and can be implemented by MCMC with the support of the government.¹⁵¹ Countries such as France, India, Lithuania, and Portugal have regulated different market segments to overcome the effects of dominance — often of incumbents or erstwhile monopolies, and to set the stage for competitive markets to flourish. The recent efforts to implement the MSA for wholesale markets represents an important step in this direction.

147 European Commission, "Digital Single Market Policy: Broadband Europe," April 13, 2018, <https://ec.europa.eu/digital-single-market/en/broadband-europe>; Ericsson, "Benchmarking 15 National Broadband Plans," 2014, <http://www.cullen-international.com/asset/?location=/content/assets/research/studies/2014/ericsson-benchmarking-15-national-broadband-plans.pdf>;

148 Yongsoo Kim, Tim Kelly, and Siddhartha Raja, "Building broadband: Strategies and policies for the developing world", 2010, World Bank Group, p. 57.

149 European Commission, "Guide to High-Speed Broadband Investment," 2014, http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=6908.

150 Korean Association of ICT Promotion, "High-speed information and communication building certification," (in Korean), <https://www.kait.or.kr/work/workAll.jsp?ID=10>.

151 For example, ensuring that the regulator's decisions or competencies are not overruled even with the Minister's power of direction and exemption. Communications and Multimedia Act 1998 [Act 588], Chapter 3 – Section 149 (1), "Subject to such exemptions as may be determined by the Minister by order published in the Gazette, a network facilities provider and a network service provider shall provide access to their network facilities or network services listed in the access list." Or in the same Act, Chapter 4 – Section 201 (1), "The Minister may make rules, to be published in the Gazette, to prescribe the level of rates to be charged for specified or classes of network facilities, network services, applications services or content applications services."

The government also needs to attract more private capital to multiply public investments and close coverage gaps. This is especially relevant for underserved areas of the country to ensure that the poorest Malaysians have access to broadband internet services. Defining more aggressive and transparent goals for Malaysia's broadband networks would signal the country's intention to compete with high-income countries like the EU member states, the Republic of Korea, and Singapore. The government should also consider crowding-in private investment and ease the creation of new network infrastructures through streamlined rules and regulations.¹⁵² It is possible to reform how universal service is provided, to be more transparent and flexible, while defining programs that complement or catalyze rather than substitute private investments, for example. Various programs supported by "State Aid" or investment platforms in Europe have catalyzed or accelerated investments by cutting the risks for private investors, helping to improve coverage and close access gaps.¹⁵³

Additional measures may be considered that would set the stage for sustainable increases in broadband networks in Malaysia. These could include measures to increase the efficiency of radio spectrum use through market mechanisms,¹⁵⁴ strengthening regulatory independence and enforcement capacity (related to MCMC),¹⁵⁵ and catalyzing the creation of alternative international connection points (known as gateways) that would increase capacity of the connections between Malaysia and the global internet.¹⁵⁶ These topics could be the focus of subsequent analyses.



152 See, for example, the EU's 2014 Directive to reduce the cost of high-speed broadband deployment or measures implemented in the Republic of Korea to ease in-building broadband roll out. European Commission, "Digital Single Market Policy: EU rules to reduce cost of high-speed broadband deployment," March 2, 2018, <https://ec.europa.eu/digital-single-market/en/cost-reduction-measures>; Stuart N. Brotman, "Embracing broadband policy innovation from abroad," May 27, 2015, <https://www.brookings.edu/blog/techtank/2015/05/27/embracing-broadband-policy-innovation-from-abroad/>.

153 European Investment Bank, "Commission and EIB announce a fund for broadband infrastructure open to participation of National Promotional Banks and Institutions and of private investors," December 12, 2016, <http://www.eib.org/infocentre/press/releases/all/2016/2016-334-commission-and-european-investment-bank-announce-a-fund-for-broadband-infrastructure-open-to-participation-of-national-promotional-banks-and-institutions-and-of-private-investors>.

154 Yongsoo Kim, Tim Kelly, and Siddhartha Raja, "Building broadband: Strategies and policies for the developing world", 2010, World Bank Group, pp. 117–118, <https://openknowledge.worldbank.org/bitstream/handle/10986/2469/552040PUB0Buil10Box349442B01PUBLIC1.pdf?sequence=1&isAllowed=y>.

155 Global trends and institutional frameworks — including those proposed by the OECD or supported in the World Trade Organization framework — are toward regulatory agencies that are independent: separate from and not accountable to any supplier of services in its regulated field. OECD, "Telecommunication Regulatory Institutional Structures and Responsibilities," OECD Digital Economy Papers, No. 105, 2016, <http://dx.doi.org/10.1787/231741271464>.

156 See, for example, PPP programs to improve international connectivity, such as the Kelvin Project in Ireland or the Caribbean Regional Connectivity Program. European Commission, "State aid N 282/2008 — Ireland: Direct International Communications Links into NW of Ireland (Project Kelvin), 2008, http://ec.europa.eu/competition/state_aid/cases/226031/226031_874497_73_2.pdf; Grenada, St. Lucia, and St. Vincent and the Grenadines, "Invitation for Bids: Caribbean Regional Communications Infrastructure Program," May 27, 2016, <http://www.gov.gd/egov/pdf/vacancies/carcip/IFB-broadband-ppp.pdf>.

CHAPTER 4

Digital Entrepreneurship

Promoting digital entrepreneurship is an important avenue through which Malaysia is attempting to spur economic growth and job creation. Malaysia has made great strides in expanding educational attainment, connecting people to high-speed internet, and promoting financial inclusion. Over the last two decades, the government has also implemented far-sighted initiatives to promote digital entrepreneurship, including world-class infrastructure and generous financial incentives. In many respects, the country is primed for a new Malaysian-led, private-sector engine of growth. But obstacles remain. Malaysian workers still lack the necessary skills to thrive in the digital economy. Startups report a shortage of capital and local expertise to commercialize digital innovations. And the development of digital innovations is hindered by the sector's immaturity. Digital entrepreneurs, policymakers, and society at large need to adapt before the digital economy can reach its full potential.

This chapter, comprising five sections, investigates digital entrepreneurship in Malaysia. The first section provides an overview of entrepreneurs and the entrepreneurship ecosystem in Malaysia, highlighting the importance of government programs. The second section discusses access to finance, particularly the lack of venture capital during a company's growth stage. The third section looks at human capital constraints, which are driven by low skills acquisition in the overall workforce and emigration by the most skilled. The fourth section details issues that specifically affect digital entrepreneurs: slow uptake of digital transaction technologies, tensions between data protections and legitimate use, difficulty accessing government data, weak professional networks among digital entrepreneurs, and the absence of a national plan to develop cutting-edge technologies. The fifth section concludes with recommendations to overcome these obstacles, promote digital entrepreneurship, and grow Malaysia's digital economy.

The Entrepreneurship Ecosystem

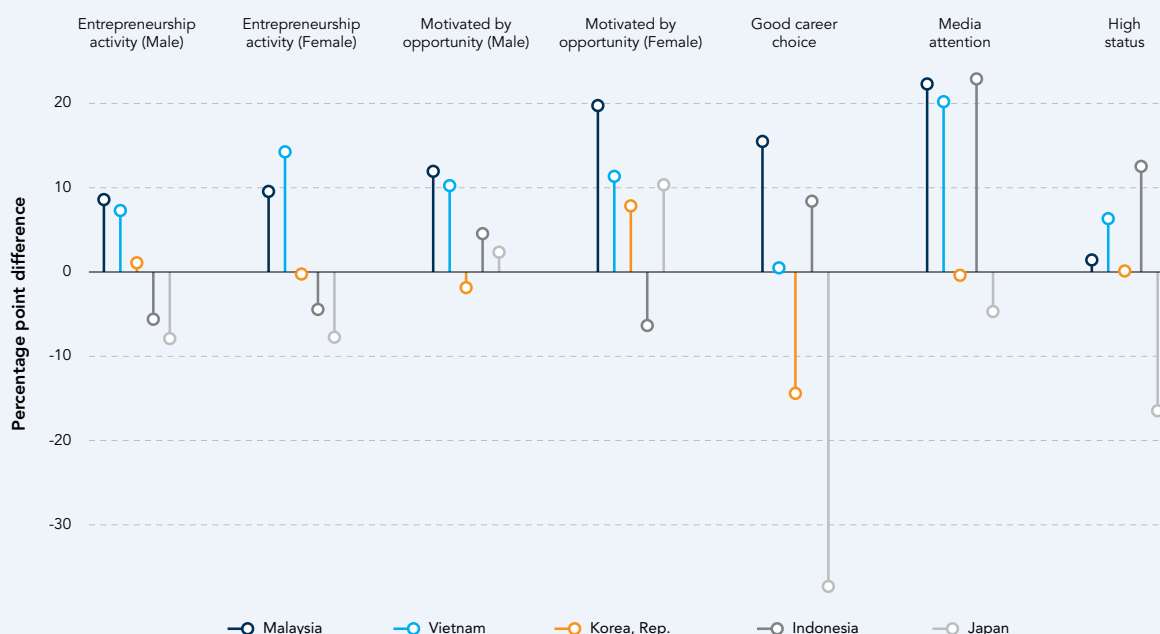
Government promotion, high-profile successes like Grab, iflix and Fave, and a highly connected population have encouraged large numbers of Malaysians to become entrepreneurs. According to Malaysia's 2016 labor force survey, 21 percent of wage earners were employers or worked on their own account — the closest proxy for entrepreneurs available in the official statistics — as opposed to employees or unpaid house workers. Of these, two-thirds were male, 71 percent worked in an urban area, and the plurality were between the ages of 40 and 54.¹⁵⁷ The Global Entrepreneurship Monitor (GEM) found a similar level of participation, with 23 percent of the male population and 20 percent of the female population engaged in early-stage

¹⁵⁷ Department of Statistics Malaysia, Labor Force Survey, 2016. Among employers and those working on their own account, 7 percent were ages 15–24, 35 percent were ages 25–29, 40 percent were ages 40–54, and 18 percent were ages 55–64. Small and medium sized enterprises (SMEs), a common proxy for entrepreneurs, comprise 97 percent of the business establishments, 36 percent of output, 18 percent of exports, and 65 percent of employment. Accelerating their growth to help Malaysia achieve high-income status by 2020 is an explicit goal of the government, but the category covers a much broader range of businesses than what is commonly considered entrepreneurial. World Bank, "Small is the new big: Malaysian SMEs help energize, drive economy," July 5, 2016, <http://www.worldbank.org/en/news/feature/2016/07/05/small-is-the-new-big---malaysian-smes-help-energize-drive-economy>; SMEcorp Malaysia, SME Masterplan 2012–2020, <http://www.smecorp.gov.my/index.php/en/resources/2015-12-21-11-07-06/sme-masterplan>.

entrepreneurship activity. But its age profile aligns more closely with the popular perception of entrepreneurs, identifying the plurality at 25–34 years old. Their survey also found that Malaysian entrepreneurs were overwhelmingly motivated by opportunity, rather than necessity, with one of the highest rates in the world for both males and females. In other words, Malaysian entrepreneurs had other options for work but chose to engage in entrepreneurial activity. The great majority also felt that entrepreneurship was a good career choice, entrepreneurs garnered substantial media attention, and society gave high status to entrepreneurs. In most cases, individuals in Malaysia had higher participation rates and a more positive outlook than their ASEAN and global peers (Figure 4.1).¹⁵⁸ Youth with a “safety net” are more likely to become digital entrepreneurs since they can afford to try and fail. Meanwhile, women generally face more barriers to becoming entrepreneurs, and those that are involved tend to be in industries where female participation is already high, including health, beauty, and fashion.¹⁵⁹

FIGURE 4.1 Malaysia has embraced entrepreneurship

Entrepreneurship participation rates, motivation, and perceptions, by country



Source: GEM 2017.

The Malaysian government initiated, and remains at the center of, the country’s digital entrepreneurship ecosystem. The government sparked the country’s transformation in 1996, when it established the Multimedia Development Corporation — now known as the Malaysia Digital Economy Corporation (MDEC) — to advise the government on legislation, policies and standards, nurture the growth of local technology companies, attract investment, and oversee the development of Cyberjaya, the country’s science park and IT center meant

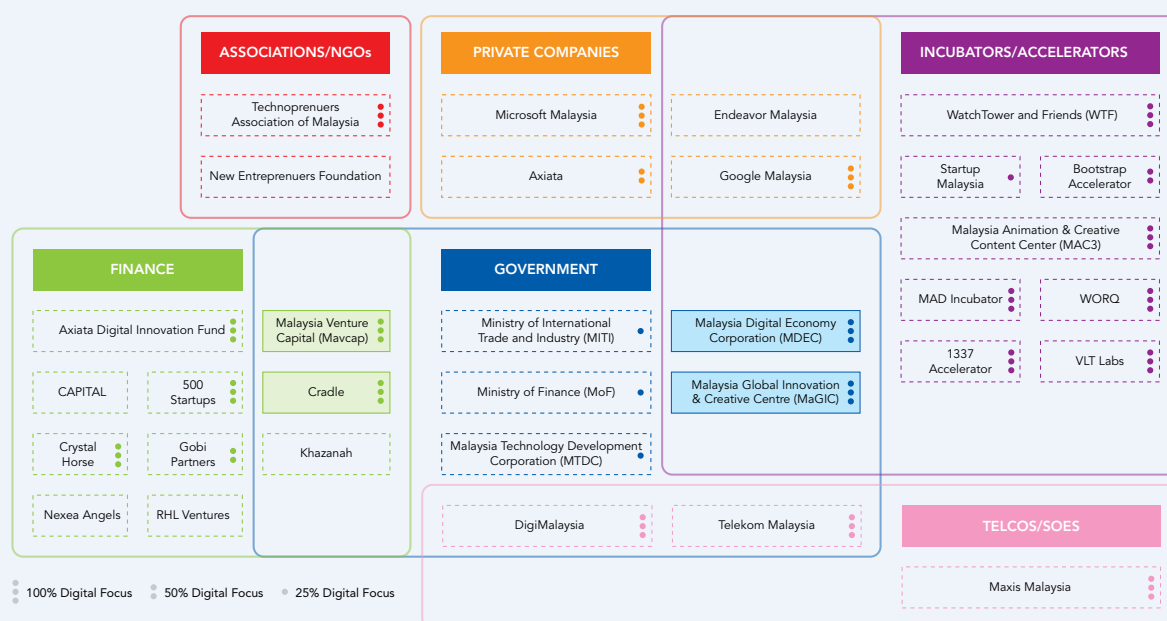
¹⁵⁸ Global Entrepreneurship Monitor, Global Report 2017/18, 2018, pp. 32–33, 78, 118–120, <http://www.gemconsortium.org/report>. Of those engaged in early-stage entrepreneurial activity, 20 percent were ages 18–24, 27 percent were ages 25–34, 22 percent were ages 35–44, 21 percent were ages 45–54, and 10 percent were ages 55–64.

¹⁵⁹ Selected entrepreneurs, interview with the Malaysia Digital Economy Team, April 2017.

to mimic the “Silicon Valley” model of high-tech agglomeration.¹⁶⁰ Since then, the government has intervened regularly with regulations, initiatives, programs, and funding to promote the fledgling industry. Malaysia is party to the Berne and Paris Conventions, which guarantee intellectual property rights, and signatory to the Agreement on Trade Related Aspects of Intellectual Property Rights, which introduced intellectual property law to the international trading system and specifies enforcement, remedy, and resolution procedures for disputes.¹⁶¹ It has also been responsible for much of the deal flow in the country, building a pipeline of viable digital entrepreneurs. And it continues to launch initiatives, with a Financial Technology Regulatory Sandbox (Box 4.1) and DFTZ (Box 2.1) the most prominent among them in the last two years. Currently, 6 ministries and 12 agencies support entrepreneurship.¹⁶² Three sit at the center of the digital entrepreneurship ecosystem: MDEC, MaGIC, and the Cradle Investment Program (Figure 4.2).

FIGURE 4.2 A wide range of institutions are involved in promoting digital entrepreneurship

Malaysia's Digital Entrepreneurship Ecosystem Map



Source: Authors' elaboration based on interviews and desk research.

Note: This is not an exhaustive list of all the organizations supporting entrepreneurship in Malaysia.

Malaysia has also pioneered steps to promote inclusivity through award-winning digital entrepreneurship programs such as eUsahawan and eRezeki. These programs are intended to enable those in lower income groups to take advantage of potential business opportunities created by the gig or sharing economy (Box 4.2).

160 MDEC, "About MDEC", 2018, <http://www.digitalmalaysia.my/about-mdec/corporate-profile>.

161 Paris Convention for the Protection of Industrial Property, "Paris Notification No. 120: Accession by Malaysia," June 24, 1988, http://www.wipo.int/treaties/en/notifications/paris/treaty_paris_120.html; Berne Convention for the Protection of Literary and Artistic Works, "Berne Notification No. 130: Accession by Malaysia," June 29, 1990, http://www.wipo.int/treaties/en/notifications/berne/treaty_berne_130.html. Malaysian Investment Development Authority, "Intellectual Property Protection," 2018, <http://www.mida.gov.my/home/intellectual-property-protection/posts/>. Also see: World Intellectual Property Organization, "Malaysia," WIPO Lex, <http://www.wipo.int/wipolex/en/profile.jsp?code=MY>.

162 MaGIC, presentation made to Malaysia Digital Economy team, June 2017.

BOX 4.1

Malaysia's Financial Technology Regulatory Sandbox

In October 2016, Bank Negara Malaysia (BNM) established the Financial Technology Regulatory Sandbox. This sandbox allows fintech business models and products to be tested in a live environment within specified parameters and timelines that is both conducive to innovation but contained against risk. The three key components of the sandbox are (i) to ensure only credible applicants and projects are processed and approved for sandbox deployment; (ii) to reduce risk and contain the consequences of failure and (iii) to enable solutions that are granted regulatory flexibilities to be tested in a contained environment. To be eligible, the product must have clear potential to improve accessibility, efficiency, security, or quality of financial services, improve management of risks, or address gaps in the economy's access to capital. The applicant must also have a realistic business plan and adequate resources to conduct the test.

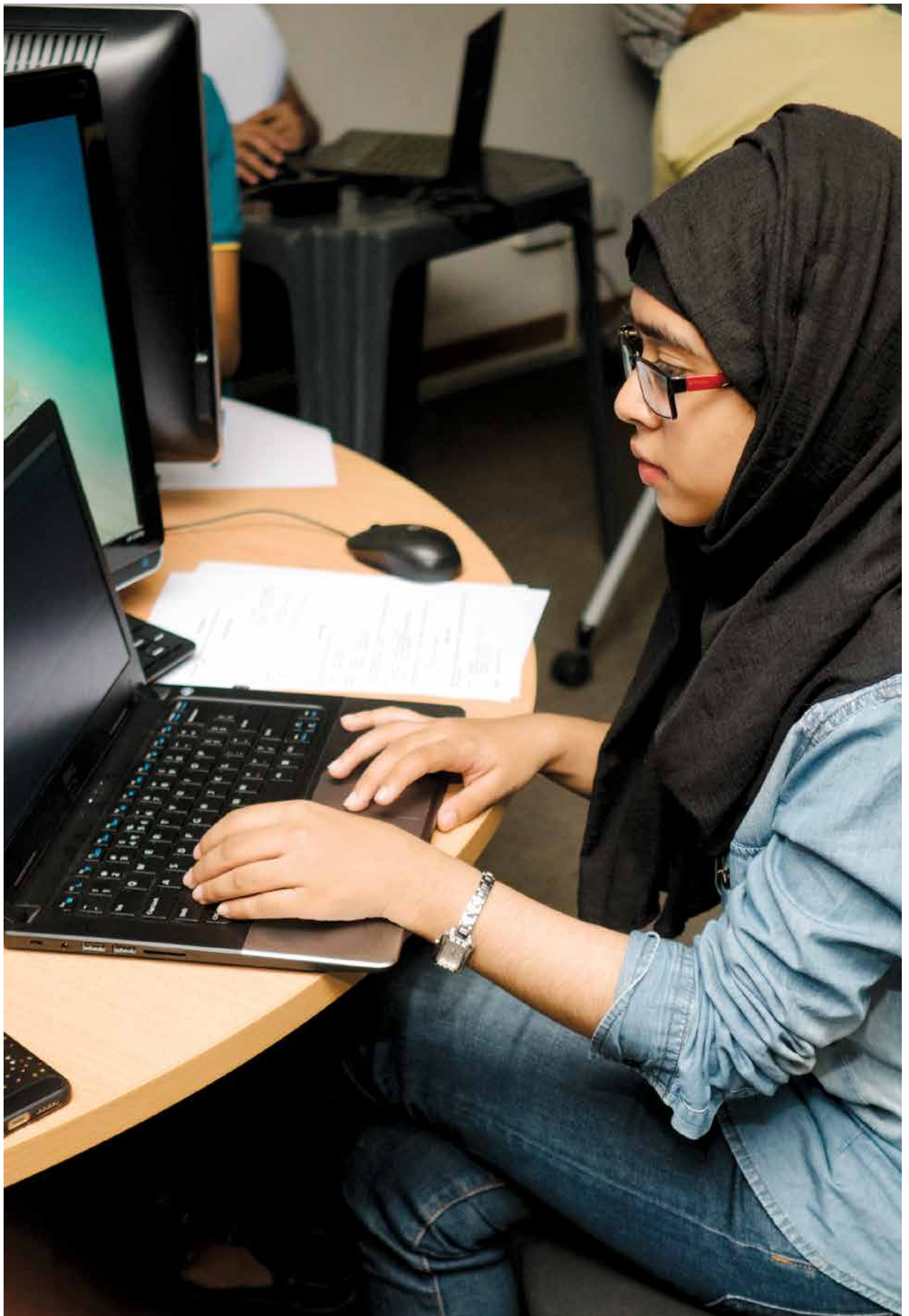
The sandbox allows for the review and revision of regulations that would inhibit innovation or make technologies non-viable in the marketplace. The sandbox cannot be used to circumvent existing regulations, and is not suitable for activities or solutions that are already allowed under existing regulations. Testing periods are limited to one year but can be extended if the innovation is promising and specific issues or risks need to be resolved. Other safeguards include disclosure of the

potential risks to participating customers, limiting the number of customers and restricting them to a certain segment or profile, limiting the aggregate value and frequency of transactions, and providing a customer redress mechanism that includes possible financial compensation.

