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MARCH 2022

THE MALAYSIA DEVELOPMENT EXPERIENCE SERIES

Deep-Dive on Malaysia's Digital Services Trade



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Deep-Dive on Malaysia's Digital Services Trade



WORLD BANK GROUP
Inclusive Growth & Sustainable Finance
Hub in Malaysia

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Executive Summary



Global trade in services has been particularly hard hit by the COVID-19 pandemic, with sectors such as travel and tourism collapsing with successive waves of the virus. Nevertheless, digital services such as IT have fared better and benefited from a dramatically expanded home-based workforce.

Trade in digital services has been growing rapidly over the past few years, and even before the COVID-19 pandemic. Digitalization has created new trade opportunities by giving access to remote and foreign markets to firms of all sizes in any location, and by lowering trade costs and expanding the variety of goods and services that can be traded. While global digital trade is currently dominated by high-income countries, developing countries such as Malaysia are increasingly engaging and investing in the expansion of digital trade as exporters of high-value digital services.

Establishing a conducive environment for digital trade, however, remains a complex endeavor. The foundations of digital trade rest on a modern telecommunications infrastructure, a favorable business environment, and an educated population. In addition, digital trade requires

specific enabling conditions that build on those foundations: businesses require specific digital skills and entrepreneurship to engage in digital trade; cross-border transactions need effective electronic payment systems; and a sound regulatory framework should strengthen trust in digital markets and provide tools for remote transactions, including cross-border data governance, platform regulation, online consumer protection, and digital documentation signature.

This ‘deep-dive’ seeks to explain how the role of digital services trade could be enhanced to contribute to Malaysia’s competitiveness and integration into the global marketplace. It does this through:

- i) assessing the performance of the digital economy and digital services trade in Malaysia;
- ii) shedding light on how digital services are contributing to Malaysia’s competitiveness and broader integration into the global economy;
- iii) highlighting the key constraints to the development of the sector; and
- iv) making policy recommendations to address the main constraints.

The key finding is that Malaysia's trade in digital services has also grown but shows untapped potential. The share of Malaysia's digitally deliverable services trade in total services trade remains low relative to some peer groups, and the growth of its digitally deliverable services trade has been below that of all of its peer groups. Nevertheless, while Malaysia's ICT value-added in exports is low relative to other types of services, it is higher than all peer groups, with most ICT value-added coming from IT and other information services and telecommunication services.

In order to increase its digital trade, Malaysia will need to address a number of key constraints. The main ones identified in the report include the following.

Firstly, there are limits to competition and regulatory restrictions in Malaysia's digital network services that restrict its ability to deepen foreign linkages. Malaysia imposes significant restrictions on foreign entry into its digital network services sub-sectors, particularly in telecommunication services.

Secondly, a shortage of digitally skilled workers prevents Malaysia from fully developing its digital economy. Many firms report a shortage of skilled workers in areas such as machine learning, data analytics, cybersecurity, and digital compliance regulatory knowledge.

Thirdly, while more firms are going digital, especially large firms which are agile and better-equipped to adapt and extend trade in digital services, MSMEs in Malaysia are lagging behind in the adoption of digital technologies, especially exporting firms. The main obstacles

that micro, small, and medium enterprises (MSMEs) face when trying to digitalize are financing, a shortage of digitally skilled employees, inadequate technology, and difficulty incorporating a digital strategy into their business plan.

Finally, a digital divide caused by disparities in digital access and connectivity levels. This includes between rural and urban areas in terms of broadband access; between male- and female-owned firms gaps in the use of the Internet; and between different generational and income groups in terms of skills.

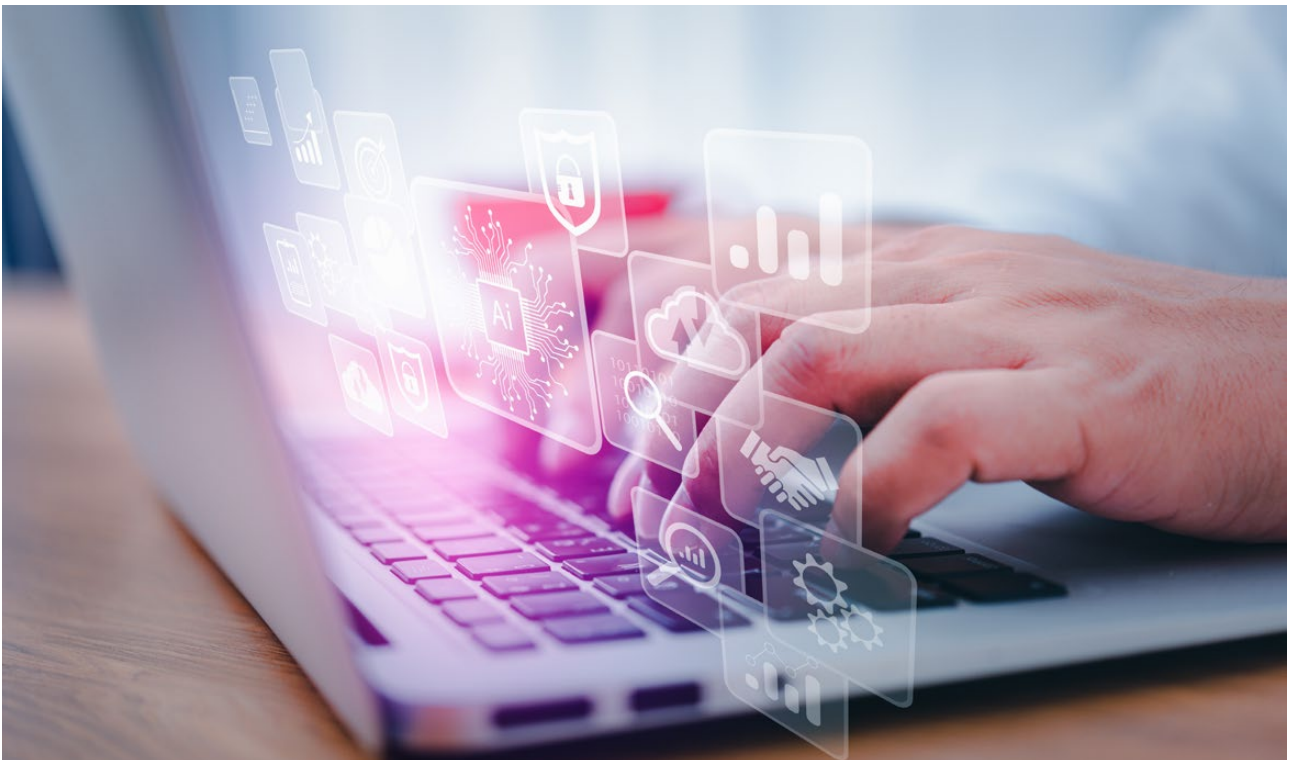
The key recommendation of the report is that to increase its digital services trade, Malaysia should take an integrated approach to addressing these constraints. This could include easing foreign entry and market restrictions especially in the telecommunications sector. Incorporating digital elements in Malaysia's international trade agreements could also help digital services trade integration and deepen Malaysia's participation into digital global value chains. In this context, participating and ratifying preferential trade agreements such as RCEP and CP-TPP offer important opportunities for Malaysia to bring its digital development concerns to international fora. It would also require taking measures to bridge the country's digital divide. One example would be policies to upgrade the digital skills of the labor force to provide firms with the talents needed for them to digitalize their operations. Another example would be policies such as PPPs to promote firm access to IT platforms that would also serve as productivity enhancing mechanisms for MSMEs and the informal sector more generally.





CHAPTER 1

Introduction and Context



Trade in digital services has been growing rapidly over the past few years

- 1. The rapid expansion of digital technologies around the world has impacted many economic and social activities with increasingly reliable and fast Internet connectivity changing how people communicate, work, and live.** It has created new communication channels, fostered innovation, improved productivity, expanded access to information and services as well as facilitated trade, giving rise to what we now call the digital economy. The digital economy refers to the use of information and communication technologies (ICT) for the provision of services and goods, which includes all economic transactions that occur on the Internet.
- 2. As the digital economy expands, there is an increasingly higher demand for digital services.** As the world becomes increasingly digitalized, the need for digital presence has encouraged many companies and governments to adopt digital strategies as part of their overall business planning. Therefore, companies and governments are now becoming increasingly digitalized and providing their products and services online. Moreover, many digital and tech start-ups have emerged in recent years, quickly becoming some of the world's largest companies, such as Google, Apple, Microsoft, Facebook, Netflix, Amazon, Alibaba, and Airbnb.
- 3. Digital services have also played an important role in keeping the world connected and economies running during the COVID-19 pandemic.** With social distancing, lockdowns, and other restrictions implemented, several activities have switched to remote delivery via the Internet (e.g., "working from home", online shopping, remote online learning, streaming services, telemedicine). These changes have only been possible with the support of digital services, such as teleconferencing services (e.g., Zoom, Webex, Skype, Microsoft Teams, Google Meets) and online marketplaces (e.g., Amazon, eBay, Uber Eats).