The success or failure of the innovation is judged on a combination of reviews and performance assessment supervised by BNM. The framework requires interim reports to cover performance, fraud or operational incidents, and steps taken to resolve those problems. The final report is required to detail key outcomes, performance, and an assessment of how the innovation fared against the test, as well as a full account of incident reports, resolutions of customer complaints, and lessons learned if the innovation failed the test. If the test is successful, it can be introduced to a wider market if it is licensed and approved under existing laws. But if the test is not successful, or if the innovation has unintended negative consequences, BNM may prohibit deployment.

In 2017, BNM accepted six participants to the financial technology regulatory sandbox. They include a mix of financial advisor, insurance aggregator, remittance platform, and "know your customer" verification technologies.

Source: Bank Negara Malaysia, Financial Technology Regulatory Sandbox Framework, October 16, 2016; Financial Technology Enabler Group, "List of approved participants in Regulatory Sandbox," <https://www.myftteg.com/approved-participants-in-sandbox>.



BOX 4.2

Fostering Digital Inclusivity Through Malaysia's eRezeki and eUsahawan Programs

In 2015, the eRezeki and eUsahawan initiatives were launched to facilitate the greater involvement of key communities in the digital economy, including youth, micro-SMEs, digital entrepreneurs, and individuals with incomes in the bottom 40 (B40) of the distribution. The objective of the eRezeki initiative is to provide members of B40 communities with the opportunity to earn additional income by leveraging digital technologies. The eUsahawan initiative is a digital entrepreneurship program intended to mainstream digital entrepreneurship education among emerging and current micro-entrepreneurs through a community-centric approach.

The eRezeki initiative has three major strategies. The first strategy is to identify and establish collaboration between local and international digital platforms to secure and channel various tasks or work that can be performed by Malaysian workers. The activities fall into three categories: simple digital micro-tasks, digitally-enabled tasks, and digital work. The second strategy is to conduct outreach to targeted communities to profile and match them to suitable work. The participants use participating partners' platforms to perform actual tasks to earn income. Third, eRezeki functions as an intermediary platform to link participants with tasks aggregated from local and international platforms through an open application public interface. The model adopted by the eRezeki program and its implementation

has attracted international attention and recognition. In a similar fashion, the Global Online Workforce (GLOW) program — an offshoot of the eRezeki program — was introduced to prepare the country's workforce to respond to the global trend towards the increased use of independent contractors and freelancers.

The eUsahawan program focuses on improving educational services, particularly those related to digital entrepreneurship, since a lack of skills in this area has been identified as one of the most significant causes for Malaysia's digital divide. A structured digital entrepreneurship curriculum is being rolled out in public tertiary education institutions, including technical and vocational education and training colleges, institutions of higher learning, and entrepreneur development agencies. The initiative targets students and micro-entrepreneurs. It covers key digital technology trends that are reshaping businesses today, including social media marketing, mobile commerce, analytics, e-payment, and digital advertising. By establishing and facilitating a structured curriculum, the impact of eUsahawan is intended to facilitate sustainable reach to wider segments of society.

A network of educational institutions and strategic partners has been established to strengthen the eUsahawan ecosystem. The eUsahawan curriculum is integrated into the official curriculum of 19 educational institutions.

Source: MDEC, interviews with Malaysia Digital Economy Team, April 2018.

TABLE 4.1 eUsahawan is reaching a growing number of people in Malaysia

Recommendation, by type, with international examples

Outcome	2015	2016	2017
People trained	3,108	51,203	102,269
Reported sales	2,441	19,481	27,048
Additional sales generation (RM million)	3.7	54.3	233.9

Source: MDEC.

Lecturers at these institutions have received eUsahawan training to enable them to teach both enrolled students and micro-entrepreneurs. In addition, eUsahawan collaborates with 63 strategic partners to scale up initiatives such as advisory services, outreach efforts, on-boarding, trainer mobilization, training implementation, and training facilities.

Since 2015, more than 160,000 students and micro-entrepreneurs have passed through the eUsahawan program. Out of these, approximately 30 percent of participants have reported generating additional sales, with the value of these sales totaling more than RM 320 million over a period of 3–6 months. To date, more than 2,800 participants have on-boarded various eCommerce platforms (Table 4.1).

More recently, eUsahawan has extended its efforts to integrate its curriculum with the Prisons Department. As a result, the program is now being deployed at the Henry Gurney Schools and Sekolah Integriti (schools for young offenders and juvenile delinquents). In addition, the program has also been extended to parolees to help facilitate their reintegration into society. A pilot is being conducted with the Malaysian Association for the Blind to teach visually-impaired individuals how they can leverage digital platforms to establish or expand business activities.

MDEC is the lead agency tasked with building the digital economy in Malaysia. The agency's mandate is to attract investors and promote local technology companies, catalyze the digital ecosystem, build critical enablers of the digital economy, and drive inclusive adoption of technology.¹⁶³ In 1996, MDEC established the Multimedia Super Corridor (MSC), a 15 km by 50 km corridor from the Kuala Lumpur city center to the airport that includes Putrajaya and Cyberjaya. The MSC was meant to consolidate and manage digital development in the country. Today, companies must still be located in the corridor to receive all the benefits of the program, but MSC Malaysia Status refers more generally to a set of guarantees and incentives that includes exemptions from local ownership rules, employment of foreign knowledge workers, freedom to source capital globally, tax breaks, and eligibility for R&D grants.¹⁶⁴ This can be conferred on firms in any location. More than 3,000 local and foreign firms have registered.¹⁶⁵

MaGIC was created to nurture entrepreneurs who are seeking support and entry to the Southeast Asian market. Established in October 2013 under the Ministry of Finance, MaGIC is based in Cyberjaya. It offers numerous programs, including training to help entrepreneurs, entrepreneurship conferences, accreditation programs, and a partnership with Stanford University's innovation and entrepreneurship program.¹⁶⁶ MaGIC's flagship program, the Global Accelerator Program, is the largest in the region, and is intended to make startups "investment ready" in four months. The first cohort comprised 77 startups, including 52 for-profit enterprises focused on ASEAN and 25 social enterprises working in Malaysia. Among the for-profit startups, 60 percent were from Malaysia; others came from Cambodia, Indonesia, Philippines, Singapore, Thailand, The United States, Uruguay, and Vietnam. Sectors included agriculture, clean tech, e-commerce, gaming, and security. The social enterprises were all Malaysian, and addressed social and environmental issues. The program offers mentorship, training, work space, stipend, and housing. Weekly seminars are coupled with advising and business development opportunities. The program does not provide funding, but MaGIC provides links to market partners including Axiata and Maybank.¹⁶⁷

Cradle is the government's primary mechanism to provide funding to Malaysian entrepreneurs at the seed stage, and has been instrumental in creating a business-building environment for technology entrepreneurs. Founded in 2003 by the Ministry of Finance, Cradle is mandated to support potential and high-growth technology start-ups through its Cradle Investment Program (CIP). The CIP provides a conditional grant and value-added assistance up to RM 300,000. Cradle has funded more than 700 start-ups over its life, and has the highest commercialization rates among government grant programs. More recently, it established a venture arm and began making equity investments.¹⁶⁸ With these activities, Cradle is largely responsible for creating the critical mass of deal flow in the country.¹⁶⁹ In addition to funding, Cradle also provides coaching to technology companies that are majority Malaysian owned through its Coach and Grow Program. Since 2011, more than 400 entrepreneurs have received coaching through the program from fellow entrepreneurs or industry experts on how to design and implement strategies to obtain early adopters and first revenues, achieve sustainability, and navigate uncertain markets.¹⁷⁰ According to the Economic Planning Unit, Cradle will continue its role in providing targeted grants, equity, co-funding, commercialization support, and coaching to accelerate the growth of start-up companies.¹⁷¹

163 MDEC, "Championing Malaysia's Digital Economy," 2017, <https://www.mdec.my/about-mdec/corporate-profile>.

164 MDEC, "MSC Malaysia Bill of Guarantees," 2017, <https://www.mdec.my/msc-malaysia/bill-of-guarantees>.

165 MDEC, "MSC Malaysia Directory," 2017, <https://www.mdec.my/directory/msc-malaysia-directory>.

166 MaGIC, "Programs," 2018, <https://mymagic.my/programs/>.

167 Judith Balea, "MaGIC Accelerator Program Accepts 77 Startups, Becomes Largest in Region," *TechInAsia*, July 28, 2015, <https://www.techinasia.com/magic-accelerator-program-batch-1>.

168 Crunchbase, "Cradle Fund Sdn Bhd (Cradle)," 2018, <https://www.crunchbase.com/organization/cradle-fund#section-overview>.

169 Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

170 Cradle, "Coach and Grow Programme," 2015, <https://www.cradle.com.my/about/coach-and-grow-programme/>.

171 Economic Planning Unit, comments provided to the Malaysia Digital Economy Team, July 2018.

Improving coordination between the myriad activities of MDEC, MaGIC, and Cradle could help maximize returns and improve the likelihood of the government's goals being achieved. MDEC, MaGIC, and Cradle support digital entrepreneurs with similar offerings, but there is little guidance about which program might be preferable in a given circumstance. For example, Cradle's Coach and Grow Program shares objectives and intended beneficiaries with MaGIC's Distro Dojo. This lack of coordination and overlap in portfolios has resulted in a duplication of efforts and a paradoxical gap in offerings. More generally, the flurry of activity in the country reportedly feels disconnected at times from the needs of the entrepreneurship ecosystem.

Human Capital

Human capital constraints are Malaysia's biggest barrier to fully developing the digital economy.

Numerous studies have identified the lack of digital skills as a critical barrier to economic transformation.¹⁷² Antiquated curricula means the mass of secondary and tertiary graduates are not taught the skills necessary to thrive in the digital economy. Meanwhile, "brain drain" results in some of the most qualified leaving the country. The New Economic Model, released in 2010, identified the country's inability to create and retain talent as a key challenge to overcome in its goal to double per capita income by 2020.¹⁷³ According to the National SME Development Council, SMEs and startups face difficulties in recruiting and retaining skilled workers at the technical, supervisory, and managerial levels.¹⁷⁴ Highly skilled technical talent is often difficult, if not impossible, to find in the local market.¹⁷⁵

Malaysia's education system has not been successful in preparing adequate numbers of graduates for its high-tech export industries, let alone the increasing demands of the digital economy.

All higher order skills require basic literacy and numeracy. On average, students perform about as well as would be expected given Malaysia's per capita income, but performance is considerably lower than Malaysia's regional competitors (Figure 4.3). Student outcomes are also very unequal. States with a higher proportion of rural schools, including Sabah and Sarawak, perform worse than more urban states. Socioeconomic status is even more influential, with students from poor families performing much worse on average.¹⁷⁶ The share of the population that has attained at least a secondary level of education has increased dramatically since independence to nearly 79 percent of the population in 2010, the latest year for which data are available. This level of educational attainment is comparable to the Republic of Korea in 1990 or the OECD average in 2000, and greatly exceeds the ASEAN average of 53 percent in 2010 (Figure 4.4).¹⁷⁷ But enrolment in science, technology, engineering, and mathematics (STEM) programs has never reached the government's target of 3 students for every 2 in the Arts, and has even declined in recent years. The Ministry of Science, Technology, and Innovation estimates there will be a shortfall of 236,000 scientists and engineers by 2020. STEM is perceived to be more difficult than Arts subjects, curriculum is content-heavy and leaves little room for student creativity, and many schools lack the requisite equipment and facilities.¹⁷⁸ Meanwhile, technical and vocational education and training (TVET) is unpopular with students and industry alike.¹⁷⁹ Employers consistently report a gap between the knowledge, skills, and attitudes of graduates and what the workplace requires.¹⁸⁰

172 World Bank, Malaysia Economic Monitor: Data for Development, June 2017, pp. 45–46.

173 National Economic Advisory Council, New Economic Model for Malaysia, 2010, pp. 54–56, <http://www.epu.gov.my/sites/default/files/nem.pdf>.

174 OECD, "Structural Policy Country Note: Malaysia," 2013, <https://www.oecd.org/dev/asia-pacific/Malaysia.pdf>.

175 Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

176 Education Blueprint, p. E-7.

177 Robert J. Barro and Jong-Wha Lee, "Data sets on long-run enrollment ratios and educational attainment," 2016, <http://www.barrolee.com/>.

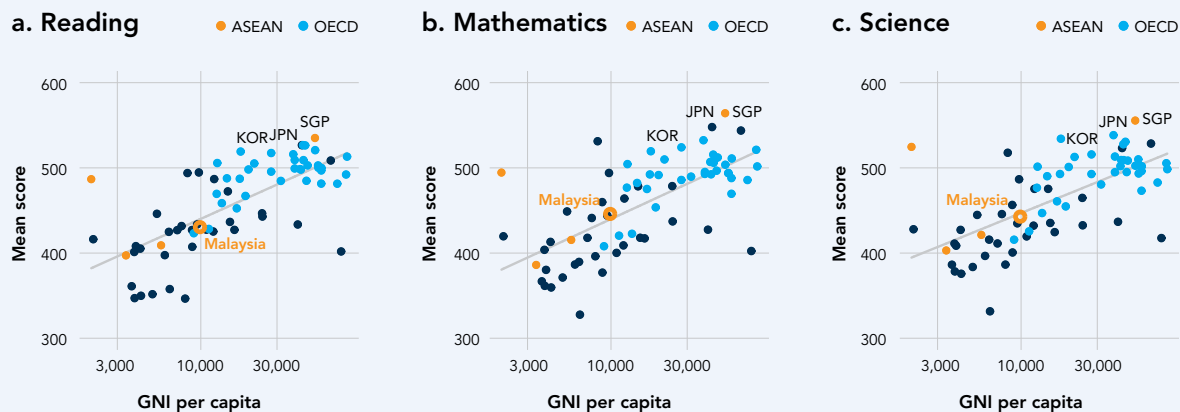
178 Ministry of Education Malaysia, Malaysia Education Blueprint 2013–2025, 2013, pp. 4-7–4-8.

179 Economic Planning Unit, Eleventh Malaysia Plan, 2016–2020, p. 5-10.

180 World Bank, Productivity Unplugged – The Challenges of Malaysia's Transition to a High-Income Country, June 2018, <http://openknowledge.worldbank.org/handle/10986/29869>.

FIGURE 4.3 Malaysia underperforms its regional competitors in foundational skills

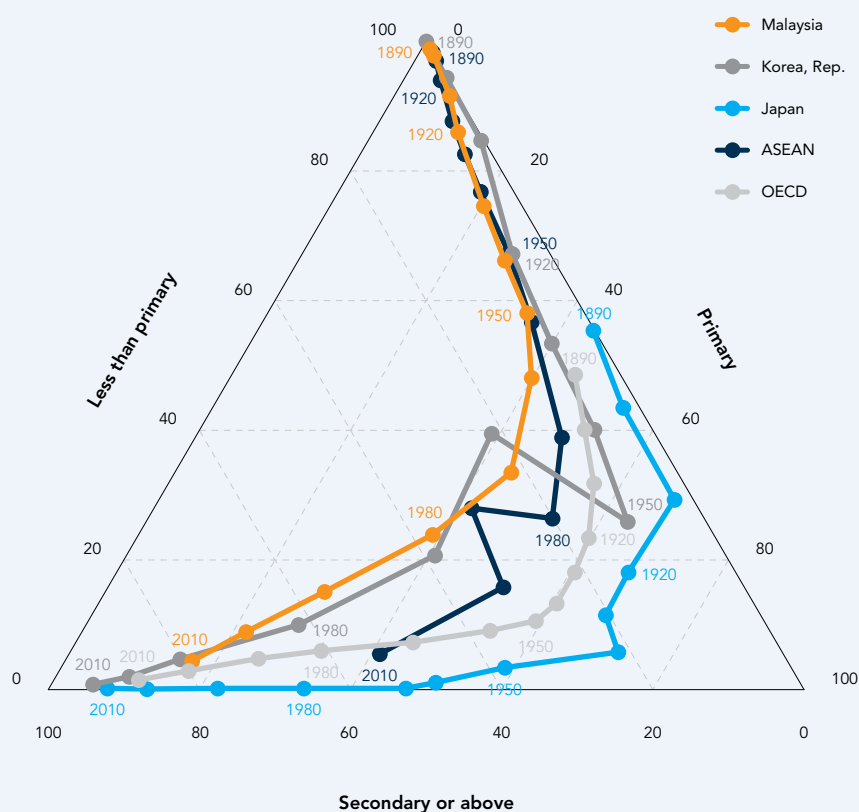
Mean scores on the PISA exam for reading, mathematics, and science, by country



Source: OECD 2016; WDI 2018.

FIGURE 4.4 Malaysia has rapidly expanded secondary education since independence

Evolution in the stock of educational attainment (ages 15–64), by selected country and present-day country groups (1890–2010)



Source: Barro and Lee 2016.

Note: Values for ASEAN and OECD reflect decennial averages for the country groups' current members.

Brain drain — the emigration of the country’s most educated and skilled citizens — is a major contributor to the shortage of talent. According to the UN, more than 1.83 million people born in Malaysia lived outside the country in 2015. Singapore was the primary destination (61 percent), followed by Bangladesh (13 percent) and Australia (9 percent).¹⁸¹ One-third of emigrants are high skilled, representing approximately 20 percent Malaysians with a tertiary degree. Conversely, most immigrants to Malaysia are low skilled.¹⁸² According to a survey of the Malaysian diaspora, career opportunities and compensation were major reasons for leaving the country. But a majority also cited social injustice, which is exacerbated by the privileges granted to the majority bumiputra — ethnic Malays and natives of Sarawak and Sabah. As a result, emigration has taken a strongly ethnic dimension. Most Malaysian emigrants — including 90 percent to Singapore — are of Chinese descent, despite comprising only one-fifth of the population.¹⁸³

In the short term, Malaysian startups can recruit talent from abroad. MDEC’s MSC status affords an expedited immigration process for skilled workers, which makes importing talent a widespread practice among Malaysia’s digital startups.¹⁸⁴ The educated Malaysian diaspora could fill the skills gap and help expand the economy if they can be lured back. Governments in emerging economies around the world are implementing programs and initiatives to re-engage their diaspora population, including China and India.¹⁸⁵ Talent Corporation Malaysia Berhad (TalentCorp), under the Prime Minister’s Department, aims to do the same through a variety of programs and incentives such as the Returning Expert Program (REP), which targets high-skilled Malaysian citizens. The program provides financial and other incentives, including a 15 percent flat income tax for five years and permanent residency for foreign spouses and children. Between 2011 and 2016, 4,121 Malaysians returned through REP.¹⁸⁶

In the medium to long term, the Malaysian government needs to work with the private sector to reform the education system to ensure graduates have the appropriate skills. The Education Blueprint calls for upgrading science equipment and facilities in primary and secondary schools, tracking progress by expanding mathematics assessments at grade 4, and promoting STEM with science fairs and camps during 2016–2020.¹⁸⁷ MDEC’s #mydigitalmaker includes the deployment of a range of train-the-trainer programs to upgrade the skillsets of Malaysia’s 400,000 educators.¹⁸⁸ School curriculums are being progressively revised to include modernized coverage of ICT, starting with primary schools in January 2017. The Eleventh Malaysia Plan puts special emphasis on TVET and lifelong learning. It estimates the demand for skilled labor will require expanding TVET intake from 164,000 in 2013 to 225,000 in 2020. Quality needs to increase commensurately, and the plan proposes collaborating with industry in curriculum design and job placement. Tying TVET to digital entrepreneurship, which is viewed favorably by the public, could help rebrand it as a favorable option.

Meanwhile, lifelong learning — especially through industry-based training programs — can help Malaysians already in the workforce upskill for more rewarding jobs in the digital economy. MaGIC’s Go2Market program, for example, helps incubate entrepreneurs and establish businesses. And the plan proposes introducing entrepreneurial skills across the curriculum to instill a “job creator” mindset and eliminating programs that are irrelevant to industry demands.¹⁸⁹ In addition to setting expectations, helping the government improve curricula, and working with TVET programs for job placement, the private sector can

181 UNDESA, Migration Profiles Common Set of Indicators: Malaysia, 2015, <https://esa.un.org/MigGMGProfiles/indicators/indicators.htm>.

182 World Bank, Malaysia Economic Monitor: Brain Drain, April 2011, pp. 12–13.

183 World Bank, Malaysia Economic Monitor: Brain Drain, April 2011, p. 125.

184 MyCashOnline, MoneyMatch, and representatives from anonymous companies, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

185 The Thousand Talents Plan, “The Recruitment Program for Innovative Talents (Long Term),” 2010; Government of India, “Overseas Citizen of India Cardholder,” not dated, <https://passport.gov.in/oci/>.

186 TalentCorp, “Returning Expert Programme,” <https://www.talentcorp.com.my/rep>.

187 Ministry of Education Malaysia, Malaysia Education Blueprint 2013–2025, 2013, p. 4-9.

188 MDEC, comments provided to the Malaysia Digital Economy Team, August 2018.

189 Economic Planning Unit, Eleventh Malaysia Plan, pp. 5-23–5-28.

act directly to increase skills in its domestic labor pool. The Coding Shophouse, for example, is a startup that offers affordable courses in coding to help youth gain the skills to compete in the digital economy.¹⁹⁰ Several multi-national companies also offer training, including Google's Ignite Program, which works with universities to provide thousands of students digital marketing skills.¹⁹¹ It is still too early to tell if the government can implement these plans effectively, and improving education outcomes will take years. But the government is committing resources. The 2018 budget, for example, allocated RM 250 million for teacher training in STEM and coding and RM 190 million to create 2,000 "smart classes" in schools. It also mandated the introduction of coding curriculum in primary schools.¹⁹² Introducing an internationally comparable adult skills assessment, like the OECD's Program for the International Assessment of Adult Competencies could help monitor progress.

Finance

Access to capital is a major constraint to growth for businesses in Malaysia. According to the World Bank Enterprise Survey, more than half of the firms ranked access to capital as a moderate to very severe problem; the only developing country in the region for which data is available where the figure exceeds 35 percent (Figure 4.5, panel a).¹⁹³ This barrier does not depend on firm characteristic. Firms that are foreign owned, larger, and older have slightly less difficulty accessing capital. But in all cases, Malaysian firms report greater difficulties than foreign firms (Figure 4.5, panel b). Similarly, the World Economic Forum's Executive Opinion Survey identified access to capital as the biggest obstacle to doing business in Malaysia.¹⁹⁴

It is relatively easy for startups in Malaysia to access financing during the pre-seed and seed stages due to the robust government mandate to support entrepreneurship. Several government programs have been established to provide grants and seed funding to new startups or to help them develop their products and connect them with private-sector investors, most notably Cradle and MaGIC. Private-sector angel investors and angel clubs also operate in this space, but require equity for their investment. They include 1337 Ventures, Nexea Angels, Emtek, and others that can be accessed through the Malaysian Business Angels Network, the governing body for angel investors in Malaysia.¹⁹⁵

The shortage of financing becomes acute during firms' early growth stage, when venture capital firms would normally become predominant. The Ministry of Finance structured programs to fund specific growth stages, with Cradle providing grants at the seed technical and vocational education and training stage and the Malaysia Venture Capital Management Berhad (MAVCAP) focusing on venture capital. Since then, the government has increased its support. Most recently, the 2018 Budget allocated RM 1 billion for startups and introduced a new tax deduction of up to RM 20 million to encourage companies and individuals to invest in venture capital funds.¹⁹⁶ But government aid cannot substitute for the expertise and mentorship venture

190 The Coding Shophouse, "About Us," 2018, <http://thecodingshophouse.com/>.

191 Google, "Google Ignite," 2017, <https://www.google.com.my/landing/ignite/index.html>.

192 MDEC, "MDEC 2018 National Budget Commentary," October 27, 2017, <https://mdec.my/blog/?p=70>.

193 World Bank, Enterprise Surveys, 2012–2016.

194 World Economic Forum, Global Competitiveness Index 2017–2018, Country/Economy Profiles, "Malaysia," <http://reports.weforum.org/global-competitiveness-index-2017-2018/countryeconomy-profiles/#economy=MYS>

195 Malaysian Business Angel Network, "MBAN at a glance," 2017, <http://mban.com.my/>.

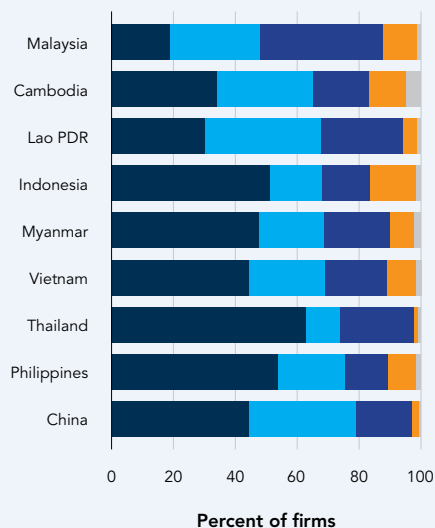
196 MDEC, "MDEC 2018 National Budget Commentary," October 27, 2017, <https://mdec.my/blog/?p=70>.

capital would bring. There were 61 registered venture capital firms in Malaysia as of March 2018, each with varying levels of activity — the same number as was registered in June 2016.¹⁹⁷ And most private-sector firms investing in growth-stage entrepreneurs in Malaysia are not based in the country (Figure 4.6).¹⁹⁸ In contrast, there were 593 investors residing in Singapore, including at least 50 well-regarded venture capital firms, with another 6,000 foreign investors expressing interest in the market.¹⁹⁹

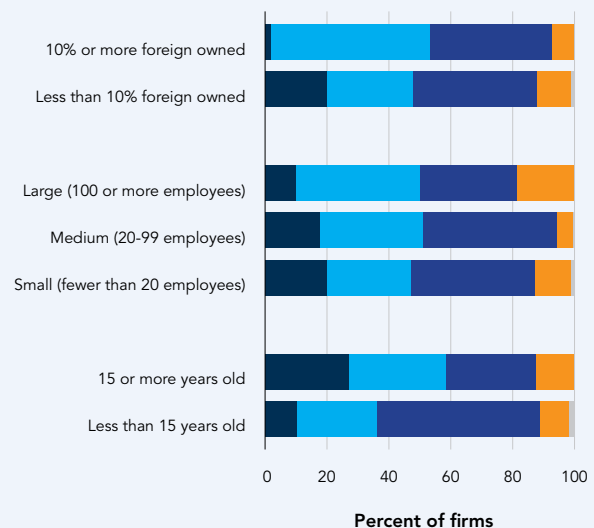
FIGURE 4.5 Access to capital is a moderate to very severe problem for more than half of firms in Malaysia

Severity of problems with access to capital, by country in the region and by firm characteristic in Malaysia

a. Regional, by country



b. Malaysia, by firm characteristic

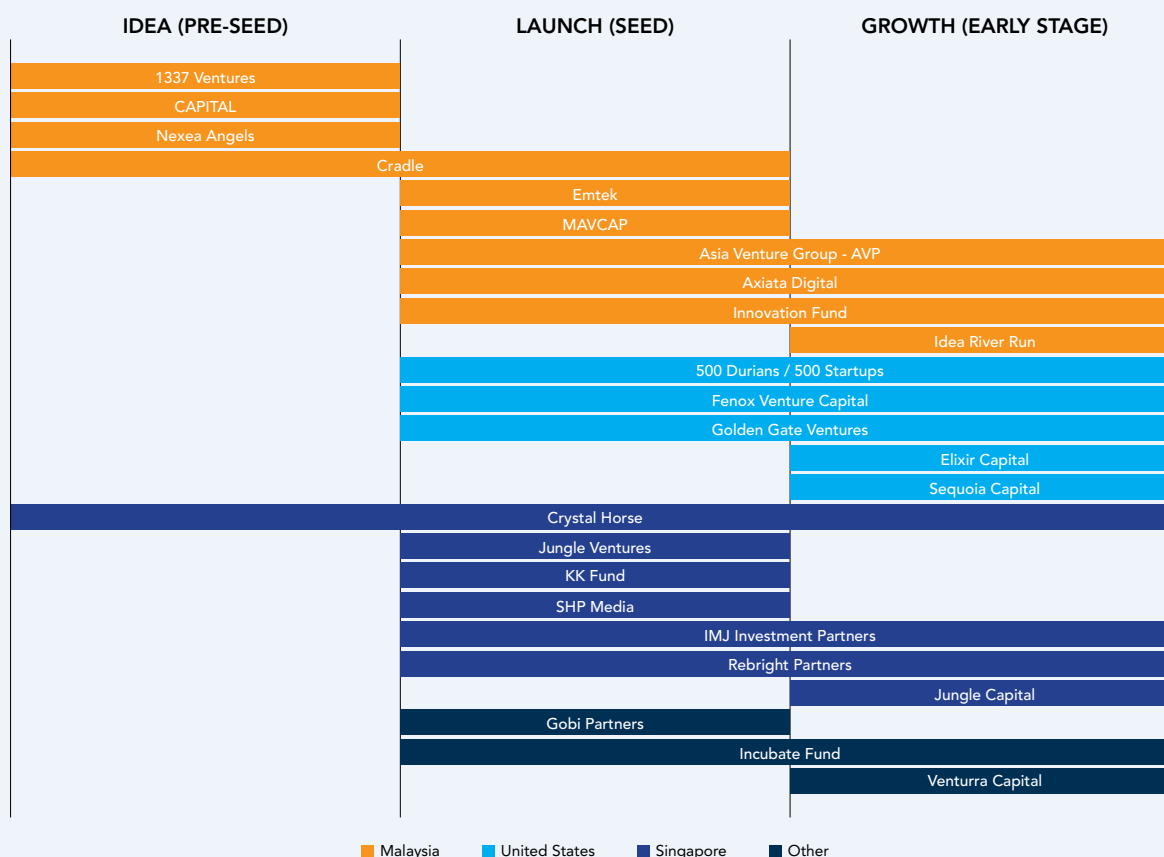


Source: World Bank 2012–2016.

- 197 Securities Commission of Malaysia, "List of Registered Venture Capital Management Corporations as of March 31, 2018," 2018, <https://www.sc.com.my/wp-content/uploads/eng/html/licensing/LoLI/VCMC.pdf>; Securities Commission of Malaysia, "List of Registered Venture Capital Management Corporations as of June 30, 2018," 2016, <https://www.sc.com.my/wp-content/uploads/eng/html/licensing/LoLI/RVCMC.pdf>; Malaysia Venture Capital & Private Equity Association, "Statistics," 2018, <http://www.mvca.org.my/statistic/statistics>.
- 198 Shuant Goh, "Your Ultimate Guide to Startup Financing in Malaysia," Coworking Space Penang, July 19, 2017, <http://acatpenang.com/your-ultimate-guide-to-startup-financing-in-malaysia/>.
- 199 Terence Lee, "A List of Venture Capital Firms in Singapore," Tech in Asia, February 10, 2016, <https://www.techinasia.com/directory-of-early-stage-venture-capital-seed-funds-and-angel-investors-for-startups-in-singapore/>; Editorial Team, "50 Best Venture Capital Firms in Singapore: 2018," DrWealth, December 28, 2017, <https://www.drwealth.com/venture-capital-singapore/>.

FIGURE 4.6 Most firms financing early-stage growth are based abroad

Investment firms operating in Malaysia, by stage of growth and domicile



Source: Goh 2017.

Note: Figure is representative, but not exhaustive, of the firms investing in Malaysia.

New initiatives that provide alternative forms of financing are on the rise, but supply still falls short of demand. In 2016, the Securities Commission licensed six crowdfunding platforms, but only three have made it to market. A well-known example is PitchIn, which launched in 2012 using rewards-based crowdfunding. In 2016, PitchIn introduced an equity model that raised \$300,000 in a single day for MyCashOnline, a startup that enables Malaysian migrants to top-up mobile phones, buy bus tickets, and send remittances.²⁰⁰ Corporations are also taking interest. For example, Auto Parts Manufacturer, a Malaysian company, bought 52 percent of shares in Omniatics, an information technology company that produces a “dongle” that connects an automobile’s on-board diagnostics port to the cloud via GSM or the driver’s mobile phone to monitor diagnostics and driver performance.²⁰¹ The arrangement makes Omniatics a subsidiary of Auto Parts, while allowing Watchtower Friends, the initial investor, to keep a stake in the company.²⁰² Finally, Islamic Finance is emerging as both a source of financing for digital entrepreneurs and a domestic innovation in itself (Box 4.3). Still, the domestic supply of financing does not satisfy the demand, and most entrepreneurs get financing from abroad — usually from Singapore.²⁰³

200 Tech in Asia, “Malaysian Tech Startup Shoots Through Equity Crowdfunding Goal in 24 Hours,” June 16, 2017, <https://www.techinasia.com/mycash-online-equity-crowdfunding>.

201 Omniatics, “Cardio,” 2017, <https://omniatics.io/products/>.

202 APM Automotive Holdings Berhad, “Subscription for Shares in Omniatics Sdn Bhd,” December 28, 2016, <http://apm.listedcompany.com/news.html/id/561869>.

203 Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

BOX 4.3

Islamic Finance and the Digital Economy

Islamic finance, which complies with Shariah law and emphasizes mutual risk and profit sharing between parties, is projected to reach \$3 trillion in total assets with 1 billion users by 2020. Malaysia has emerged as one of the global leaders, with more than half of outstanding sukuk (Islamic bonds) and more than one-third of Islamic funds domiciled in the country. The Association of Islamic Banking Institutions Malaysia, founded in 1996, currently has 26 members: 11 domestic banks, 5 development financial institutions, 9 locally incorporated foreign banks, and 1 international financial institution. And Malaysia hosted the 2016 Global Finance Forum, where a Malaysian consortium of Islamic banks introduced the Investment Account Platform, a solution that allows Islamic banks to match investors with projects in need of funding.

Dubbed “TaqwaTech,” digital innovations supporting Islamic finance are expected to expand rapidly in Malaysia over the next decade. Gobi Partners, for example, is supporting numerous startups focusing on Muslim businesses and communities, both domestic and international. These include TripFez, a fare and travel aggregator for Muslim travelers that helps them find hotels with halal, prayer mats in room, and other amenities. But obstacles remain. Mobile penetration is almost universal in the target communities, but internet is relatively less available. Moreover, many Muslim countries still lag in financial inclusion, with 7 out of 10 adults lacking access to a bank account.

Source: MIFC, “MIFC estimates,” 2018, <http://www.mifc.com/index.php>; Association of Islamic Banking Institutions Malaysia, “Member Banks,” <http://aibim.com/ver2/index.php/industry-information/member-banks>; Leora Klapper and Saniya Ansar, “Can Islamic finance boost financial inclusion?”, Brookings Institution, June 8, 2017, <https://www.brookings.edu/blog/future-development/2017/06/08/can-islamic-finance-boost-financial-inclusion/>; Bank Negara Malaysia, “Islamic Banking and Takaful,” 2018, http://www.bnm.gov.my/index.php?ch=fs_mfs&pg=fs_mfs_bank; Gobi Partners, interview with Malaysia Digital Economy Team, June 2017.

Almost all the private-sector venture capital firms operating in Malaysia have a regional or global scope, which puts Malaysia at a disadvantage to Singapore or other markets that are friendlier to investors. For example, Malaysia-based venture capital firm RHL Ventures, founded in 2016, mandates a focus on the ASEAN region to champion long-term growth and support for SMEs, aiming to fill a gap in the region for later-stage funding (series B, C, and D). But since their founding, RHL has only invested in two startups, both based outside Malaysia.²⁰⁴ Malaysia is an attractive market and performs well on most — but not all — measures of investment friendliness (Figure 4.7). But Singapore typically performs better, and its proximity diverts talent and resources. Many investors insist that entrepreneurs register or at least have holdings in Singapore, because the city-state was more familiar and offered better protections and incentives for foreign investment. In Malaysia, investments in general businesses and high-tech projects receive a 100 percent income-tax investment with an Investment Tax Allowance (ITA) of 60 percent of qualifying capital expenditure incurred within 5 years.²⁰⁵ But there are no investor protection or tax incentives targeted specifically to digital

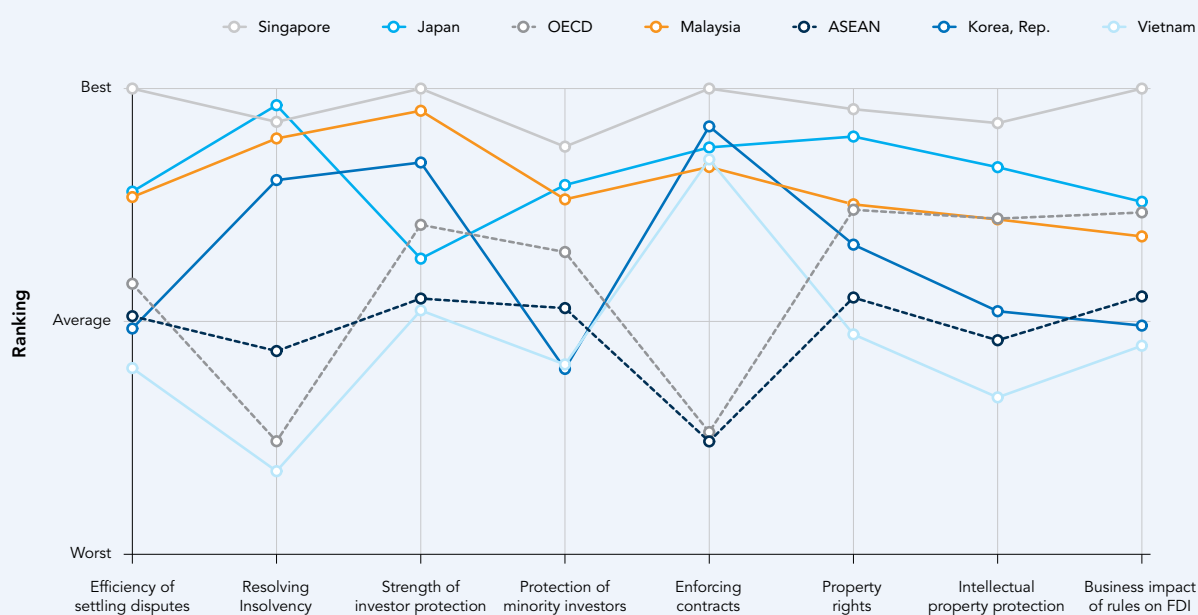
204 Bloomberg, “Rich Asian Millennials Pool Family Fortunes to Build Venture Fund,” March 3, 2017, <https://www.bloomberg.com/news/articles/2017-03-05/rich-gen-y-asian-kids-pool-family-fortunes-to-build-venture-fund>.