4. **Trade in digital services is not new and have been growing rapidly over the past few years, even before the COVID-19 pandemic.** Figure 1 shows the growth of global trade in ICT services and digitally deliverable services (ICT-enabled services).¹ The latter include insurance and pension services, charges for the use of intellectual property, ICT, other business services, and audiovisual and related services. While digitally deliverable services can still be traded physically under different modes of supply, they are mostly and increasingly being traded cross-border through ICT networks. Trade in ICT services has shown the highest growth among all types of services globally (Figure 2). In addition, the share of digitally deliverable services in total world services exports has been growing, especially as an adaptive measure in response to COVID-19, accounting currently for 63.5% of the total. Similarly, trade in ICT services as a share of total services exports has also been growing (from 6.5% in 2005 to 13.6% in 2020).

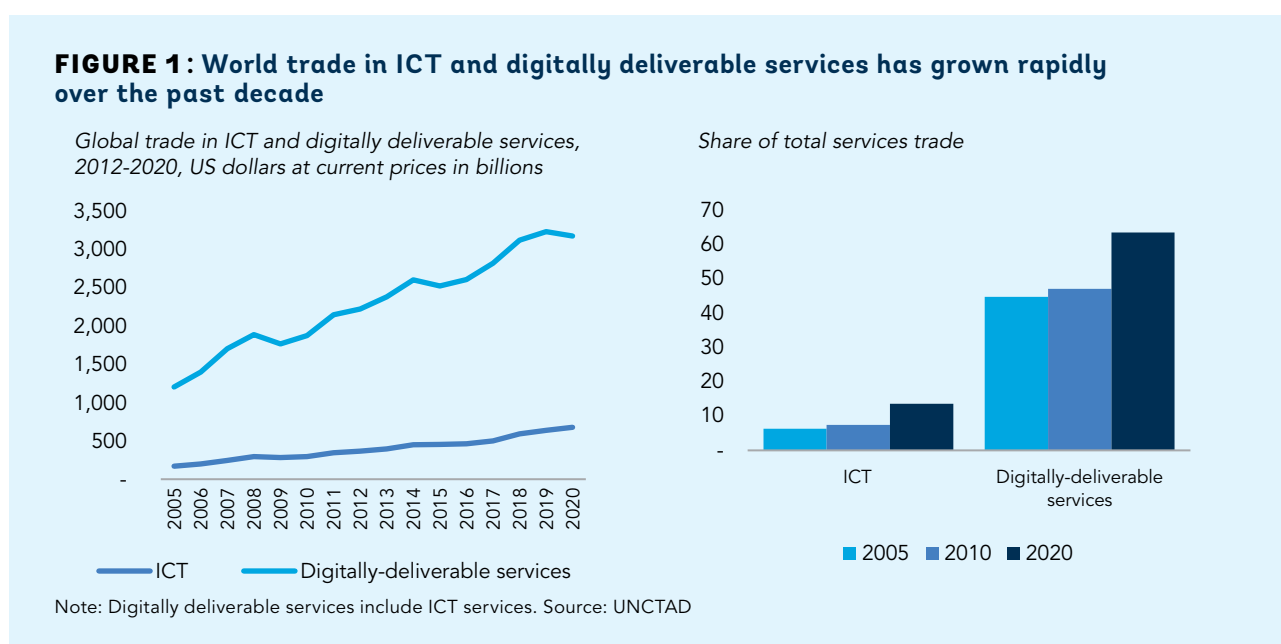
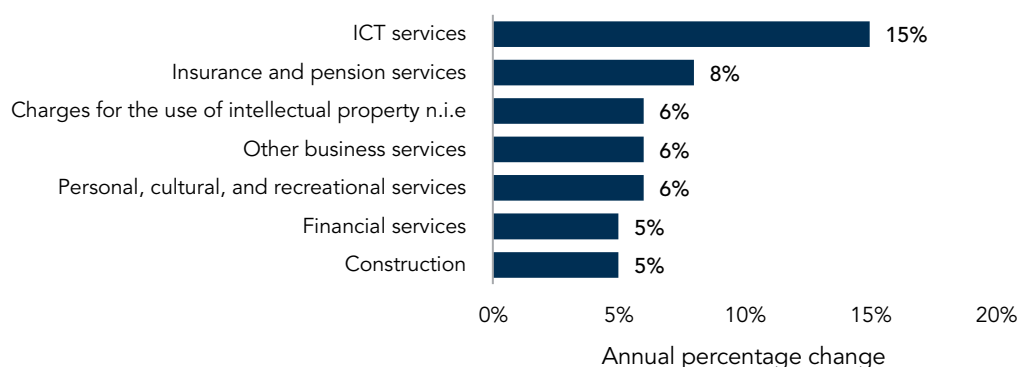


FIGURE 2 : World trade in ICT services has exhibited the highest growth rates among all services sectors

Commercial services by sector, 2018 (Annual percentage change)



Source: WTO-UNCTAD-ITC

1 Digitally deliverable services or ICT-enabled services refer to the UNCTAD definition of “services that can be delivered remotely through ICT networks”. In case of digitally deliverable services, it covers mostly Mode 1. For example, insurance and pension services, financial services, charges for the use of intellectual property are predominantly delivered through Mode 1. Other business services and audiovisual and related services tend to be delivered through Mode 1 and Mode 4, but Mode 4 tend to be represented in smaller proportions. Mode 3 is not included in the calculations.