205 Malaysia Investment Development Authority, I-Incentives Portal, 2015. <https://incentives.mida.gov.my/Incentives/Modules/Public/IncentiveList.aspx>

startups. Meanwhile, Singapore has one of the lowest corporate tax rates in the world and offers incentives to a broader spectrum of industries, including tax holidays and concessions (such as exemption from tax, reduction in the rate of tax or subsidies), accelerated depreciation schemes, grants, and favorable loan conditions.²⁰⁶

FIGURE 4.7 Malaysia is good to investors, but Singapore still outperforms

International rankings on selected indicators of investor friendliness, 2016–2017



Sources: Doing Business 2017; WEF 2017.

The government needs to cede space to private-sector angel investors and venture capital to ensure a vibrant entrepreneurship ecosystem. To some extent, this is already underway. Recent growth in the private sector capital market has allowed the government to scale back its grant programs. But despite this progress, some stakeholders expressed concern that there was still not enough “big players” to sustain the market. Without that critical mass, private capital will continue to flow to the more mature market in Singapore to the detriment of Malaysian entrepreneurs.²⁰⁷ The best support for Malaysia’s entrepreneurship ecosystem is therefore indirect: improving the investment climate to encourage venture capital that could support niche markets where Malaysia has a comparative advantage over its regional peers.

²⁰⁶ Deloitte, “Applying for Government Incentives in Singapore: See What We See,” 2018, <https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/tax/sg-tax-applying-for-gov-incentives-in-singapore-noexp.pdf>.

Problems Specific to Digital Entrepreneurship

Finally, digital entrepreneurs are particularly affected by five obstacles: slow uptake of digital transaction technologies, evolving challenges for the protection of personal data, difficulty accessing government data, weak professional networks among digital entrepreneurs, and the absence of a national plan to develop cutting-edge technologies. These obstacles require sector-specific reforms to unlock the potential of Malaysia's digital economy.

Further adoption of digital payments will be needed

Despite encouraging progress made, increased focus is needed to widen the adoption of digital payments among certain segments of the population that continue to transact largely in cash. As of 2017, 85 percent of adults in Malaysia had an account at a financial institution (Figure 4.8). While the number of Malaysians becoming more familiar and comfortable in making digital payments is growing, there is still a segment of the population that may not yet be comfortable or skilled in using their accounts for non-cash payments. Account penetration climbed 19 percentage points between 2011 and 2017; over the same period, debit card penetration jumped from 23 percent to 74 percent. While cash is still strongly preferred, this may be changing. There has been an increase in the population that purchased goods or paid bills online. In 2017, it increased to 39 percent of the population from being less than 19 percent in 2014.²⁰⁸ According to BNM data from 2016, nearly 40 percent of the adult population were mobile banking subscribers and debit card transactions had increased 6.5 times to 162.3 million in 2017 as compared to 25.1 million in 2011.²⁰⁹ Still, some startups may have to adjust their business models to cater for certain segments of the population that prefer to transact largely in cash. To accommodate that many e-commerce sites, including the massive regional company Lazada, accept "cash on delivery."²¹⁰



207 Anonymous investor, interview with the Malaysia Digital Economy Team, April 2017.

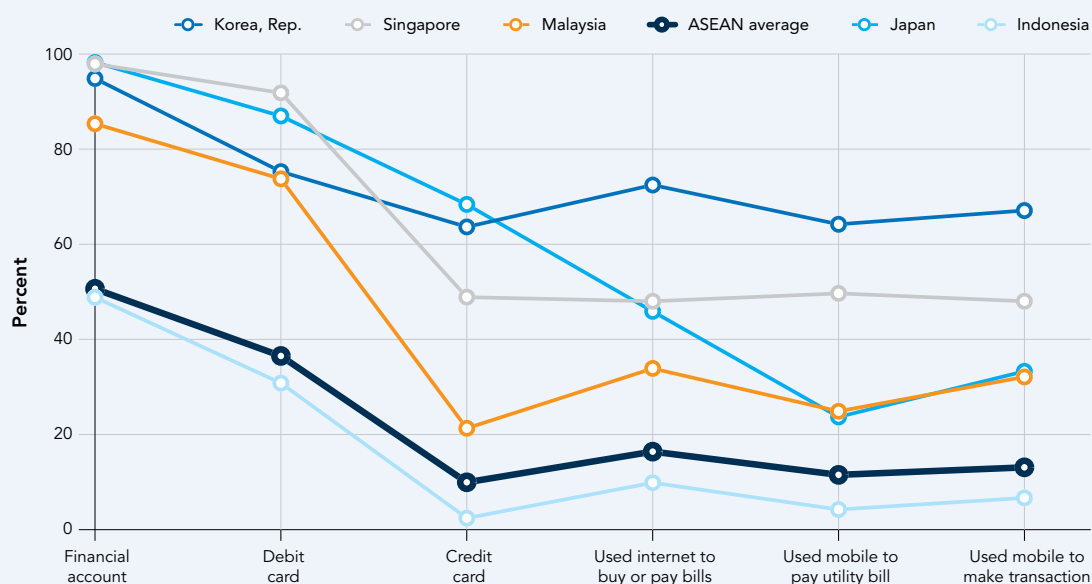
208 World Bank, "Global Findex," 2011 and 2014.

209 World Bank, Financial Inclusion in Malaysia: Distilling Lessons for Other Countries, 2017, p. 53.

210 Lazada, "How to Buy." 2018, <http://www.lazada.com.my/how-to-buy/>

FIGURE 4.8 Malaysia has high rates of financial inclusion, but relatively lower digital payments relative to high income comparators

Percent of residents (ages 15+), by measure of financial inclusion or behavior



Source: World Bank, "Findex," 2017.

Increasing the adoption of digital transactions requires overhauling regulations and adapting technologies and business practices. The government is leading the change through regulatory reforms. Bank Negara Malaysia's Financial Sector Blueprint 2011–2020 encourages the migration to electronic payments to promote economic efficiency, setting a target of 200 transactions per capita by 2020.²¹¹ Bank Negara Malaysia envisages three waves to spur migration to e-payments, firstly focusing on the displacement of cheques by electronic fund transfers, next the displacement of cash by debit cards, and thirdly the displacement of cash and cheques by mobile payments.²¹² Meanwhile, MDEC aims to increase the adoption of e-payments among SMEs as part of its multi-pronged Digital Malaysia Initiative.²¹³ Foreign firms are adapting technologies and business practices for the local context.

²¹¹ Bank Negara Malaysia, Financial Sector Blueprint 2011–2020, http://www.bnm.gov.my/index.php?ch=en_publication&pg=en_fsmp&ac=8&en.

²¹² Bank Negara Malaysia, comments provided to the Malaysia Digital Economy Team, August 2018.

²¹³ MDEC, "National eCommerce Strategic Roadmap," 2018, <https://www.mdec.my/digital-innovation-ecosystem/e-commerce/nedr>.

Ensuring adequate protections for personal data while enabling its legitimate use

Ensuring a balance between the protection of personal data and its legitimate use for commercial purposes is a central pillar in a data governance framework needed to support Malaysia's digital economy. Participation in the digital economy routinely involves the sharing of large amounts of personal data. Having appropriate safeguards in place for the protection of this data, balanced against facilitating its legitimate use by companies, is of critical importance in building citizens' trust and participation in the digital economy.²¹⁴ A legal and regulatory framework ensuring data privacy is also increasingly a requirement (in practice if not by law) for participation in cross-border aspects of the digital economy, including cloud-based services, especially given growing requirements to protect personal data in major trading partners for Malaysia, notably the European Union through the General Data Protection Regulation (GDPR).

Malaysia has the key legal and regulatory building blocks in place, notably the Personal Data Protection Act (PDPA), which was passed in 2010 and became effective in 2013. The PDPA represents a significant step towards affording greater protection of personal data and privacy in Malaysia, especially because there is no explicit right to privacy recognized in Malaysian law. The PDPA sets out requirements for the processing of individuals' personal data, including (among others) that the individual is notified and consent received; that disclosure of personal data without consent is forbidden; and that data cannot be retained longer than necessary to satisfy the original purpose for which it was collected. It also gives individuals a right (with exceptions) to access and amend their personal data held by users of the data, and also sets out liability if the data is not adequately protected. Enforcement of the PDPA is undertaken by the Department of Personal Data Protection under the Ministry of Communications and Multimedia.²¹⁵

While Malaysia's legal and regulatory framework addresses the basic data privacy requirements, it will need to continue evolving to meet future challenges as the digital economy grows. There are several exemptions from the PDPA at present (e.g. federal and state governments, credit reporting agencies) and several specific aspects of the PDPA where the Department of Personal Data Protection, through a process of public consultation, could consider providing greater clarity on implementation of the PDPA. For example, the PDPA requires that personal data is exported only to approved countries (following the EU model), but no such list has been issued, although a draft "whitelist" of countries was issued in 2017 for consultation.²¹⁶ Second, the PDPA does not require users of data to notify breaches of personal data to Malaysian authorities or the individuals whose data is affected — another important way of building trust in the use of personal data and safeguarding personal privacy. A third priority is continuing to assess the implications of EU GDPR requirements on its data privacy regime, and whether standards in the GDPR (including the "right to be forgotten" and portability of personal data) should be incorporated into Malaysia's regulatory framework. Finally, it would be in Malaysia's interests to take an active role in regional efforts to develop a more coherent approach to data privacy in Southeast Asia. ASEAN's Data Protection Framework sets a broad vision for data privacy but implementation through national laws varies considerably. Greater coherence — while difficult to achieve — would be a major benefit for both businesses and citizens, by providing greater legal clarity, and supporting the development of a regional digital economy where data can flow more freely across borders, while providing adequate privacy safeguards.

²¹⁴ World Bank, World Development Report 2016: Digital Dividends, 2016.

²¹⁵ 215 Clarisse Girod, Regulation of Cross-Border Transfers of Personal Data in Asia, Asian Business Law Institute, 2018.

²¹⁶ Hogan Lovells, "Malaysia publishes draft "White List" for personal data exports," April 27, 2017, <https://www.hoganlovells.com/publications/malaysia-publishes-draft-white-list-for-personal-data-exports>.

Limited data transparency holds growth back

To fully harness digital entrepreneurship, transparency and open data need to be prioritized. Malaysia has more restrictions on speech and open data than the OECD countries it hopes to join in high-income status. The government used the sedition act 91 times in 2015, including 11 times against a cartoonist for each time he tweeted a cartoon.²¹⁷ In 2016, Malaysia's internet censorship was described as "going from bad to worse" by the Electronic Frontier Foundation.²¹⁸ Malaysia is not a member of the Open Government Partnership, which most advanced and many emerging economies, including the Republic of Korea and Indonesia, have joined.²¹⁹ Further, Malaysia does not have a national right to information law.²²⁰ This pattern of behavior could undermine trust between the government and citizens and stifle the country's digital culture.

The government has begun to open its data, but significant barriers remain. The Malaysian Administrative Modernization and Management Planning Unit (MAMPU), a government agency charged with modernizing and reforming the public sector, has been leading the government's open data initiative since its launch in 2014. Agencies were mandated to identify datasets to share on a single open data platform according to global best practices with the goal of simplifying and improving public service delivery. Data are supposed to be shared under a license that allows users to reuse, modify, or commercialize the data.²²¹ This enables digital entrepreneurs to use it in the development of mobile applications or other products. But in practice, many datasets on the portal do not specify a data license and datasets hosted on agency websites often explicitly reserve rights to the government.²²² More importantly, early efforts were supply-driven: civil society lacked the capacity or freedom to engage with the data, the private sector was not involved, and the government did too little to encourage use or to prioritize the publication of datasets that were most in demand.²²³ MAMPU has since conducted outreach sessions and "hackathons," and in May, 2017, it published a strategy that called for engaging agencies to improve the quality and quantity of datasets, making data machine-readable, publishing the data under open license, and generally improving government transparency and accountability by 2020.²²⁴ Finally, an open data readiness assessment carried out in partnership with the World Bank found that the government's data management policies and procedures and the wider policy and legal framework remained significant barriers to meeting its goals. Redressing those deficiencies may require high-level national leadership to achieve consensus on legal and regulatory reforms. In particular, the lack of a right to information law means agencies have wide discretion in what data they publish. Many have taken a cautious approach, citing security and privacy concerns, and even data sharing between agencies is decided on a case by case basis.²²⁵

Slow progress in opening data has a cost. In many other countries, innovative digital entrepreneurs have used census, health, crime, transportation, and other data shared on government platforms to create services that have economic or social benefits for their fellow citizens. Data openness is positively correlated with per capita income.²²⁶ And greater transparency, in general, leads to a healthier investment and business climate.²²⁷ Despite the apparent benefits, it is difficult to access data in Malaysia. The country ranked in the 28th percentile on the 2017 Open Data Barometer, well below most advanced economies (Figure 4.9). According to their analysis, the government of Malaysia is more prepared than most countries to open its data, especially in terms

217 World Economic Forum, Shaping the ASEAN Agenda for Inclusion and Growth, June 1–2, 2016, http://www3.weforum.org/docs/WEF_ASEAN16_Report.pdf.

218 218 Jeremy Malcom, "Malaysian Internet Censorship is Going from Bad to Worse," Electronic Frontier Foundation, March 7, 2016, <https://www.eff.org/deeplinks/2016/03/malaysian-internet-censorship-going-bad-worse>.

219 Open Government Partnership, Participants, 2018, <https://www.opengovpartnership.org/participants>.

220 World Bank, Open Data Readiness Assessment: Malaysia, May 2017, p. 26.

221 MAMPU, "Our open data policy", May 20, 2017, <http://www.data.gov.my/article/readiness#>.

222 World Bank, Open Data Readiness Assessment: Malaysia, May 2017, p. 30.

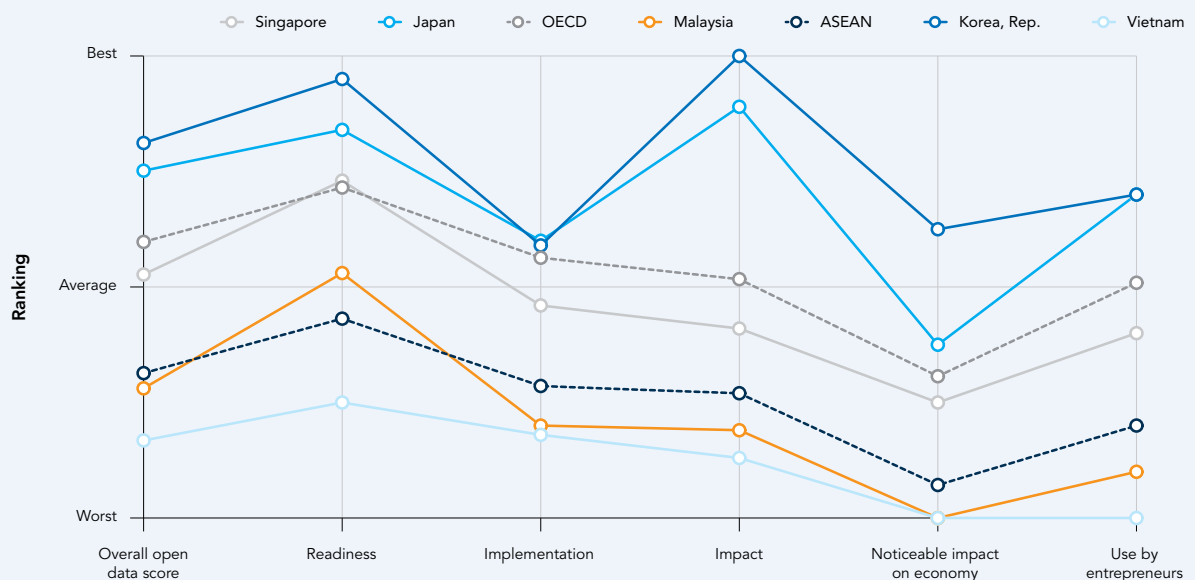
223 World Wide Web Foundation, Open Data Barometer Global Report (Second Edition), January 2015, pp. 9, 42, <http://opendatabarometer.org/2ndEdition/analysis/rankings.html>.

224 MAMPU, "Connecting citizens and local government", May 20, 2017, <http://www.data.gov.my/article/readiness#>; MAMPU, "Our open data strategy", May 20, 2017, <http://www.data.gov.my/article/readiness#>.

225 World Bank, Open Data Readiness Assessment: Malaysia, May 2017, pp. 17, 26.

of having a well-resourced open data initiative and ample financial support to foster a culture of innovation. But implementation and impact are weak — open data has not had a noticeably positive impact on the economy and few entrepreneurs have successfully used open data to build new businesses.²²⁸

FIGURE 4.9 Malaysia is ready to open its data, but implementation and impact are weak



Source: Open Data Barometer 2017.

Digital entrepreneurs have difficulty finding mentors and professional networks are weak

Quality mentors can be crucial in helping entrepreneurs develop and commercialize their products, but there is short supply in Malaysia. A study of the entrepreneurial community in New York found that entrepreneurs with strong personal connections to top-performing entrepreneurs were three-times more likely to become top performers than entrepreneurs without those connections.²²⁹ Mentors provide social connections, role models, know-how, and guidance. But in Malaysia, there is no true culture of mentorship. While there are many successful entrepreneurs, few can afford the time or have the interest in sharing specific strategies with budding entrepreneurs to help them navigate particular challenges. Instead, successful entrepreneurs typically take on more casual mentorship opportunities, primarily through friends or family or through speaking engagements.²³⁰

226 World Bank, Malaysia Economic Monitor: Data for Development, June 2017, p. 34.

227 World Bank, "Malaysia to Use Open Data to Improve Public Service Delivery and Promote Innovation," Press Release, May 25, 2017, <http://www.worldbank.org/en/news/press-release/2017/05/25/malaysia-to-use-open-data-to-improve-public-service-delivery-and-promote-innovation>.

228 World Wide Web Foundation, Open Data Barometer Global Report (Fourth Edition), 2017, <http://opendatabarometer.org/4thedition/data/>.

229 Rhett Morris, "Mentors Are the Secret Weapons of Successful Startups," March 22, 2015, <https://techcrunch.com/2015/03/22/mentors-are-the-secret-weapons-of-successful-startups/>. Firms were identified as a top-performer if they met at least one of three conditions: an exit of at least \$100 million; top 10 percent of peer group in equity funding raised; or top 10 percent of peer group in the number of employees.

230 Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

Professional networks in Malaysia also fail to meet the needs of budding digital entrepreneurs, particularly those from disadvantaged backgrounds. Malaysia has many developer communities organized around mobile platforms, coding languages, open source hardware, entrepreneurship, and other topics, and these communities have regular meetings.²³¹ But meetup groups of this type are not as common in Malaysia as they are in neighboring countries: Singapore has 562, Jakarta 139, Bangkok 128, and Kuala Lumpur 101.²³² Instead, networking is more likely to happen at events sponsored by MaGIC or MDEC, through co-working spaces, or especially through digital platforms like WhatsApp or Facebook.²³³ Unfortunately, digital platforms tend to be highly specialized and exclusive, with membership restricted to investors, successful entrepreneurs, or even ethnic groups.²³⁴ Developer communities can help the entrepreneurial ecosystem grow if they facilitate connections between all parts of the ecosystem.²³⁵ And they are a crucial complement to government initiatives. But if reduced to quid-pro-quo relationships or confined to exclusive groups, they fail to meet the needs of the community at large and can reinforce inequalities.

The strategy for developing cutting-edge technologies is still in its infancy

It is crucial for the Malaysian government to establish a national strategy for high-tech digital innovation if they aim to be competitive in the fourth industrial revolution. Rising wages means Malaysia no longer has a competitive advantage in the export of low-cost manufactured goods. The country needs to become more innovative if it wants to compete with advanced economies, sustain its impressive run of growth, and reach high-income status.²³⁶ Future technologies that can have an impact in sectors beyond mobile telephony include artificial intelligence, blockchain, robotics, 3D printing, and the internet of things. According to the EPU, the government is actively promoting a number of new and related initiatives, including the National IoT Strategic Roadmap, National Big Data Analytics Framework, and (most recently) the National Artificial Intelligent Framework. Furthermore, the Ministry of International Trade and Industry has begun developing the National Industry 4.0 Policy Framework. Still, a holistic and integrated effort must be undertaken to monitor the implementation of all policies and strategies related to ICT development.²³⁷

The Internet of Things (IoT) is a system of connected devices that gather data, connect with the internet or local networks, generate analytics, and (in some cases) adapt responses based on the data or analytics of the network.²³⁸ IoT has implications for virtually all sectors of the economy, and businesses have been quick to seize the potential, especially in high-income countries.²³⁹ In the energy sector, for example, data from smart meters and thermostats help increase efficiency. Smart lighting, waste management, transport, and other initiatives based on IoT have transformed urban development. Health monitoring through wearables, better monitoring of cold-chain vaccine delivery, insulin tracking through smartphones, and similar applications have fundamentally changed healthcare. And, in the agricultural sector, sensor data has been

231 World Bank, Open Data Readiness Assessment: Malaysia, May 2017, p. 55.

232 Meetup.com, "Tech Meetups," within 5 miles of Singapore, Jakarta, Bangkok, and Kuala Lumpur, respectively.

233 Administrators of meetup groups, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

234 Anonymous entrepreneurs, interviews with the Malaysia Digital Economy Team, April 2017 and June 2017.

235 Phillip E. Auerswald, "Enabling Entrepreneurial Ecosystems: Insights from Ecology to Inform Effective Entrepreneurship Policy," Kauffman Foundation, October 2015.

236 World Economic Forum, Global Competitiveness Report, 2016–2017, <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>.

237 Economic Planning Unit, comments provided to the Malaysia Digital Economy Team, July 2018.

238 Prasanna Lal Das, Stefan Claus Beisswenger, Srikanth Mangalam, Mehmet Rasit Yuce, and Martin Lukac, Internet of things: The new government to business platform: review of opportunities, practices, and challenges, 2017, <http://documents.worldbank.org/curated/en/610081509689089303/Internet-of-things-the-new-government-to-business-platform-a-review-of-opportunities-practices-and-challenges>.

used to create better insurance products, monitor weather at the farm level, and manage greenhouses. In Malaysia, the “City Brain” program aims to use image recognition, data mining, and machine learning to allow city councils and urban planners to make data-driven decisions. Starting with Kuala Lumpur, it will first be applied to reduce traffic congestion by optimizing traffic lights and automatically detecting incidents, but is expected to expand to safety and security, environmental monitoring, healthcare, energy, waste management, and public infrastructure.²⁴⁰

Malaysia’s newly proposed policy framework for Industry 4.0 could form the basis for an integrated national plan, although it is currently limited to the manufacturing sector. Like the EU’s Digital Single Market Strategy,²⁴¹ Germany’s Plattform Industrie 4.0,²⁴² Singapore’s Smart Nation initiative,²⁴³ and the United Kingdom’s Digital Strategy,²⁴⁴ Malaysia’s new policy framework describes the government’s commitment to helping firms become more competitive through better use of IoT technologies. In addition to IoT, it covers a wide range of topics, including additive manufacturing, artificial intelligence, Big Data, simulation, cloud computing, and autonomous robots. The plan sets four targets to be achieved by 2025: increasing the level of productivity in the manufacturing sector by 30 percent from the 2016 baseline; increasing the contribution of the manufacturing sector to the economy from RM 254 billion to RM 392 billion; strengthening innovation capacity and capability to improve Malaysia’s ranking of 35 to the top 30 in the Global Innovation Index; and increasing the number of high-skilled workers employed in the manufacturing sector, from 18 percent to 50 percent. To accomplish these objectives, the framework outlines several “strategic enablers,” including research and development funding, faster internet connections, improved STEM curricula, and automation of manufacturing. But the plan is not a one-size-fits-all solution, and explicitly acknowledges that it will have to be customized for each sector depending on needs and priorities.²⁴⁵ And the policy has not yet taken effect; it is currently in the public consultation process, and the government will decide how to proceed after feedback has been reviewed.²⁴⁶

239 ITU and Cisco, “Harnessing the Internet of Things for Global Development,” 2016, <https://www.itu.int/en/action/broadband/Documents/Harnessing-IoT-Global-Development.pdf>.

240 MDEC, “Malaysia City Brain kicks off the nation’s journey into artificial intelligence,” January 29, 2018, https://mdec.my/newsletter/2018/02/City_Brain/; MDEC, “City Brain FAQ,” 2017, <https://www.mdec.my/news/city-brain-faq>.

241 European Commission, “Digital Single Market: The Internet of Things,” April 25, 2018, <https://ec.europa.eu/digital-single-market/en/internet-of-things>.

242 Federal Ministry for Economic Affairs and Energy and Federal Ministry of Education and Research of Germany, “Plattform Industrie 4.0,” 2018, <http://www.plattform-i40.de/I40/Navigation/EN/Home/home.html>.

243 Singapore Government, “Formation of the Smart Nation and Digital Government Group in the Prime Minister’s Office,” March 20, 2017, <https://www.tech.gov.sg/Media-Room/Media-Releases/2017/03/Formation-of-the-Smart-Nation-and-Digital-Government-Group-in-the-Prime-Ministers-office>.

244 Government of the United Kingdom, “Policy Paper: UK Digital Strategy,” March 1, 2017, <https://www.gov.uk/government/publications/uk-digital-strategy>.

245 Ministry of International Trade and Industry of Malaysia, “Draft National Industry 4.0 Policy Framework,” pp. 17, 42, 44–45, 64–65, 2018, [http://grp.miti.gov.my/miti-grp/resources/Public%20Consultation/Industry4.0FrameworkLayout_PublicReview\(9Feb\)V3_.pdf](http://grp.miti.gov.my/miti-grp/resources/Public%20Consultation/Industry4.0FrameworkLayout_PublicReview(9Feb)V3_.pdf).

246 Ministry of International Trade and Industry of Malaysia, “Public Consultation On Proposed National Industry 4.0 Policy Framework,” February 12, 2018–March 9, 2018, http://grp.miti.gov.my/index.php/public_consultation/view/40.

Recommendations

The government is the dominant player in the entrepreneurship ecosystem, and as such it is most responsible for making the structural changes necessary for the digital economy to take off. Human capital is the major constraint faced in the digital economy, forcing many digital entrepreneurs to import talent. The government needs to improve curriculum at all levels, forge ties with industry to improve the relevance, quality, and attractiveness of STEM and TVET, and carefully monitor progress in its bold reform plans. The government can improve access to finance, especially at the growth stage, by making the country friendlier to investment and encouraging venture capital firms to reside and specialize in the country. And the government can solve problems particular to digital entrepreneurship by providing incentives for digital payments and promoting transparency and open data through a right to information law. Some of these issues should be addressed immediately; others will take some years to get right (Table 4.2).

Ultimately, more space needs to be made for the private sector to thrive if digital entrepreneurship is going to meet its promise of driving Malaysia's growth to high-income status. The myriad government programs working to establish Malaysia's digital economy — especially MDEC, MaGIC, and Cradle — have done well at planting the seeds of digital entrepreneurship. But the dominance of government activity is circular. Government agencies' overlapping mandates and activities makes it difficult for the private sector to find its role. But absent private-sector solutions, the government then addresses problems as they emerge — in education, skills building, work spaces, mentorship, and networking. With the proper structural reforms as a foundation, all these issues could conceivably be addressed by a more agile and innovative private sector. A market-based approach would ensure supply-side factors — skilled labor and capital — align with the demands of the digital economy. It would also help avoid burdensome regulations, crowding out of private investment, and wasteful spending on ineffective programs.²⁴⁷



²⁴⁷ <http://blogs.worldbank.org/developmenttalk/can-government-spending-encourage-entrepreneurship>.

TABLE 4.2 Promoting entrepreneurship requires multiple reforms

Recommendations, by time frame and type

Time frame	Type	Recommendation
Short-term	Policy	Develop a national strategy for high-tech innovation, that provides an enabling environment for greater commercialization
		Raise awareness about government initiatives among aspiring entrepreneurs
	Financial	Encourage an investor-friendly regime that affords investors greater security when doing business in Malaysia
	Cultural	Encourage increased coverage of digital entrepreneurship in the media, showcasing local entrepreneurs of each ethnicity and publicizing stories of triumphs and failures
Medium-term	Policy	Ensure that the legal and regulatory framework for data privacy continues to evolve with global trends, including on portability, the export of personal data, and notification procedures in cases of breach
	Financial	Move towards a robust e-payment infrastructure that is secure and instills greater confidence among consumers and entrepreneurs
		Instill trust in digital payments by strengthening cybersecurity, risk policies and laws
		Promote greater competition and provide more options for consumers in the use of e-payments in daily transactions
		Develop a proactive strategy to encourage venture capital firms to reside and specialize in the country
		Tap into alternative financing opportunities that will give Malaysia a niche in the regional and global economy
Long-term	Policy	Provide financial and organizational support to large-scale events around digital entrepreneurship in Malaysia that convene participants from throughout the ecosystem
		Better coordinate and consider streamlining various government initiatives to ensure the most efficient use of scarce financial resources
	Cultural	Increase the accessibility and transparency of public data, including through a national right to information law
		Promote a culture of entrepreneurship by instilling greater risk-taking in the educational curricular
	Human Capital	Scale up efforts to emphasize entrepreneurship and technical skills, including coding, in school curriculum at all levels, and deepen collaboration with industry to improve relevance, quality and attractiveness of STEM and TVET
		Invest more in lifelong learning, especially through industry-based training programs, and monitor progress to help Malaysians already in the workforce upskill for more rewarding jobs in the digital economy

Source: Author's analysis

CHAPTER 5

Taxing the Digital Economy

Malaysia needs to reform its laws and policies to ensure its tax base fully reflects the scale of transactions and profits being generated by Malaysia's digital economy. It is important that the domestic fiscal framework encourages the development of a vibrant digital economy. It is equally important that Malaysia secures its fair share of tax revenue from the profits generated in its economy by providers of digital goods and services that are based outside the country. Effectively and efficiently taxing digital transactions is a challenge facing most countries, developed and developing.

Equally, it is important that any measures designed to include the digital economy in Malaysia's tax base do not interfere with the growth of this increasingly important segment of economic activity. Ensuring that the tax system does not advantage foreign suppliers over domestic competitors is a more sustainable way to strike this balance than tax incentives that can be hard to administer, may not represent good value for money and are hard to remove.²⁴⁸

This chapter, comprising four sections, explores options to raise revenue from the digital economy. The first section estimates the fiscal impact of digital tax reform; although low in the immediate term, there is potential for rapid growth in government revenue from the digital economy. The second section outlines some key challenges, including permanent establishment rules, tax treaties, and indirect taxation; details recent actions by the international community to help resolve them; and describes reform efforts in the European Union, Australia, Singapore, and several other countries. The third section presents four broad policy options for taxing the digital economy in Malaysia: ensuring that Malaysia's indirect taxes apply to the consumption of goods and services purchased online from foreign suppliers; improving the way direct tax is applied to the digital economy and e-commerce in particular, by updating its definition of a permanent establishment; extending its tax on technical services in order to impose a withholding tax on foreign suppliers of digital goods and services; and establishing a freestanding tax. These options are not mutually exclusive, and countries are introducing a mix of direct and indirect tax measures. The chapter concludes by offering recommendations for policy reforms.

²⁴⁸ The effectiveness of tax incentives varies between countries and sectors. While tax incentives seem to have played an important role in attracting new investment and spurring economic growth in some countries, in many instances they are redundant and have resulted in little or no new investment. A comprehensive summary and guidance on good practices is provided in World Bank (2015): Options for low income countries' effective and efficient use of tax incentives for investment : a report to the G-20 development working group by the IMF, OECD, UN and World Bank (<http://documents.worldbank.org/curated/en/794641468000901692/Options-for-low-income-countries-effective-and-efficient-use-of-tax-incentives-for-investment-a-report-to-the-G-20-development-working-group-by-the-IMF-OECD-UN-and-World-Bank>).

Potential Impact of Digital Tax Reform

Raising tax revenue from the digital economy is becoming increasingly important in Malaysia's fiscal reform efforts to further strengthen and diversify the Government's revenue base. Since the global financial crisis and subsequent oil price slump, Malaysia has implemented a series of revenue diversification measures, including the introduction of the Goods and Services Tax (GST) in 2015. But broadening of fiscal base became increasingly difficult as GST collection plateaued. Further, the lack of public support for the introduction of GST was one key factor behind a decision, in May 2018, by the newly elected Pakatan Harapan Government to zero-ize GST from June 2018. Federal revenue as a proportion of GDP has been declining since 2012. The trend is likely to continue in the near term (Table 5.1), particularly while Government considers options (including the re-introduction of a Sales and Services Tax) to offset the loss of GST revenues. Achieving a near-balanced federal budget over the medium term therefore requires a deeper wave of reforms to diversify and strengthen the Government's revenue base, including the possibility of extending tax collection to the rapidly growing digital economy in Malaysia.

TABLE 5.1 Federal government financial position

	RM billion			Percentage of GDP		
	2015	2016	2017	2015	2016	2017
Revenue	219.1	212.4	225.3	18.9	17.3	16.8
Direct Taxes	111.8	109.6	119.7	9.7	8.9	8.8
Companies Income Tax	63.7	63.6	67.8	5.5	5.2	5
Petroleum Income Tax	11.6	8.4	10.9	1	0.7	0.8
Individual income tax	26.3	27.6	30.1	2.3	2.2	2.2
Others	10.2	10	10.9	0.9	0.8	0.8
Indirect Taxes	53.7	59.7	60.5	4.6	4.9	4.5
Goods and Services Tax	27.0	41.2	41.5	2.3	3.4	3.1
Excise Duties	11.9	11.7	11.8	1	1	0.9
Others	14.8	6.8	7.2	1.3	0.6	0.5
Non-Tax Revenue	51.5	40	41.9	4.4	3.3	3.1
Non-Revenue Receipts	2.2	3.1	3.2	0.2	0.3	0.2
Operating Expenditure	217	210.2	219.9	18.7	17.1	16.3
Gross Development Expenditure	40.8	42.0	46.0	3.5	3.4	3.4
Less: Loan Recoveries	1.5	1.3	0.6	0.1	0.1	0.1
Net Development Expenditure	39.3	40.6	45.3	3.4	3.3	3.4
Overall Deficits	-37.2	-38.4	-39.9	-3.2	-3.1	-3.0

Source: World Bank staff calculations based on MOF data²⁴⁹, 2018 Economic Report, October 27, 2017.

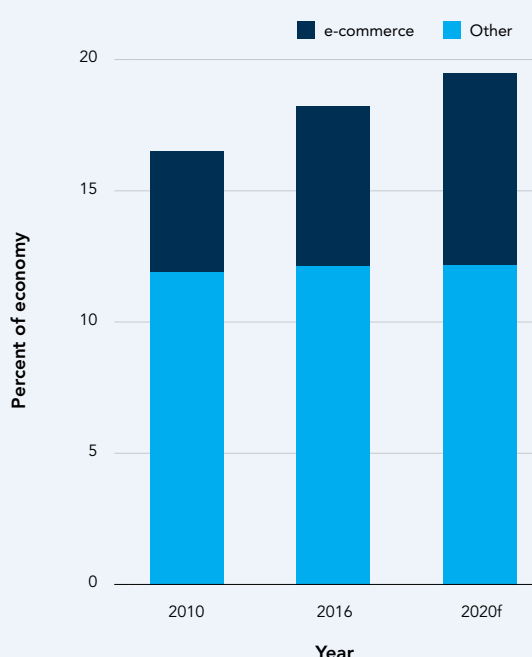
Note: Values in current prices. Values for 2017 represent revised estimates from the MOF's 2018 Economic Report.

249 Ministry of Finance Malaysia, Economic Report 2017/18, 2017, pp. 79–85.

Malaysia's digital economy has experienced steady growth over the recent past, and is projected to approach the government's target of 20 percent of GDP by 2020. The digital economy's contribution to the economy in 2016 was estimated at RM 224 billion — 18 percent of GDP. During 2010–2016, it grew by 9 percent per year, and by 2020 is projected to reach 19.5 per cent of GDP. e-commerce is growing particularly quickly, and is expected to exceed RM 110 billion by 2020, when it will comprise nearly 40 percent of the digital economy.²⁵⁰

FIGURE 5.1 The digital economy is growing faster than the overall economy

Digital economy output as a percent of GDP, by e-commerce and other



Source: Department of Statistics Malaysia, Information and Communication Technology Satellite Account, 2016.

A balanced approach to taxing the digital economy that extends the indirect and direct tax bases in Malaysia would significantly increase fiscal revenue over time. It is difficult to estimate both the growth of the digital economy and the potential tax revenues given lack of data. But, given the sizable and growing presence of foreign providers across a wide spectrum of digital services in Malaysia — including search (Alphabet), social networking (Facebook), online advertising, ride- and accommodation-sharing services (Grab and Airbnb), and digital music streaming (Spotify) — it is reasonable to expect substantial future tax revenues from the digital economy, which would increase faster than the traditional tax base. The challenge is to modify the regime for indirect taxation so that it effectively captures the consumption of digital products services from foreign suppliers.

Digital tax reform could also help level the playing field between domestic and foreign suppliers of digital goods and services and support mainstream taxation, depending on the government's strategy.

Foreign suppliers of digital goods and services clearly have a competitive advantage if their customers do not have to pay GST or SST. Similar arguments have been put forward to justify direct tax measures. These so-called equalization levies tend to apply to the gross payments to foreign suppliers and ensure that they are in a broadly equivalent position to domestic suppliers paying income tax on their profits. They also serve to expand the tax base of the country. Some countries have taken additional steps to support mainstream taxation by reducing the ability of nonresident suppliers to divert profits. Although characterized as measures to tackle the digital economy, they are designed to deter cross-border profit shifting more generally.

250 World Bank staff projections based on DOSM data, Information and Communication Technology Satellite Account, 2016.

Challenges of Taxing the Digital Economy

The growth of the digital economy around the world has coincided with a realization that the rules of the international direct tax system need a major overhaul. International business practices — often driven by advances in technology — have invalidated many of the assumptions on which tax rules developed a century ago operate. Tax avoidance strategies that artificially shift profits to low or no-tax jurisdictions where there is little economic activity have cost governments billions of dollars in lost tax revenues. The issue is particularly problematic for the digital economy, which is characterized by its reliance on intangible assets, extensive use of data, adoption of multi-sided business models, and ongoing controversy about where value creation occurs. Tax avoidance harms governments by depriving them of revenue and undermining the integrity of the tax system. This can lead to underfunding of public investments important for growth, which is especially harmful for developing countries. Tax avoidance also hurts domestic taxpayers who must pick up the slack, creating an unfair competitive environment.²⁵¹ The 2008 financial crisis highlighted the fiscal vulnerability of many governments, and they have since been keen to increase tax revenues, promote neutrality, and enhance efficiency.

The ability to secure tax revenue is conditional on identifying who owes the tax and having an effective domestic tax charge to apply to that enterprise or individual. There is an international consensus about the application of indirect taxes (Value-added Tax (VAT) or a Goods and Services Tax (GST) or Sales and Services Tax (SST)) to the digital economy. The generally accepted principle is that the jurisdiction in which consumption takes place has the right to tax. The issues are therefore more of practical implementation than principle. Direct taxation of the digital economy raises more complex and contentious issues. Digital supply chains are often more convoluted and ephemeral than those for traditional goods and services. Identifying who owes the tax is challenging even when the economic activity is obvious. This is especially true when the ultimate supplier is nonresident — residing outside the country — or a virtual provider — such as a digital platform that supplies content without human intervention. In those cases, only the final consumer and perhaps the digital intermediary can be easily identified and directly regulated by the tax authorities. Under most circumstances, a government can only tax a nonresident business if it has a permanent establishment (PE) — typically a fixed place of business — in that country. Permanent establishments are defined in tax treaties and domestic law and typically are subject to specific exclusions. Most countries' treaties follow some variation of the OECD's Model Tax Convention (Article 5), which has evolved over the years, or the equivalent Article in the United Nations model.²⁵² Digital businesses, such as social media platforms and search engines, can have a significant presence in a local market in terms of users, without having a taxable presence under current conventions (sometimes referred to as having scale without mass). This is controversial and some governments are arguing that there is a need to recognize a taxable presence in these cases (for more detail see Box 5.1 below).