- 5. Nevertheless, despite the growing importance of ICT services to economic development and international trade, approximately 43% of the world's population remain disconnected from the Internet and therefore unable to participate in the digital economy.** As the digitalization of the global economy increases, some developing countries are experiencing a widening digital divide caused by disparities in digital access and connectivity levels both between and within countries, which can vary among different dimensions including geographic regions, gender, size of firm, age, education, and income groups. Deficient infrastructure, especially in more remote areas, is often a key factor affecting digital access and connectivity levels.
- 6. Other constraints exacerbate the digital divide.** Workers who do not have the digital skills necessary to compete in the labor market face difficulties in finding jobs, which in turn exacerbate skills mismatches in the labor market. In addition, the absence of accountable institutions and a failure to establish a competitive business environment can widen inequalities in terms of digital access. If these issues are not addressed, digitalization risks mainly benefiting the more highly educated and higher income groups.
- 7. It is therefore crucial that countries implement proactive policies to become more digitalized and target the creation of an inclusive digital economy in order to foster sustainable and inclusive economic growth.** Creating an inclusive digital economy requires investments in digital infrastructure, such as broadband Internet and mobile networks, including in remote areas and low-income communities. As technology is changing the nature of work, it is also important to upgrade and reskill workers' skillsets. With advancements in artificial intelligence and further digital automation, many low-skilled jobs could disappear while others will emerge. Governments, the education system, and the private sector can all play important roles in helping workers adapt to this new work environment, by providing education and training that meet the demands of a changing labor market. Governments also need to develop an enabling digital regulatory environment that encourages competition and strengthens cybersecurity policies and safeguards. These in combination with the creation of digital platforms, especially FinTech-related, will also enable online transactions to occur more smoothly and safely. Finally, entrepreneurship, R&D, and investment in innovation are fundamental factors for enhancing digital competitiveness.
- 8. Cross-border data transfer regulations also play an important role in supporting trade in digital services.** The *World Development Report: Data for Better Lives* produced by the World Bank in 2021 analyzes the impact of a country's openness to cross-border flow of data in a study of 116 economies. The study finds that countries that are more open to cross-border data flows (*open transfers*² model) have a higher volume of trade in digital services than those operating under more restrictive models (*conditional transfers*³ or *limited transfers*⁴ models). However, a strong domestic regulatory framework for personal data, privacy, security, and consumer protection is also critical to supporting digital transactions and is also positively associated with trade flows of digital services trade, compared to those models that are open but exercise little government regulation on personal data. A sound regulatory

2 The *open transfer model* is the most flexible of the models as it does not have government restrictions on cross-border transfers of personal data and relies on private sector standards and practices. In this model, the government is only responsible for enacting enforcement measures to deal with infringement of these standards and practices established by firms.

3 The *conditional transfer model* sets a series of mandatory regulatory safeguards that once met allow for the free flow of cross-border data. These safeguards can restrict data transfer to only jurisdictions that meet the required regulatory safeguards, such as minimum standard for data protection. The European Union's 1955 Directive and General Data Protection Regulation set the pathway for this model. Malaysia adopts a conditional transfer model.

4 The *limited transfer model* is the most restrictive transfer model among the three as international data transfer requires regulatory approval and in most case requirements on data localization (more commonly limited to certain types of data that tend to be more sensitive, such as those related to health, finance, and government affairs). For example, the Republic of Korea restricts cross-border transfer of financial data.

domestic regime with solutions tailored to a country's own economic context can reduce costs for firms and government alike, and boost competitiveness in the international market. International trade agreements including measures related to cross border transfers and enforcement laws can also foster digital services trade flows.

- 9. The Malaysia Digital Economy Report produced by the World Bank in 2018 examined three interrelated issues that are closely aligned with Malaysia's own goal of becoming an e-commerce hub for the region.** The report covered digital connectivity, digital entrepreneurship, and taxation of digital platforms. As a result of World Bank Group policy advice in these areas, reforms implemented to the regulatory regime for telecoms in Malaysia have seen the costs of fixed broadband halve and speeds double since end 2018. And Malaysia was among the first developing countries to extend indirect taxation to imported digital services provided by non-resident suppliers, pushing the development frontier not just in Malaysia but in other countries, helping to balance growth of the digital economy while safeguarding public sector revenues.
- 10. Building on this research agenda, this 'deep-dive' seeks to explain how the role of digital services trade could be enhanced to contribute to Malaysia's competitiveness and integration into the global marketplace.** The remainder of the paper is structured as follows. Sections 2 and 3 benchmarks Malaysia's digital preparedness (e.g. in terms of Internet penetration ratios) against its structural, aspirational, and regional peers.⁵ Section 4 assesses the performance of Malaysia's digital services trade and digital economy, including in sub-sectors such as e-commerce and FinTech which are both important elements of digitalization. Section 5 discusses the constraints to deeper integration and development of the digital sector in the Malaysian economy. Section 6 presents the main findings and makes policy recommendations.