The recent Base Erosion and Profit Shifting (BEPS) project sought to introduce coherence in the international rules that affect cross-border activities, reinforce substance requirements in the existing standards, and improve transparency and certainty.²⁵³ Led by the OECD and G20, this high-profile collaboration of 44 countries developed a package of 15 Actions to reform the international tax regime. The overall package is designed to modernize the treatment of all multinational enterprises but many of the individual actions will affect the tax treatment of cross-border transactions in the digital economy (Table 5.2 sets out how).²⁵⁴ Under Action 1, the OECD specifically sought to identify the main challenges posed by

251 OECD, Action Plan on Base Erosion and Profit Shifting, pp. 7–8, 10, 2013, <https://www.oecd.org/ctp/BEPsActionPlan.pdf>.

252 OECD, Model Tax Convention, Article 5, 2017.

253 OECD, Action Plan on Base Erosion and Profit Shifting, 2013, <https://www.oecd.org/ctp/BEPsActionPlan.pdf>.

254 OECD, Inclusive Framework on BEPS, Progress Report July 2016–June 2017, July 2017, pp. 3–4, <http://www.oecd.org/tax/beps/beps-about.htm>.



the digital economy to existing international tax rules and to develop detailed solutions considering both direct and indirect taxation. Their final report, issued in 2015, concluded that the digital economy was too entwined with the traditional economy to be treated separately. Instead, challenges in the digital economy should be addressed through a range of more broad-based reforms to the international tax regime.²⁵⁵ Work on these broader issues has continued under the stewardship of the Task Force on the Digital Economy. In the meantime, the BEPS Actions have improved countries' ability to tax the profits generated by digital businesses and e-commerce. Under Action 6, the OECD laid out new rules to address treaty abuse, which occurs when a tax payer claims treaty benefits that were not intended to be granted, thereby depriving countries of tax revenues.²⁵⁶ Under Action 7, the OECD assessed how the PE definition needed to be updated to prevent abuses related to profit shifting, remove outdated exceptions, and address the fragmentation of business activities that is particularly prevalent in the digital economy.²⁵⁷ Under Actions 8–10, the OECD sought to ensure that transfer pricing outcomes more accurately reflect where value is created.²⁵⁸ And under Action 15, the OECD developed a multilateral instrument that would make it easier and faster for countries to update their tax treaties to incorporate the new PE definition and improve their defenses against treaty abuse.²⁵⁹

255 OECD, Addressing the Tax Challenges of the Digital Economy, Action 1 Final Report, October 2015, <http://www.oecd.org/ctp/addressing-the-tax-challenges-of-the-digital-economy-action-1-2015-final-report-9789264241046-en.htm>.

256 OECD, Preventing the Granting of Treaty Benefits in Inappropriate Circumstances, Action 6 Final Report, October 2015, <http://www.oecd.org/tax/preventing-the-granting-of-treaty-benefits-in-inappropriate-circumstances-action-6-2015-final-report-9789264241695-en.htm>.

257 OECD, Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7 Final Report, October 2015, <http://www.oecd.org/tax/preventing-the-artificial-avoidance-of-permanent-establishment-status-action-7-2015-final-report-9789264241220-en.htm>.

258 OECD, Aligning Transfer Pricing Outcomes with Value Creation, Actions 8–10 Final Report, October 2015, <http://www.oecd.org/tax/aligning-transfer-pricing-outcomes-with-value-creation-actions-8-10-2015-final-reports-9789264241244-en.htm>.

259 OECD, Action Plan on Base Erosion and Profit Shifting, pp. 23–24, 2013, <https://www.oecd.org/ctp/BEPSActionPlan.pdf>.

TABLE 5.2 Recent broad-based international tax reforms can help Malaysia tax the digital economy

Relevance of reforms to the digital economy, by selected BEPS action

Action	Relevance to the digital economy
1 Address the tax challenges of the digital economy	Examined policy issues, business models, and key features of the digital economy, and concluded that problems created or exacerbated by the digital economy should be addressed through more broad-based reforms
3 Strengthen controlled foreign company (CFC) rules	Increased take-up of CFC rules will reduce the incentive to shift intellectual property income from digital economy activities to lowly taxed entities
5 Counter harmful tax practices more effectively, taking into account transparency and substance	Will reduce the incidence of tax regimes that encourage firms to manipulate where profits attributable to intellectual property are recognized
6 Prevent treaty abuse	Of general application, but particularly helpful in challenging tax avoidance in the digital economy that exploits the terms of existing treaties
7 Prevent the artificial avoidance of PE status	Avoidance exploiting PE status is particularly prevalent in the digital economy
8-10 Assure that transfer pricing outcomes are in line with value creation: intangibles, risks and capital, and other high-risk transactions	Will help to ensure transfer pricing outcomes properly reflect where value is created
11 Establish methodologies to collect and analyze data on BEPS and the actions to address it	Will assist ongoing work on the broader tax challenges posed by the digital economy, including estimating the fiscal effects of introducing new taxes in the digital economy
13 Re-examine transfer pricing documentation	Will help to identify transfer pricing risks, including in the digital economy
15 Develop a multilateral instrument	Enables rapid implementation of treaty changes, especially those resulting from Actions 6 and 7

Source: OECD, Action Plan on Base Erosion and Profit Shifting, Annex A, 2013, <https://www.oecd.org/ctp/BEPSActionPlan.pdf>; OECD, Tax Challenges Arising from Digitalisation, Interim Report, 2018, <http://www.oecd.org/tax/beps/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.htm>.
 Note: Actions 2, 4, 12, and 14, are not directly relevant to the digital economy, but will help prevent tax avoidance more generally.

The BEPS project concluded that commissionaire arrangements, under which a nonresident enterprise sells goods through an agent, are among the abuses prevalent in the digital economy. The agent who concludes the sale does not own the goods, and therefore pays taxes only on his or her commission. Meanwhile, the nonresident enterprise avoids permanent establishment status by acting through the agent. As a result, no taxes are actually paid on the profits derived from the sale. Similar strategies include contracts that are negotiated in a country but concluded abroad and the use of “independent agents” who in practice do all or most of their work for only one enterprise. Under the new rules, a permanent establishment is created if a local subsidiary of a nonresident enterprise habitually plays the principal role in negotiating contracts and those contracts are routinely concluded without material changes by the parent company. The new rules also explicitly include contracts for the transfer of ownership or right to use property of the nonresident enterprise or the provision of services by that enterprise.²⁶⁰

The BEPS project also identified problems related to the specific exceptions to PE-status commonly enshrined in tax treaties. These exceptions typically comprise ancillary business activities in the traditional economy but can be core activities in the digital economy.²⁶¹ Under the old rules, storage and delivery of goods were generally considered exceptions. For example, a large warehouse owned by a nonresident enterprise would not constitute a permanent establishment and would therefore not result in a tax liability. But rapid delivery is a core feature of most e-commerce firms; locating storage and delivery facilities near customers is more than ancillary in the digital economy, it is key to profitability and success. In response, the new rules restrict excepted activities to those which are “preparatory or auxiliary” in character. Under the new rules, the warehouse constitutes a permanent establishment because of its importance to the business model, which creates a tax liability for the nonresident e-commerce company. The decisive factor is whether the activity forms an essential and significant part of the enterprise’s overall business activity. In contrast, a preparatory activity is one carried out “in contemplation” of the significant and essential business activity and an auxiliary activity is one that supports without being part of it.

In June 2017, representatives from more than 70 countries and jurisdictions signed the multilateral instrument developed by Action 15 to reform the international tax system. The multilateral instrument (MLI) allows countries that ratify it to update treaty provisions on a multilateral basis, which is much less burdensome and time-consuming than renegotiating the more than 3,000 bilateral tax treaties.²⁶²

As of March 2018, 78 countries — including Malaysia — had signed the multilateral instrument, comprising roughly two-thirds of the world’s population and GDP. The multilateral instrument enters force on July 1, 2018, for the five jurisdictions that ratified it by the end of March 2018 — Austria, Isle of Man, Jersey, Poland, and Slovenia — and three calendar months after their date of ratification for all jurisdictions that ratify it after March 2018.²⁶³ The United States and Brazil are the only countries in the G20 that have not signed, but both are members of the Inclusive Framework on BEPS.²⁶⁴ The Inclusive Framework brings together more than 100 countries and jurisdictions to work together on the implementation of the BEPS package. It is responsible for reviewing the implementation of the BEPS minimum standards related to harmful tax practices (Action 5), tax treaty abuse (Action 6), transparency and reporting (Action 13), and dispute resolution (Action 14); gathering data to monitor implementation under Actions 1 and 11; and supporting jurisdictions in the implementation of the BEPS package.²⁶⁵

260 OECD, Model Tax Convention, Article 5, 2017.

261 OECD, Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7 Final Report, October 2015, p. 31, <http://www.oecd.org/tax/preventing-the-artificial-avoidance-of-permanent-establishment-status-action-7-2015-final-report-9789264241220-en.htm>.

262 <http://www.oecd.org/tax/treaties/explanatory-statement-multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf>. Provisions of the MLI will not directly amend covered tax agreements, given their diversity. Instead, it will be applied alongside existing tax treaties to implement the BEPS measures. Countries have the option of consolidating the MLI and their tax treaties.

263 OECD, “Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting”, Article 34, <http://www.oecd.org/tax/treaties/multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf>.

264 OECD, “Signatories and parties to the multilateral convention to implement tax treaty related measures to prevent base erosion and profit shifting,” March 22, 2018, <http://www.oecd.org/tax/treaties/beps-mli-signatories-and-parties.pdf>.

265 OECD, Inclusive Framework on BEPS, Progress Report July 2016–June 2017, July 2017, pp. 4–7, <http://www.oecd.org/tax/beps/beps-about.htm>.

Despite the progress resulting from the BEPS project, some countries maintain that more fundamental reform of direct taxes is still necessary. The Action 1 report identified three main challenges related to the allocation of taxing rights and taxable profits between countries. First, digital businesses may have a significant presence in an economy without needing to be physically present there, which raises questions about how to define a “nexus” for allocation. Second, data and data users are core elements of the digital economy, which has led some countries to argue that co-creation of value should be considered.²⁶⁶ And third, there is no consensus about how taxing rights on income generated by cross-border activities in the digital economy should be allocated for direct taxes.²⁶⁷ As a result, some countries have planned or introduced interim measures to secure revenue while an international consensus is pursued. These include taxes on the gross revenues of digital businesses and withholding taxes and levies on payments made to digital businesses for services like advertising.

The digital economy also poses challenges for indirect taxation. These principally relate to the increasing scale of online purchases from foreign suppliers, who may have little or no physical presence in the country in which consumption takes place. Traditional models of collecting from the supplier are not effective, because they cannot be directly regulated by the domestic tax authority. Collection from consumers is impractical, particularly in the case of digital goods and services, because of the small values involved and difficulty of monitoring and enforcing compliance. In response, the BEPS Action 1 Report recommended that countries implement the OECD’s International VAT Guidelines. The Guidelines enshrine the destination principle, under which the country where the consumer resides has the right to collect VAT, GST or SST. To collect the tax, the Guidelines recommend that countries require foreign suppliers to register and account for the tax due on sales to consumers in their territories. To aid compliance, the Guidelines suggest countries put in place a simplified registration and compliance regime for foreign suppliers.²⁶⁸



266 Treasury of the United Kingdom, “Corporate tax and the digital economy: Position paper update, March 2018, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/689240/corporate_tax_and_the_digital_economy_update_web.pdf.

267 OECD, Tax Challenges Arising from Digitalisation, Interim Report, 2018, p. 103, <http://www.oecd.org/ctp/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.htm>.

268 OECD, International VAT/GST Guidelines, April 2017, <http://www.oecd.org/ctp/international-vat-gst-guidelines-9789264271401-en.htm>.

BOX 5.1

Current Global View on Taxing the Digital Economy

The rapid growth in the size of the digital economy worldwide has coincided with an increased focus on tax compliance by international business. With countries around the world struggling to come to terms with the costs of the recent financial crisis, many governments are seeking to determine whether international businesses have been really paying their fair share in taxes. In the usual tax setting, profits seemed to end up in places where they were subject to no, or very little, taxation. Furthermore, some large digital corporations, such as Google and Facebook, appeared to be paying very little tax, despite having a significant presence in certain markets.

Responding to these issues, the OECD/G20 launched the Base Erosion and Profit Shifting initiative in 2015. This project resulted in 15 actions designed to modernize international tax rules, which had not kept pace with recent developments to the manner in which international businesses operate. These 15 actions include measures intended to prevent on-line retailers from exploiting tax rules that enabled them to shelter their profits. Simultaneously, work on indirect taxes (VAT/GST) has been conducted to ensure that consumption taxes are collected when taxable services are supplied digitally cross-border. In lieu of this, several countries are now collecting consumption taxes directly from the foreign suppliers of digital services.

While there is a general agreement on indirect tax on the digital economy, discussions on income tax are still under way. There are diverging views on BEPS' conclusion on income tax, which concluded that existing concepts of how value is created and taxed did not need fundamental reform. Some countries argue that some digital business models rely fundamentally on value that is created by the users. For example, social media platforms rely on user-supplied content to attract and retain users of the platform. This in turn determines the ability of the platform provider to generate revenues, such as from advertising. This concept of "user generated value" is attracting support from a number of countries, particularly in Europe. However, it will be quite some time before international consensus can be achieved. This will involve agreeing not just on the principle but on the basis for quantifying user generated value for tax purposes. The Task Force on the Digital Economy, which was created as part of the BEPS project, is continuing to work on these issues. In the meantime, countries are contemplating, or actually introducing, taxes that target digital businesses, including taxes on their gross revenues and levies on payments for digital advertising services.



Policy Options for Taxing the Digital Economy

Malaysia currently has limited means to tax cross-border transactions in the digital economy. For the reasons outlined below, the recently repealed GST had no effective charge on the consumption of digital goods and services supplied by foreign suppliers. The new SST may not apply to imports of any kind, at least initially. As discussed earlier, direct taxation of the digital economy is a more complex issue. Having an effective charge on permanent establishments is an important element of an overall strategy but will not address some of the issues discussed in Box 5.1, such as digital businesses with scale in Malaysia but no mass. It is not clear that Malaysia's domestic law currently imposes a fully effective tax charge on permanent establishments in any case. Ideally, the domestic definition should be aligned with the revised international definition that resulted from BEPS Action 7.

Malaysia has four main options for taxing digital goods and services provided by nonresident companies: it can tax digital transactions indirectly, by requiring suppliers to collect GST/SST in line with international practice; or directly, by redefining its permanent establishment rules, expanding its existing tax on technical services, or establishing a new, freestanding tax on the income from digital transactions. Each option has advantages and disadvantages (Table 5.3), and some could be adopted in parallel. Applying an indirect tax is the least controversial approach and has been implemented by many countries around the world. Using the multilateral instrument to change how its treaties define permanent establishments is the easiest route to imposing a direct tax, and Malaysia has already taken the first steps by signing the MLI. But it applies only to countries that have ratified the agreement, accepted the relevant provisions without reservation, and have a "covered" tax treaty with Malaysia that defines permanent establishments. Changes to Malaysia's treaties will need to be complemented by a revised definition of permanent establishments in Malaysia's domestic tax law that is consistent with the updated treaty definition. Extending Malaysia's existing withholding tax on technical services to include payments for digital services would allow Malaysia to tax income from the digital economy going to countries with which it does not have a tax treaty that cedes taxing rights over this income to the other country. Finally, a standalone tax would be the least constrained by existing tax treaties but needs to be consistent with other international obligations in relation to trade. Each of these options is explored in more detail below.

TABLE 5.3 Advantages and disadvantages of Malaysia's digital tax options

Option	Advantages	Disadvantages
Ensure that the charge on digital services through indirect taxation (SST extended to include imports of these services) requires foreign suppliers to account for the tax, not consumers	• Accords with international practice • Enforces an existing charge • Easy to administer • Major suppliers will comply voluntarily • Generates a list of foreign digital suppliers	• Represents a charge on the consumer • Creates an administrative burden for suppliers • Payers are located outside Malaysia • Consumers may alter their IP addresses
Ratify the MLI to update PE definitions in covered tax treaties	• Addresses avoidance by foreign suppliers • Presents an opportunity to introduce PE rules • Provides a clear target for the tax charge	• Not all trading partners are adopting this aspect of the MLI
Extend existing withholding tax on technical services to include payments for digital goods and services.	• Relatively simple to administer if a withholding agent can be identified • Can make a registered foreign supplier account for the tax	• Treaties may limit taxing rights • Collection from consumers does not look practical, so WHT will probably only work in relation to B2B payments
Introduce a freestanding tax on foreign suppliers of digital services.	• Is more clearly targeted on foreign suppliers, who will need to register • Would not be constrained by current tax treaties	• Not clearly in line with international practice, although more countries are considering this option as an interim measure. • Creates an administrative burden for suppliers • May face legal challenges or resistance in Parliament • Payers are located outside Malaysia • Consumers may alter their IP addresses

Source: Author's analysis.

Indirect taxation of digital services

Malaysia's simplest and least controversial option for taxing the digital economy is ensure that indirect taxes (previously GST, now SST) require suppliers to account for digital transactions. This approach is consistent with international best practice and has been successfully implemented by the EU and other economies in recent years. Section 13 of the Goods and Services Tax Act 2014 required Malaysian businesses to account for tax due on services provided by foreign suppliers. However, tax is not collected if the consumer is not a business because of the difficulty of identifying transactions (see below). On the other hand, there is no reason not to charge tax as a matter of principle, which suggests that the main challenge was putting in place an effective method of collection. With Malaysia's shift from GST to SST, changes can be made directly through the preparation of the new SST Act, or if necessary, by subsequent extension of the scope of SST. To implement this option, Malaysia would need to ensure that legislation requires foreign suppliers to register and account for SST on their sales to Malaysian customers and put in place sufficient compliance measures.

This reform is consistent with the destination principle enshrined in the OECD's International VAT/GST Guidelines, which allocate taxing rights to the jurisdiction where the final consumer resides. The key design step is to ensure that the incidence of taxation is tied to the act and place of consumption and not the place of supply.²⁶⁹ The guidelines have been supplemented by practical advice on collecting indirect taxes on international transactions. These include requiring foreign suppliers to collect the tax and then remit it to the country where consumption takes place; requiring foreign suppliers to register with the tax authority; and making registration as simple as possible to mitigate problems arising from language barriers or ignorance of tax foreign laws.²⁷⁰

More than 50 countries have adopted the Guidelines' recommendations for imposing VAT on the direct supply to consumers of services and intangibles by foreign suppliers, including most OECD and G20 countries.²⁷¹ The EU, for example, has levied VAT on nonresident suppliers of telecommunications, broadcasting, and electronic services, regardless of scale, since January 1, 2015. Nonresident businesses are required to charge the customer VAT at the rate applying in their country. An online portal allows suppliers to register, submit quarterly returns, and pay the tax due.²⁷² According to the OECD, more than €3 billion in taxes have been raised in the EU in this way.²⁷³ Australia adopted a similar approach in July 2017, requiring foreign suppliers that exceed a turnover threshold of A\$75,000 to account for GST on digital and professional services.²⁷⁴ Within ASEAN, Singapore announced in its February 2018 budget that GST will be imposed on imported digital services, including the streaming of music and movies and downloaded applications.²⁷⁵

Section 13 of Malaysia's Goods and Services Tax Act 2014 required business customers to account for GST through a recharge. Identifying business to business transactions is relatively simple, and domestic businesses can account for the recharge as part of their regular GST or SST reporting. However, business to consumer transactions typically involve a very large number of low-value transactions, which makes tax

269 OECD, International VAT/GST Guidelines, Guideline 3.6, 2017, <http://www.oecd.org/ctp/international-vat-gst-guidelines-9789264271401-en.htm>.

270 OECD, Mechanisms for the Effective Collection of VAT/GST, 2017, <http://www.oecd.org/ctp/consumption/mechanisms-for-the-effective-collection-of-vat-gst.htm>.