5 The **structural group** comprises countries that transitioned to high income in the last 30 years that had a minimum population of 1 million at the time of transition: Argentina, Chile, Croatia, Czech Republic, Estonia, Hungary, Republic of Korea, Rep., Latvia, Lithuania, Oman, Panama, Poland, Portugal, Puerto Rico, Saudi Arabia, Slovak Republic, Slovenia, Trinidad and Tobago, and Uruguay.

The **regional group** comprises ASEAN countries with a minimum population of 1 million: Cambodia, Indonesia, Lao PDR, Myanmar, the Philippines, Singapore, Thailand, Vietnam.

The **aspirational group** comprises OECD countries with a minimum population of 1 million: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Korea, Rep., Latvia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.





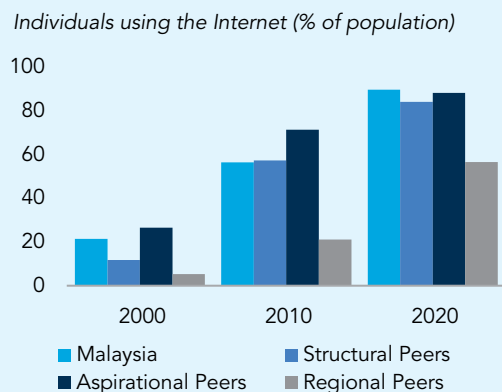
CHAPTER 2

Malaysia's Digital Context and Preparedness

Internet penetration ratios are high in Malaysia due to mobile broadband coverage, but firm usage of the Internet remains low and fixed broadband connectivity and speed are lagging

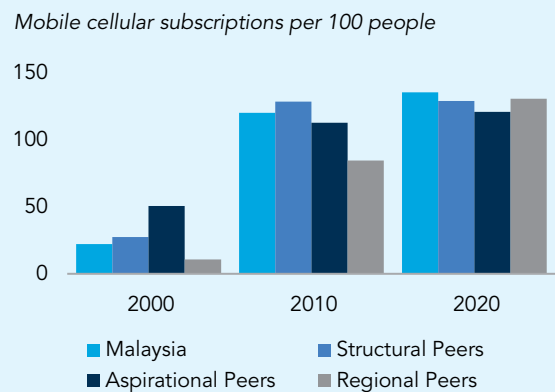
11. **The majority of Malaysians are connected to the Internet.** In 2020, approximately 89.6% of the population was using the Internet in Malaysia (ranging from 79.4% in rural areas to 92.4% in urban areas)—compared to 56.3% in 2010 (**Figure 3**). This level of access is on par with its structural and aspirational peers but notably much higher than its regional peers (at 56.6% in 2020). The top five activities performed on the Internet by individuals in Malaysia in 2020 were participating in social networks and messaging; downloading and streaming media and entertainment; searching for information about goods and services; telephoning over the Internet/VoIP; and downloading software (ICT Use and Access by Individuals and Households Survey Report, 2020). In addition, the COVID-19 pandemic has substantially increased the number of digital consumers—3 million more digital consumers or 81% of all Internet users in 2021 compared to the start of the pandemic in 2020 (Google *et al*, 2021).
12. **Smartphone penetration is high in Malaysia, with most Malaysians accessing the Internet through mobile cellular subscriptions.** In 2020, there were 135.1 mobile cellular subscriptions per 100 people in Malaysia equivalent to almost 1.5 mobile subscription per person—higher penetration than its peers (**Figure 4**). In terms of smartphone penetration, 91% of the population had a smartphone in 2019—92.8% in urban areas and 84.1% in rural areas (DOSM). Most mobile connections (approximately 70%) are through prepaid plans and 30% are postpaid (We Are Social, Hootsuite). 4G mobile network coverage is the most common type of mobile network used in Malaysia and its coverage is relatively broader than in most peer groups (Box 1). Nevertheless, the COVID-19 pandemic has revealed several areas of improvement needed to enhance the country's digital infrastructure. For example, Malaysia must ensure it keeps up with the adoption of new technologies such as 5G.

FIGURE 3 : Malaysians use the Internet more than individuals in regional peer countries



Source: Calculations based on WDI data

FIGURE 4 : Compared to peer groups, Malaysia now has the highest number of mobile cellular subscriptions





- 13. Despite high rates of Internet penetration in Malaysia, there is still potential to increase firms' usage of the Internet, including establishing their presence online.** According to the Department of Statistics of Malaysia, while 85.2% of firms use the Internet only 53.9% had a web presence in 2019. While Internet usage is higher for some sectors such as manufacturing and construction, it is lower in services and agriculture (**Figure 6**), with women-owned and small-and medium-sized establishments using the Internet less (World Bank Group 2018). Web presence is also low in the services sector. For instance, in 2020 during the Recovery Movement Control Order, less than half of firms in the services sector that used the Internet had a website (46.5%) or an online e-commerce platform for sales (38.8%).
- 14. A key reason for low firm uptake of the Internet is because fixed broadband subscriptions in Malaysia remain low and slow.** Fixed broadband is important—especially for businesses—because it is more reliable, and its speed is superior to mobile connections, helping to spur the adoption of digital technologies by businesses. It also provides support to increased capacity across other digital technologies like cloud computing, IoT, artificial intelligence, and big data. In 2020, fixed broadband subscriptions per 100 people in Malaysia were just 11.4, below its structural peers (27.2) and aspirational peers (34.9), but slightly ahead than its regional peers (8.9) (**Figure 6**). In addition, only 80% of the population used a computer in 2020— ranging from 61% in rural areas to 85.3% in urban areas (DOSM).

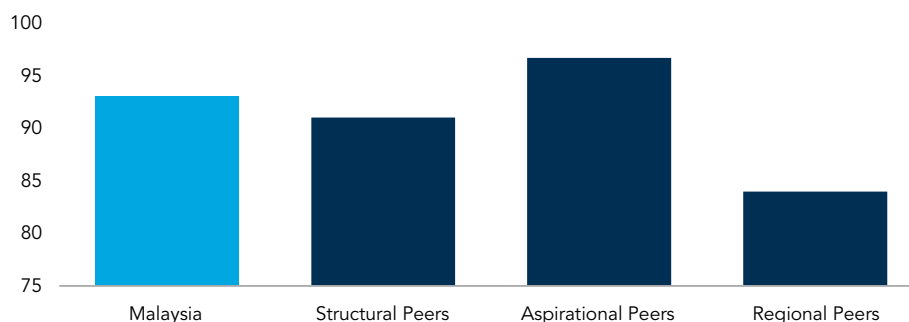
Box 1:

While 4G mobile network coverage is broader in Malaysia compared to most peer groups, it must keep up with the adoption of new technologies, such as 5G

In 2018, the 4G mobile network coverage index in Malaysia— defined as the share of the population covered by at least an LTE/WiMAX mobile network— was 93 according to the Network Readiness Index Report 2020 (NRI).⁶ This is higher than both structural (91) and regional peers (84) but lower than aspirational ones (96.7) (Figure 5). The 4G mobile network is the most prevalent type of mobile network in Malaysia, especially in the west of the country (Appendix Figure A). 4G is available in all states (Appendix Figure B), with the highest availability in Kuala Lumpur (97.6%) and the least in Pahang (66.8%). The Jalanan Digital Negara (JENDELA) was created to improve connectivity, gradually switch from 3G to 4G, achieve countrywide 4G coverage, and prepare Malaysia for 5G.

FIGURE 5 : Internet-enabled mobile network coverage is broader in Malaysia compared to most of its peers

4G Mobile Network Coverage Index, 2018, 1-100



Note: Structural Peers exclude Puerto Rico, and Regional Peers exclude Myanmar.

Source: NRI (The Global Information Technology Report, 2020), WB calculations

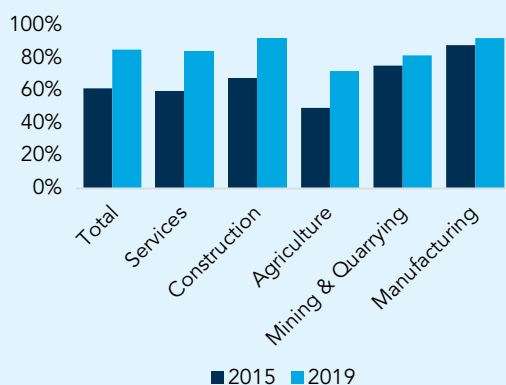
In February 2021, the Malaysian Communications and Multimedia Commission (MCMC) announced a Special Purpose Vehicle (SPV) owned by the Ministry of Finance, paving the way to 5G in Malaysia. The SPV will build, operate, and lease 5G infrastructure to new and existing telecommunications companies. Spectrum bandwidth already allocated to existing operators will not be allowed to be repurposed for 5G usage to ensure a continued focus on 4G development.