271 OECD, Tax Challenges Arising from Digitalisation, Interim Report, 2018, p. 103, <http://www.oecd.org/ctp/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.htm>.

272 European Commission, "Digital Single Market: Modernizing VAT for Cross Border e-Commerce," December 2017, https://ec.europa.eu/taxation_customs/business/vat/digital-single-market-modernising-vat-cross-border-e-commerce_en.

273 OECD, "Tax challenges arising from digitalisation: More than 110 countries agree to work towards a consensus-based solution," March 16, 2018, <http://www.oecd.org/ctp/beps/tax-challenges-arising-from-digitalisation-more-than-110-countries-agree-to-work-towards-a-consensus-based-solution.htm>.

274 Australian Taxation Office, "GST on Imported Services and Digital Products," September 2017, <https://www.ato.gov.au/Business/International-tax-for-business/GST-on-imported-services-and-digital-products/>. Digital services include streaming or downloading music, movies, applications, games, and e-books. Professional services include architecture or legal services.

275 Inland Revenue Authority of Singapore, "GST on Imported Services," February 2018, <https://www.iras.gov.sg/irashome/GST/Consumers/GST-on-Imported-Services/>.

compliance costly for consumers and difficult to enforce for the tax administration. As a result, the amount of GST or SST that could be collected from digital transactions if consumers are required to pay the tax is negligible.²⁷⁶

The Malaysian government also needs to develop an effective compliance strategy if it adopts the indirect tax option. The International VAT Guidelines encourage tax administrations to make more use of instruments enabling exchange of information and mutual assistance in collection.²⁷⁷ The Companies Commission of Malaysia already requires online business to register with it.²⁷⁸ If the Malaysian government extends that obligation to foreign suppliers, it could help secure compliance.²⁷⁹ Other measures could include making use of third party data from domestic internet service providers to identify the supply of digital services by foreign providers to domestic customers.

Detecting non-compliance will require extensive use of third party information. Nonresident service providers may not have a presence in Malaysia, but their interactions with customers who are located there will leave a financial and electronic trail. To identify potentially non-compliant suppliers, the Inland Revenue Board will need to access a range of data (Table 5.4). Most of the information can be obtained from banks and credit card companies, but the government may need to expand its legal authority to do so. In implementing its strategy, the Inland Revenue Board will have to balance compliance against privacy. Access to email, for example, will depend on the relevant privacy laws and information powers, and might require an alternative reporting mechanism that does not involve any direct review of e-mail content by the tax administration. The compliance strategy will also need to address the risk that consumers mask their IP address to disguise their location and avoid taxes, possibly by comparing the source of payment with the customer's declared residence.

TABLE 5.4 Monitoring compliance will require information from a variety of third parties

Third party	Information required
Banks and credit card companies	Information about regular patterns of payment to foreign entities that offer electronic services
Internet service providers	Keyword searches ("invoice", "receipt", "service", etc.) of email content sent to or received from foreign addresses
Inland Revenue Board of Malaysia and Royal Malaysian Customs	Audit activity and tax return details related to businesses' use of foreign-based providers of electronic services
Companies Commission of Malaysia	Details of registered online traders
Treaty partners	Details of electronic service providers based in their countries
Online marketplaces	Business offers to local consumers from suppliers that are not registered to pay taxes.

Source: Author's analysis.

276 Tax officials, interview with Malaysia Digital Economy Team, 2017.

277 OECD, International VAT/GST Guidelines, Chapter 4, 2017, <http://www.oecd.org/ctp/international-vat-gst-guidelines-9789264271401-en.htm>.

278 Companies Commission of Malaysia, "Guidelines of Business Registration," 2018, <http://www.ssm.com.my/en/node/22086>.

279 OECD, International VAT/GST Guidelines, Paragraph 2.22, 2017, <http://www.oecd.org/ctp/international-vat-gst-guidelines-9789264271401-en.htm>.

Finally, Malaysia will need to implement measures to punish and deter non-compliance that is detected.

These could include financial penalties for failing to notify liability, late filing or payment, and incorrect declarations. However, some additional sanction may be necessary since enterprises collecting the tax are located outside the country. The ultimate sanction would be to deny access to the local market, cutting off the supplier from Malaysian consumers. This would entail blocking access to the supplier's websites and preventing the delivery of the supplier's e-mails to customers. The technical feasibility of such a sanction needs to be confirmed, as does its consistency with Malaysian law.

Using the multilateral instrument to make changes necessary to apply direct tax to e-commerce

Currently, Malaysia's network of tax treaties defines permanent establishments as fixed places where business is wholly or partly conducted. Depending on the treaty, a nonresident enterprise may also be deemed to have a permanent establishment if it has a dependent agent operating in the country with the authority to conclude contracts in the name of the nonresident enterprise, or that habitually maintains a stock of goods or merchandise and fulfills orders on behalf of the nonresident enterprise. According to Malaysia's e-commerce guidelines, the wider the scope and extent of a nonresident enterprise's business operations in Malaysia, the greater the likelihood that income is subject to tax. Activities to be considered include sourcing of content, procurement of goods, promotions, advertisement, selling, updating and maintaining the website, and uploading and downloading of content.²⁸⁰ Servers and websites facilitate business activities, but their location does not carry any meaning in determining derivation of income. Rather, business operations — the human-managed updating and maintenance of information — is what matters.²⁸¹

Malaysia has already taken the first step in changing the PE definitions in its tax treaties by signing the MLI on January 24, 2018, and identifying 73 out of its 75 existing tax treaties as covered by its provisions.²⁸² Articles 12–13 of the MLI are especially important to addressing tax avoidance problems exacerbated by the digital economy. Article 12 updates treaty language related to commissionaire arrangements. It specifies that agents establish PE status if they habitually conclude contracts that transfer ownership or use-rights of property that belongs to a nonresident enterprise or for the provision of services by a nonresident enterprise. Article 13 updates treaty language related to specific activity exemptions, making it clear those exemptions only apply if the activity is of a preparatory or auxiliary character.²⁸³ Adopting these changes brings Malaysia in line with the international community's latest efforts to address BEPS by broadening how permanent establishments are defined. Coupled with Malaysia's reservations to the OECD's Model Tax Convention that predate the BEPS project — particularly its position on the use of facilities or maintenance of stock for delivery — the reforms should provide a sufficient legal basis for sustaining a direct tax charge on the income of e-commerce traders who might otherwise have avoided income tax (Table 5.5).²⁸⁴

280 Inland Revenue Board of Malaysia, Guidelines on Taxation of Electronic Commerce, January 2013, http://lampiran1.hasil.gov.my/pdf/pdfam/GUIDELINES_ON_TAXATION_OF_ELECTRONIC_COMMERCE.pdf

281 Inland Revenue Board of Malaysia, "Malaysia Residency and Permanent Establishment Rules," not dated.

282 OECD, "Signatories and parties to the multilateral convention to implement tax treaty related measures to prevent base erosion and profit shifting," March 22, 2018, <http://www.oecd.org/tax/treaties/beps-ml-signatories-and-parties.pdf>. The tax treaties that do not apply — Argentina and the United States — do not include a definition of permanent establishment, and are limited largely to shipping and air transport. Malaysia-Argentina, "Double Taxation Avoidance Agreement Between Malaysia and the Argentine Republic," January 1994, http://lampiran2.hasil.gov.my/pdf/pdfam/ArgentineDTA_24082016.pdf; Malaysia-United States, An Agreement between the Government of Malaysia and the Government of the United States of America for Reciprocal Exemption with Respect to Taxes on Income of Shipping and Air Transport Enterprises Between the Two Countries," January 1987, <http://lampiran1.hasil.gov.my/pdf/pdfam/Usa.pdf>.

283 OECD, "Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting", Articles 12–13, <http://www.oecd.org/tax/treaties/multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf>.

284 OECD, Model Tax Convention, 2017; OECD, Preventing the Artificial Avoidance of Permanent Establishment Status, Action 7 Final Report, October 2015, <http://www.oecd.org/tax/preventing-the-artificial-avoidance-of-permanent-establishment-status-action-7-2015-final-report-9789264241220-en.htm>; Malaysia, "MLI position: provisional list of expected reservations and notifications to be made by Malaysia pursuant to Articles 28(7) and 29(4) of the Convention," January 24, 2018, <http://www.oecd.org/tax/treaties/beps-ml-position-malaysia.pdf>.

TABLE 5.5 Malaysia's reservations to the OECD's Model Tax Convention and prevailing treaty provisions, by issue

	Paragraph & Topic	Reservations to the Model Tax Convention	Prevailing Treaty Provisions
3	Building sites, construction, assembly, or installation projects	A site or project constitutes a PE if it lasts more than 6 months, versus 12 months in the model tax convention	Consistent at 6 months
4.a	Use of facilities for delivery	The term "delivery" should be deleted so that the use of facilities solely for the delivery of goods or merchandise does not constitute an exception	Most retain the term "delivery" (Japan excepted)
4.b	Maintenance of stock for delivery	The term "delivery" should be deleted so that the maintenance of a stock of goods or merchandise solely for delivery does not constitute an exception	Most retain the term "delivery" (Japan excepted)
4	Preparatory or auxiliary character	No reservations; accepts changes in Article 13 of the MLI and applies them to all covered tax treaties; chooses Option A	"Preparatory or auxiliary character" stipulation not explicitly applied to exceptions
4.1	Anti-fragmentation	No reservation; Malaysia accepts the new anti-fragmentation rule	Anti-fragmentation rules not included
5.b	Transfer of ownership or granting of rights to property	No reservations; accepts changes in Article 12 of the MLI related to commissionaire arrangements and similar strategies and applies them to each of its covered tax treaties	No explicit provision for these activities
5.c	Provision of services		

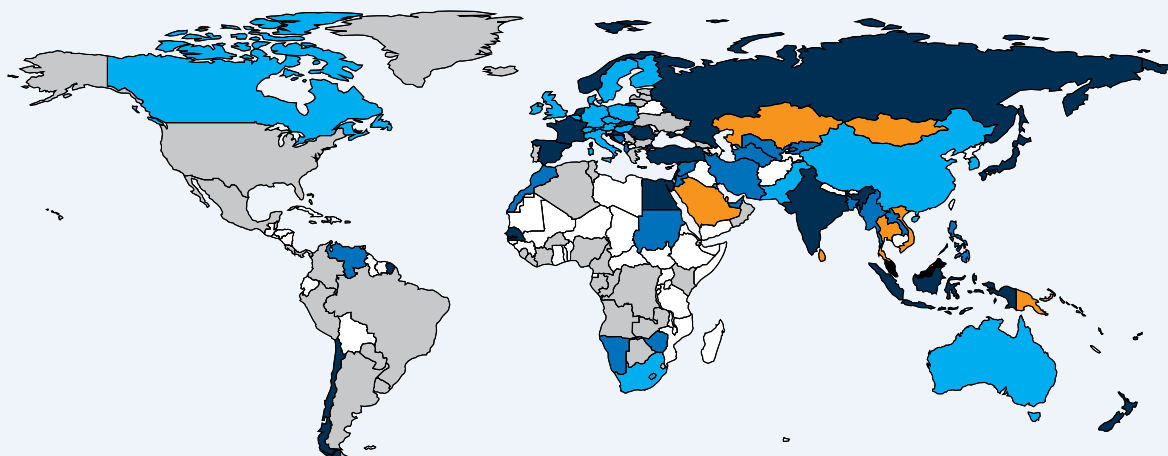
Source: OECD, Model Tax Convention, 2017; OECD, Action 7 Final Report, 2015; Malaysia's DTAs with China (1988), Japan (2000), Singapore (2007), Thailand (1983), and the United States (1987); Malaysia, MLI position, 2018.

Note: Paragraph numbers refer to the OECD's Model Tax Convention, although most of Malaysia's tax treaties mirror it. Malaysia's current treaty provisions are based on its DTA agreements with four of its top-5 trade partners, by volume: Singapore, China, Japan, and Thailand. The term "delivery" is not included in subparagraphs 4.a and 4.b of the DTA with Japan.

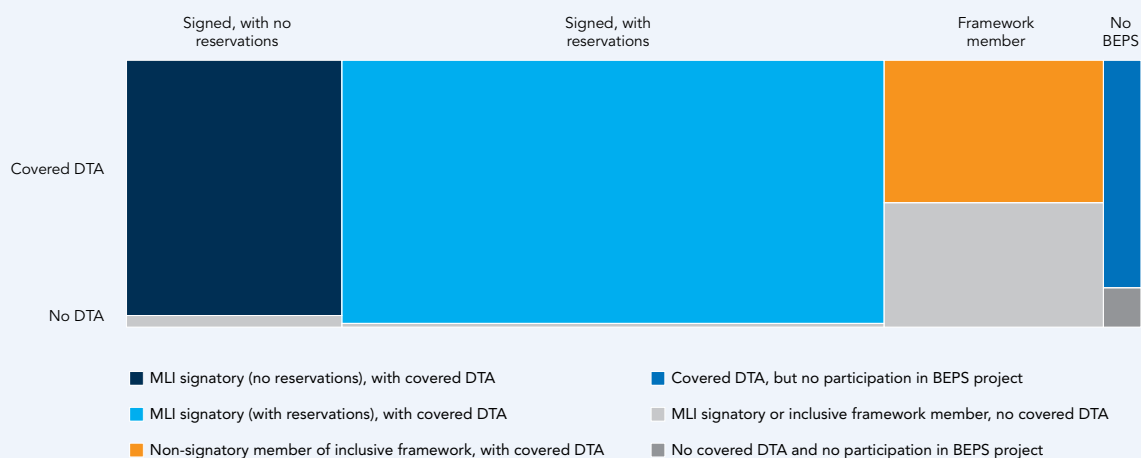
FIGURE 5.2 Most of Malaysia's imports are covered by the MLI, but reservations to Articles 12 and 13 might limit its impact

Trade relations with Malaysia and position on the MLI

a. Status, by country



b. Status, by volume of imports



Source: OECD, Matrix of options and reservations, 2018; WITS, Malaysia imports, 2018.

Note: Imports are proportional to area in panel B; columns represent countries' position on the MLI and rows their trade relations with Malaysia. "Signed" categories also include countries that have stated their intent to sign. "No DTA" refers to countries that do not have DTA with Malaysia covered by the provisions of the MLI, including Argentina and the United States.

However, for the PE definitions to be updated through the multilateral process, Malaysia's treaty partners must also sign and ratify the MLI and identify their tax treaties with Malaysia as covered by its provisions without reservations. As of March 22, 2018, 78 countries had signed the MLI, but many did so with reservations that limit its impact. Only 18 signatories, representing roughly 20 percent of imports, signed the MLI, accepted without reservations the changes related to commissionaire arrangements and specific exemptions, and have a covered tax treaty with Malaysia. These are the only trade relations that will fully benefit from the multilateral reforms. About half of imports come from countries that have signed the MLI and have a covered DTA with Malaysia, but which have reserved their right not to apply the relevant provisions. The remainder have some other obstacle — either Malaysia does not have a covered DTA with the exporter or the exporter has not signed the MLI (Figure 5.2).²⁸⁵ Each scenario can be found among Malaysia's biggest trading partners. Thailand and the United States have not signed the MLI, although both are members of the Inclusive Framework.²⁸⁶ China signed the MLI, but reserved its right to not apply the changes related to commissionaire arrangements and specific activity exemptions.²⁸⁷ Singapore took a mixed approach — signing the MLI, accepting the changes related to specific activity arrangements, and applying them to its tax treaty with Malaysia, but reserving to not apply the changes related to commissionaire arrangements or the new anti-fragmentation rule.²⁸⁸ Japan was the only country among Malaysia's top-5 trading partner to fully accept the relevant provisions.²⁸⁹

Changing domestic law to apply a direct tax

Further expanding the Inland Revenue Board's authority to tax income from digital transactions to nonresident and virtual providers would require authorizing a direct tax in domestic law. Malaysia has two legal options to do so. It could extend the existing withholding tax on technical services to include payments for digital goods and services. Or, it could extend the domestic definition of permanent establishments to deem foreign suppliers of digital goods and services to have a permanent establishment in Malaysia if they make sales to Malaysian customers, perhaps subject to sales threshold. In both cases, a withholding tax on the payments made to foreign suppliers would be a proxy for the tax on profits attributable to the deemed PE. This avoids the technical complexities of trying to compute those profits, which would be difficult given the lack of international consensus on the issue. Both forms of direct tax charge would be sustained by the notion that substantial participation in the digital economy of a country creates sufficient nexus to justify taxation, even if there is no physical presence. And both would require some mechanism to collect the withholding tax, possibly in the form of a withholding agent for the Inland Revenue Board if a nonresident or virtual supplier does not have a presence in the country.

285 OECD, "MLI Database: Matrix of Options and Reservations," March 22, 2018, <http://www.oecd.org/tax/treaties/mli-database-matrix-options-and-reservations.htm>; World Integrated Trade Statistics, "Malaysia Trade Statistics," March 2018, <https://wits.worldbank.org/CountryProfile/en/MYS>.

286 OECD, "Signatories and parties to the multilateral convention to implement tax treaty related measures to prevent base erosion and profit shifting," March 22, 2018, <http://www.oecd.org/tax/treaties/beps-ml-signatories-and-parties.pdf>; OECD, Inclusive Framework on BEPS, Progress Report July 2016–June 2017, July 2017, <http://www.oecd.org/tax/beps/beps-about.htm>.

287 China, "MLI position: provisional list of expected reservations and notifications to be made by the People's Republic of China pursuant to Articles 28(7) and 29(4) of the Convention," June 7, 2017, <http://www.oecd.org/tax/treaties/beps-ml-position-china.pdf>.

288 Singapore, "MLI position: provisional list of expected reservations and notifications to be made by the People's Republic of China pursuant to Articles 28(7) and 29(4) of the Convention," June 7, 2017, <http://www.oecd.org/tax/treaties/beps-ml-position-singapore.pdf>.

289 Japan, "MLI position: provisional list of expected reservations and notifications to be made by the People's Republic of China pursuant to Articles 28(7) and 29(4) of the Convention," June 7, 2017, <http://www.oecd.org/tax/treaties/beps-ml-position-japan.pdf>.

Malaysia's simplest option for expanding its taxing authority through a domestic law change is to extend the existing withholding tax to include payments for digital goods and services. Section 15A of the Income Tax Act of 1967 already authorizes a withholding tax on payments to nonresident providers of technical services. The 2017 budget amended it to include services performed outside the country.²⁹⁰ The Malaysian government could further amend the law to unambiguously apply the withholding tax to payments for digital goods and services. The City of Buenos Aires uses this approach to tax foreign suppliers of online subscription services. The tax is collected through a withholding by the credit and debit card companies from the subscription payments.²⁹¹ It may be possible to arrange for payments to be split as they pass through the banking system, with the tax element being sent directly to the tax administration, which is being considered by the United Kingdom.²⁹²

A withholding tax has two distinct advantages: it could be unilaterally applied to countries with which Malaysia does not have tax treaty and would be relatively simple to administer if a withholding agent can be identified. In 2016, Malaysia imported more than \$19 billion of goods and services — 12 percent of the total — from countries with which it does not have a PE-defining tax treaty (Figure 5.2).²⁹³ Malaysia can unilaterally impose a withholding tax on imports from these countries by amending its income tax law. Doing so would complement the multilateral approach Malaysia is taking with its treaty partners. Presentationally, a withholding tax may be preferable to a GST or SST charge because it clearly applies to the supplier and not the consumer. The key challenge is identifying a withholding agent. If the supplier is a nonresident and does not have a physical presence inside the country, it will be necessary to impose the withholding obligation on a person resident in Malaysia. The ultimate consumer is a poor choice given the monitoring and compliance costs. Instead, it may be necessary to identify some intermediary that can account for the tax, such as the bank or digital platforms through which consumers send payments to foreign suppliers. Automated methods that identify payments subject to the tax and deduct the appropriate amounts could minimize cost implications but will take time to develop. It might be simpler to require foreign suppliers to register and account for the withholding tax, the same approach adopted internationally for the collection of indirect taxes in these circumstances. And, as with the reform option for indirect taxes, a withholding tax would need to be bolstered by improved compliance mechanisms, including information from internet service providers (Table 5.4).