The deployment of 5G, with a more robust and secure connectivity and infrastructure, will help drive innovation and economic growth in Malaysia, benefitting businesses and consumers and potentially attracting more investors. 5G is important as it allows for future technological growth and Internet of Things (IoT) devices to communicate and share data faster. This is because 5G delivers multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. However, despite progress, Malaysia still lags behind some of its regional peers that have made further progress in implementing 5G, such as Singapore, Australia, Republic of Korea, Japan, and China.

⁶ The NRI Index was initially launched in 2002 by the World Economic Forum in collaboration with the World Bank, then later with both INSEAD and Cornell University in order to analyze the use of technology for development and enhanced competitiveness. Until 2016 it was published in the Global Information Technology report by the World Economic Forum. It is now published by the Portulans Institute. With a new methodology since 2019, the index measures a total of 134 economies across 60 variables. <https://networkreadinessindex.org/>

FIGURE 6 : about 85% of Malaysian firms use the Internet

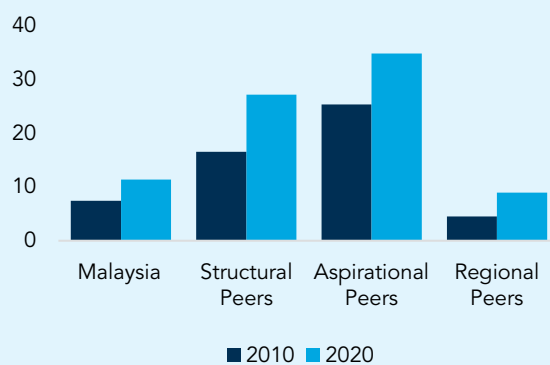
Internet usage, % of total establishments in Malaysia, 2015-2019



Source: Department of Statistics of Malaysia

FIGURE 7 : While broadband Internet penetration among the population lags structural and aspirational peers

Fixed broadband subscriptions per 100 people



Source: WDI, WB calculations

15. Although Internet speeds have improved in Malaysia, they are still below the average of the fastest five countries and could limit the adoption of transformative technologies. Fixed Internet speeds in the fastest five countries⁷ are 2.2 times higher than in Malaysia (average of 167.9 Mbps vs 74.8 Mbps in Malaysia as of November 2021) (Table A). While Malaysian firms and households are still easily able to transact, conduct business, and generally enjoy the benefits of the Internet, new digital applications, and transformative technologies such as cloud-based services, IoT, advanced robotics, and real-time remote access, which can boost productivity or even create new industries for Malaysia, would require dependable, high-speed, and low-latency Internet. Selangor, the Federal Territory of Kuala Lumpur, and Putrajaya have the highest Internet speeds (Appendix Table B). Similarly, Malaysia is also behind in mobile Internet speeds—mobile Internet speeds are about 4.5 times faster in the fastest five countries⁸ than in Malaysia (average of 110.6 Mbps vs 24.6 Mbps in Malaysia). Sarawak, Pahang, and Labuan Federal Territory had the highest mobile speeds as measured in Q3-Q4 2019.

FinTech plays an important role in enabling Malaysia's digital economy

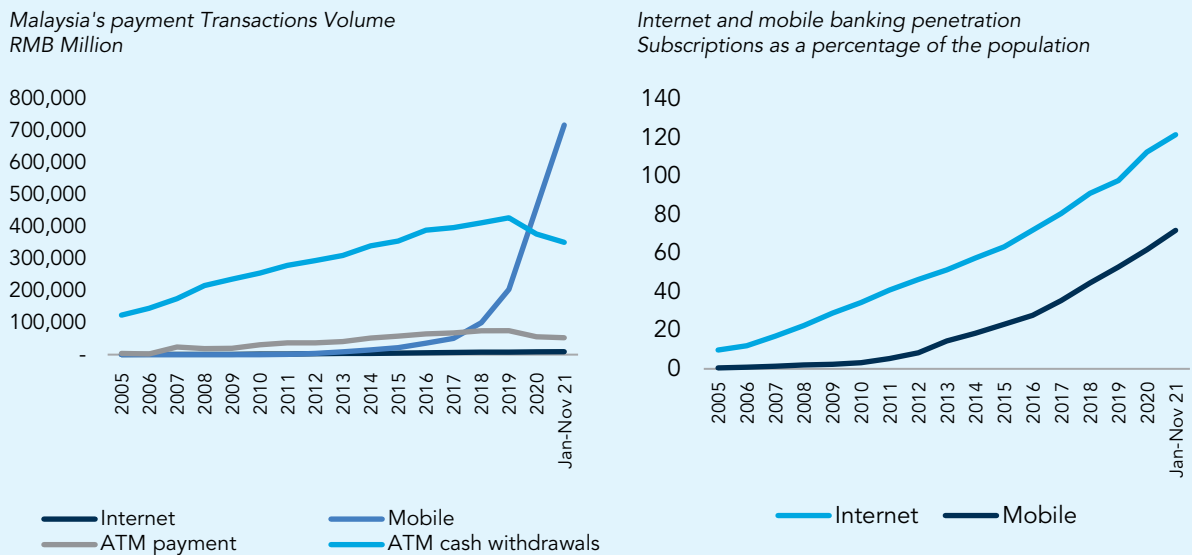
16. Financial technology (FinTech) is an important element for the digitalization of the economy. FinTech helps reduce the costs of doing business, increases productivity, and supports more financial inclusion as it can reach communities lacking access to financial services more easily. Malaysia's high Internet penetration, especially through mobile phones, and a growing middle class have provided conditions conducive for the development and expansion of its FinTech industry, which in turns enables more services to be traded online.