The impact of any withholding tax would, however, be limited by Malaysia's DTAs. Malaysia imported nearly \$106 billion of goods and services — 67 percent of the total — from countries with which it has a PE-defining tax treaty that will not be updated through the multilateral process because Malaysia's treaty partner did not sign the MLI or because it did not apply the relevant articles (Figure 5.2).²⁹⁴ Some of these — notably the agreement with Singapore — reflect the pre-2017 scope of the technical services, which allocates to Malaysia taxing rights over technical services only if they are performed inside the country.²⁹⁵ If there is no specific provision in the treaty governing payments for technical services, they are likely to constitute business profits and taxing rights will have been ceded to Malaysia's treaty partner. Malaysia cannot unilaterally tax suppliers from these countries through an expansion of its withholding tax. Similarly, any extension of the PE definition to deem a nonresident supplier as liable to taxation would be overridden by treaty provisions that

290 Malaysia, Income Tax Act 1967, Section 15A, <http://www.agc.gov.my/agcportal/uploads/files/Publications/LOM/EN/Act%2053.pdf>; Malaysia, "Amendment of Section 15A of the Income Tax Act 1967: Issues on Effective Date", June 23, 2017, <http://www.ctim.org.my/download.asp?cat=14&file=qsmnooJIHDIslKonJGnsPGFKoGFGEOMLn.2qs>.

291 Orbitax, "Argentina: Buenos Aires Introduces Tax on Online Media Streaming Services," 2014, <https://www.orbitax.com/news/archive.php/Buenos-Aires-Introduces-Tax-on-8724>.

292 HM Revenue and Customs and HM Treasury, "Open consultation: Alternative method of VAT collection — split payment," March 13, 2018, <https://www.gov.uk/government/consultations/alternative-method-of-vat-collection-split-payment>.

293 OECD, "MLI Database: Matrix of Options and Reservations," March 22, 2018, <http://www.oecd.org/tax/treaties/mli-database-matrix-options-and-reservations.htm>; World Integrated Trade Statistics, "Malaysia Trade Statistics," March 2018, <https://wits.worldbank.org/CountryProfile/en/MYS>.

294 OECD, "MLI Database: Matrix of Options and Reservations," March 22, 2018, <http://www.oecd.org/tax/treaties/mli-database-matrix-options-and-reservations.htm>; World Integrated Trade Statistics, "Malaysia Trade Statistics," March 2018, <https://wits.worldbank.org/CountryProfile/en/MYS>.

295 Malaysia-Singapore, "Agreement Between the Government of Malaysia and the Government of the Republic of Singapore for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income," Article 13, <http://lampiran1.hasil.gov.my/pdf/pdfam/Singapore.pdf>.

prohibit it. It might be possible to argue that part of the payments represents royalties subject to a withholding tax under a different treaty article, but that would likely lead to disputes.²⁹⁶ On the other hand, all countries that have signed the MLI or are members of the Inclusive Framework are obligated to meet minimum standards for preventing treaty abuse. If Malaysia can credibly show that a supplier is artificially diverting profits, the supplier could be vulnerable to challenges under provisions of the MLI related to treaty abuse.²⁹⁷

Enacting a freestanding tax

Finally, Malaysia could introduce a freestanding tax on foreign suppliers of digital services that is explicitly not part of the income tax code. India took this approach in 2016 when it imposed an equalization levy of 6 percent on payments made by businesses in India to nonresident providers of online advertising services.²⁹⁸ In March 2018, the European Commission proposed a tax on the gross revenues from digital activities in which users play a major role in value creation. Specifically, the tax would apply to revenues from selling online advertising space, intermediary activities that allow users to interact and sell goods and services, and the sale of data.²⁹⁹ The European Commission has estimated that a 3 percent tax could raise €5 billion a year. This form of taxation has two advantages: it avoids conflict with existing tax treaties and clearly targets foreign suppliers, rather than domestic consumers. The Companies Commission of Malaysia already requires companies selling on e-commerce platforms to register for sales tax. Expanding the registry to include nonresident suppliers of digital services could provide a basis for compliance management strategy and help measure the digital economy in Malaysia.³⁰⁰

However, it is possible that a freestanding tax could be challenged under WTO rules — particularly under the General Agreement on Trade in Services. This is an untested area, but the risk of WTO non-compliance is probably not high and could be mitigated if the freestanding tax is clearly framed as a tax on profits that arise inside Malaysia. The underpinning for this might be an argument that, in the digital economy, value is co-created by suppliers and consumers. It may also help if the measure can be seen to be levelling the playing field as between domestic and foreign suppliers of digital services. Operationally, the arrangements would need to be more robust and resource intensive. Information from treaty partners may be available to support collection of GST/SST but not for a tax that is explicitly outside the treaty framework.

296 Most of Malaysia's DTAs impose royalties of 10 percent. The OECD Model Tax Convention defines royalties as "payments of any kind received as a consideration for the use of, or the right to use, any copyright of any literary, artistic or scientific work including cinematograph films, any patent, trademark, design or model, plan, secret formula or process, or for information concerning industrial, commercial or scientific experience." Inland Revenue Board of Malaysia, "Effective DTAs," March 2018, http://www.hasil.gov.my/bt_goindex.php?bt_kump=5&bt_skum=5&bt_posi=4&bt_unit=1&bt_sequ=1&bt_lgy=2; OECD, Model Tax Convention, Article 12, 2017.

297 OECD, "Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting", Article 34, <http://www.oecd.org/tax/treaties/multilateral-convention-to-implement-tax-treaty-related-measures-to-prevent-BEPS.pdf>.

298 Ministry of Law and Justice of India, Finance Act 2016, Section 163, <http://www.cbec.gov.in/resources/htdocs-cbec/fin-act2016.pdf>.

299 European Commission, "Digital taxation: Commission proposes new measures to ensure that all companies pay fair tax in the EU," March 21, 2018, http://europa.eu/rapid/press-release_IP-18-2041_en.htm.

300 The business registration guidelines can be found here: <http://www.ssm.com.my/en/node/22086>

Recommendations

At a minimum, the government should implement the indirect charge based on a system of compulsory registration of foreign suppliers. This approach is consistent with international best practice and has been widely implemented in recent years. It would ease the burden on domestic tax payers, broaden the tax base, and increase transparency of the digital economy. Such a measure could be implemented as part of Malaysia's shift from a GST to an SST, either immediately, or shortly thereafter. An early announcement of the intention to require foreign suppliers to account for SST could help forestall behavioral responses to the application of SST to domestic suppliers only. Malaysia should consider the benefits of introducing a freestanding levy on the digital economy in the light of the outcomes of the other actions recommended in this report and the ongoing international debate about taxation of the digital economy, to which it is a party.

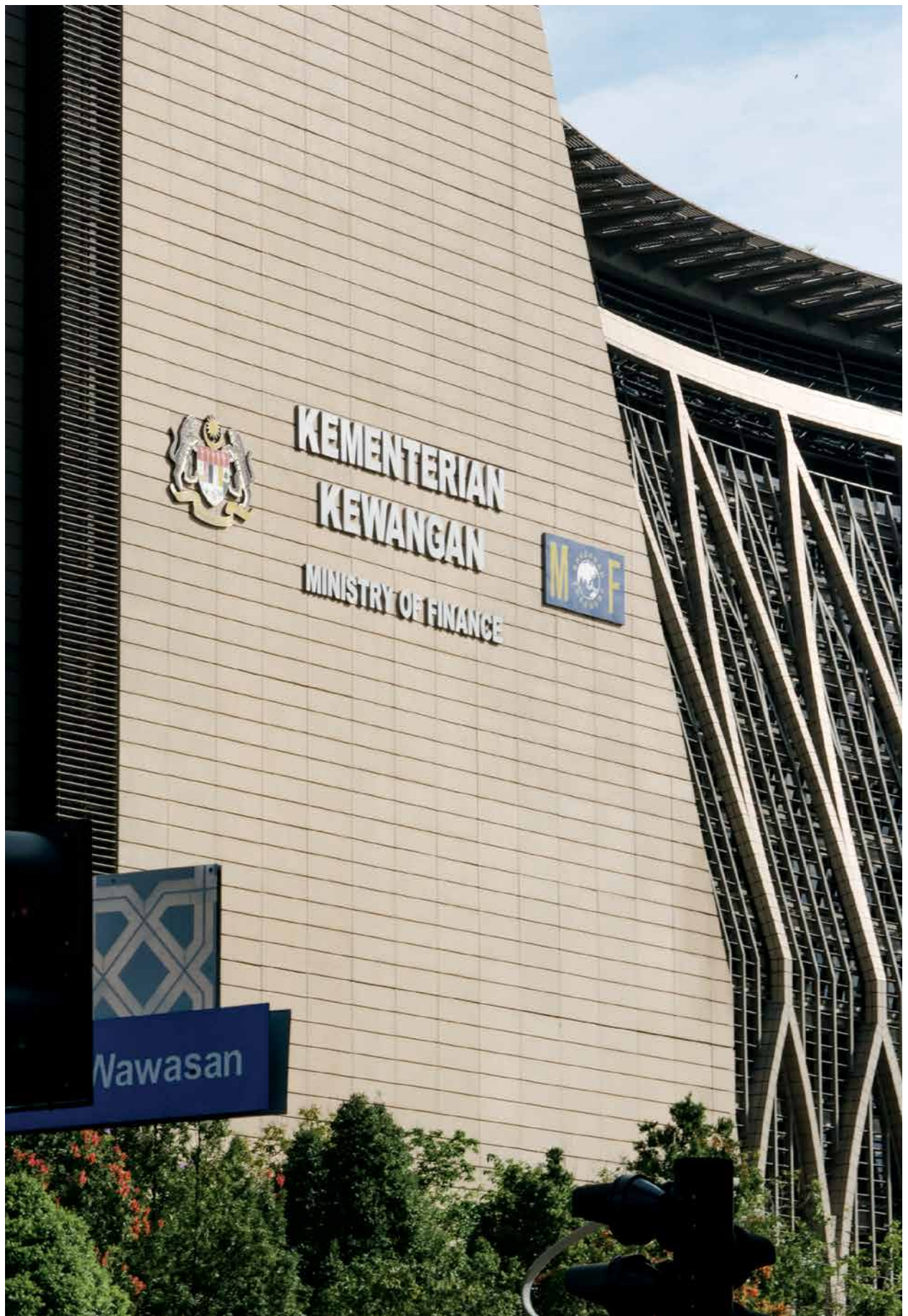
Malaysia should also ratify the multilateral convention and implement the reforms to which it agreed. Doing so is the best option available for collecting direct taxes on a large share of Malaysia's imports. The reforms related to PE definitions will make it easier to tax the income earned in Malaysia by businesses from countries representing approximately one-fifth of imports. Reforms related to treaty abuse will make it easier to tax the income of enterprises from all countries that have signed the MLI — representing the vast majority of imports — so long as the Malaysian government can make establish that they are abusing the treaties to divert profits.³⁰¹ To take full advantage, the government needs upgrade its domestic tax laws, including its PE definition, to exercise the taxation rights secured by its treaties.

Regardless of the option chose, Malaysia should develop its compliance and information sharing mechanisms. Supply chains in the digital economy can be complex and may cross multiple international borders, obscuring the identity of the ultimate supplier. The information sharing and compliance mechanisms necessary for the applying an indirect tax will also helpful for the direct tax options. By definition, foreign suppliers are not subject to direct regulation by Malaysia. The compliance strategy therefore needs to have an effective communication plan to inform them of their tax obligations and how to comply. It must also include credible means to detect and deter non-compliance. And communication needs to be ongoing, as new suppliers will continue to enter the market. Given the nature of the businesses involved, each of these tools will need to be web-based.

Finally, the government should clearly signal the intent of its reforms and pass whatever additional legislation is needed to pursue its preferred strategy. International companies are already adapting their behaviors in line with the international tax reforms, even where they have not yet been ratified.³⁰² If Malaysia makes its intentions clear, treaty partners and suppliers will likely adapt. If Malaysia's primary goal is to expand its tax base, it should consider amending its withholding tax so that it applies to payments for digital services — recognizing that the impact will be limited by treaties — or impose a levy on the gross revenues of non-resident digital service providers. If Malaysia's primary goal is to level the playing field between domestic and nonresident suppliers, it should ensure that e-commerce businesses active in Malaysia do not avoid PE status by ratifying the MLI and making any necessary changes to domestic law, and make the indirect tax charges effective through a system of compulsory registration for foreign suppliers. And if Malaysia's main goal is to support mainstream taxation, it should make effective use of the anti-abuse provisions in the MLI and review its defenses against profit diversion. Both measures have a general application and are not specific to the digital economy. Before contemplating an additional freestanding levy, Malaysia should assess the outcomes of the other three options and how other countries are proceeding.

301 OECD, "MLI Database: Matrix of Options and Reservations," March 22, 2018, <http://www.oecd.org/tax/treaties/mli-database-matrix-options-and-reservations.htm>; World Integrated Trade Statistics, "Malaysia Trade Statistics," March 2018, <https://wits.worldbank.org/CountryProfile/en/MYS>.

302 OECD, Tax Challenges Arising from Digitalisation, Interim Report, 2018, p. 91, <http://www.oecd.org/tax/beps/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.htm>.



CHAPTER 6

Options for Reform

This report benchmarks Malaysia's adoption of digital technologies and examines three interrelated issues — digital connectivity, digital entrepreneurship, and taxation of digital platforms — that are closely aligned with the country's goal of becoming the e-commerce hub of the region. These represent three important areas of policy focus as Malaysia seeks to maximize the returns and minimize the risks that the digital economy presents. However, it is by no means an exhaustive list and should be seen as the starting point as Malaysia develops and reforms in the context of ever new emerging disruptive technologies.

Malaysia's citizens are the most connected to the internet worldwide, putting the country close to the frontier in this regard. This has provided the foundation for the rapid growth in the size of the digital economy and served to transform wide ranging of aspects of everyday life.

In contrast, digital technologies have not yet made a commensurate impact on business practices for a large cross-section of Malaysia's private sector. While access to the internet has improved, Malaysian businesses have adopted associated technologies less readily than the Malaysian government or population (relative to expectations based on per capita income). And much of the digital economy continues to be dominated by large firms, despite programs to encourage adoption and innovation by SMEs.

Malaysia faces a clear challenge of ensuring that the digital economy benefits all Malaysians and does not exacerbate inequality. Malaysia's large, export-oriented firms are leading the way, adopting e-commerce at higher rates than SMEs. Without the right complements, this could entrench their dominance and increase inequality. Improving access to affordable, reliable, and high-speed fixed broadband will help smaller compete with better resourced and more sophisticated firms. The government has also launched numerous initiatives to support the digital economy — especially SMEs — including the world's first DFTZ, grant programs, and accelerators for digital entrepreneurs.

For Malaysia to ensure that growth in the digital economy is broad-based and sustainable, the government will need to address key barriers related to infrastructure, entrepreneurship, and taxation. Growth in basic digital adoption has been rapid but has contributed to a new digital divide: Malaysia continues to trail its international peers in digital adoption by businesses, especially as the country increasingly compares itself to high-income rather than upper middle-income peers.

In summary, Malaysia needs to:

- Create a dynamic ecosystem for its digital economy that embodies changes to its infrastructure, regulations, skills, and public finance.
- Achieve ubiquitous, fast, and inexpensive internet connectivity for businesses and households and fix the way it regulates the internet so unfair and damaging business practices can be corrected.
- Improve human capital through better curriculum and life-long learning opportunities and encourage more vibrant private sector finance so digital entrepreneurs can bring ideas to market.
- Take measures that will safeguard future tax revenues from the digital economy to improve public services and reinvest in areas that the economy needs most.

The following table outlines a summary of the key policy recommendations presented across the various chapters of this report.

TABLE 6.1 Digital economy regulatory actions and new initiatives to address key barriers related to infrastructure, entrepreneurship, and taxation

Digital infrastructure	
Enforce regulations to use existing infrastructure more efficiently	Impose appropriate obligations for fees levied at cable landing stations and for the conditions of physical co-location to ensure non-discriminatory access and pricing
	Promote open access across all levels of the broadband value chain to increase the ability of competitive providers to lease capacity or facilities on non-discriminatory terms
	Promote sharing of passive infrastructure to lower entry barriers and increase levels of competition and service innovation in the retail and wholesale market
	Utilize the fiber networks of energy, transport utilities, and federal agencies by issuing them network facilities provider or network services provider licenses and facilitating non-exclusive, bilateral agreements with telecom companies
Enact new policies to attract private capital to close coverage gaps	Define more ambitious goals for national broadband connectivity, with aspirations to achieve gigabit-level internet speed similar to advanced economies
	Increase competition for public-private partnership projects to deploy high-speed broadband networks in otherwise commercially non-viable areas.
	Restructure the Universal Service Fund to make it more flexible and encourage participation by a wider range of firms in network deployment, including through least-cost subsidy auctions or demand aggregation
	Treat broadband as a utility under the Uniform Building By-Laws, including it in all new construction to reduce the cost of network deployment and streamline broadband rollout at the state level

Digital entrepreneurship

Update policies to maintain relevance

Develop a national strategy for high-tech innovation, that provides an enabling environment for greater commercialization

Better coordinate and consider streamlining the various government initiatives to ensure the most efficient use of scarce financial resources

Increase the accessibility and transparency of public data, including through a national right to information law

Ensure that the legal and regulatory framework for data privacy continues to evolve with global trends, including on portability, the export of personal data, and notification procedures in cases of breach

Instill confidence in digital payments and unlock financial barriers

Move towards a robust e-payment infrastructure that is secure and instills greater confidence among consumers and entrepreneurs

Instill trust in digital payments by strengthening cybersecurity, risk policies and laws

Promote greater competition and provide more options for consumers in the use of e-payments in daily transactions

Encourage an investor-friendly regime that affords investors greater security when doing business in Malaysia

Develop a proactive strategy to encourage venture capital firms to reside and specialize in the country

Tap into alternative financing opportunities that will give Malaysia a niche in the regional and global economy

Invest in modern human capital

Scale up efforts to emphasize entrepreneurship and technical skills, including coding, in school curriculum at all levels, and deepen collaboration with industry to improve relevance, quality and attractiveness of STEM and TVET

Invest more in lifelong learning, especially through industry-based training programs, and monitor progress to help Malaysians already in the workforce upskill for more rewarding jobs in the digital economy

Promote a culture of entrepreneurship

Raise awareness about government initiatives among aspiring entrepreneurs

Encourage increased coverage of digital entrepreneurship in the media, showcasing local entrepreneurs of each ethnicity and publicizing stories of triumphs and failures

Provide financial and organizational support to large-scale events around digital entrepreneurship in Malaysia that convene participants from throughout the ecosystem

Taxing the digital economy

Adopt an indirect charge on foreign imported services

Implement the indirect charge based on a system of compulsory registration of foreign suppliers as part of the shift from GST to SST. An early announcement of the intention to require foreign suppliers to account for SST could help forestall behavioral responses to the application of SST to domestic suppliers only

Shore up options for direct taxation

Ratify the multilateral convention and implement agreed reforms on permanent establishment (that will make it easier to tax the income earned in Malaysia by businesses from countries representing approximately one-fifth of imports) and related to treaty abuse (which will make it easier to tax the income of enterprises from all countries that have signed the MLI)

Boost compliance

Develop its compliance and information sharing mechanisms with an effective communication plan to inform businesses of their tax obligations and how to comply

Signal future intentions to increase certainty for the private sector

Signal the intent of its reforms and pass whatever additional legislation is needed to pursue its preferred strategy and provide certainty for treaty partners and suppliers to adapt

If Malaysia's primary goal is to expand its tax base, it should consider amending its withholding tax so that it applies to payments for digital services — recognizing that the impact will be limited by treaties — or impose a levy on the gross revenues of non-resident digital service providers.

If Malaysia's primary goal is to level the playing field between domestic and nonresident suppliers, it should ensure that e-commerce businesses active in Malaysia do not avoid PE status by ratifying the MLI and making any necessary changes to domestic law, and make the indirect tax charges effective through a system of compulsory registration for foreign suppliers.

And if Malaysia's main goal is to support mainstream taxation, it should make effective use of the anti-abuse provisions in the MLI and review its defenses against profit diversion.

Source: Author's analysis.



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