⁷ Singapore, Chile, Thailand, Hong Kong SAR, China, and Denmark (as ranked in November 2021).

⁸ UAE, Norway, Republic of Korea, Qatar, and China (as ranked in November 2021).

- 17. **The number of FinTech start-ups has been growing in Malaysia.** According to the Malaysia FinTech Report 2021, there were 233 FinTech start-ups in Malaysia in 2020 (up from 198 firms in 2019). Almost half of these firms focus on e-payments⁹ (e.g. 2C2P, Anypay, APPPAY, ASIAPAY) and e-wallet¹⁰ (e.g. 1pay, Alipay, AEON, BigPay) services. Several of these are foreign firms with a presence in Malaysia as well as several other ASEAN markets.
- 18. **Similarly, the number of e-payments in Malaysia has also increased, especially through bank transfers, allowing for more services and goods to be traded online.** In 2018, approximately 62.1% of people that used online payment methods in Malaysia used bank transfers, both online and in person. The second-most used method for online shopping was with cards, with 32.7% of people having used credit cards and 28.5% having used debit cards. Cash payments (where payment is made upon delivery of the product) was used by only 17.3% of people. Payment through digital wallets was used by 7% of people. This shows that Malaysia is becoming more digitalized.
- 19. **The digitalization of the financial sector in Malaysia also shows that the use of e-money, mobile and Internet transactions have increased substantially over the past six years and especially during the COVID-19 pandemic.** Mobile banking transactions increased more than 20-fold between 2015 and November 2021 (Figure 8). Internet banking transactions have also been growing (by 87.8% over the same period). Malaysia's increased volume of Internet and mobile transactions reflects the growth of Internet and mobile banking penetration in Malaysia (Figure 8) as well as Malaysia's high rates of smartphone penetration. ATM transactions have steadily risen since 2005, only to drop abruptly in 2020, due to COVID-19 and mobility restrictions.

FIGURE 8 : Malaysians are increasingly adopting FinTech for financial transactions, especially through mobile phones



Note: Mobile banking excludes non-financial transaction volumes starting Jan 2019. Internet banking excludes non-financial transactions. Payment transactions via ATM includes own and third-party funds transfers. Data on own and intrabank funds transfers available from 2007. Source: Bank Negara Malaysia

9 The term refers to transactions for paying for goods and services through an electronic/online medium (cashless).
 10 E-wallets are online financial accounts where users can store funds, and make and track transactions.

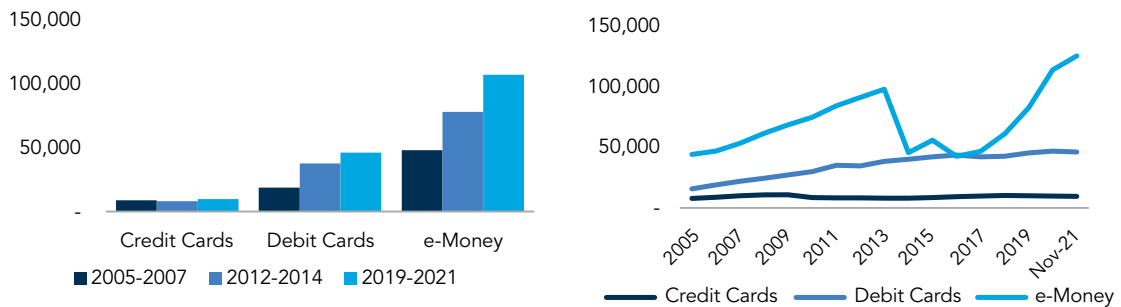
Box 2:

The number of e-payments in Malaysia has increased over the past decade

Since 2010, the number of credit and debit cards, as well as the use of e-money¹¹ in Malaysia have been increasing, contributing to e-commerce. The number of debit cards in circulation increased from 29,941 in 2010 to 46,148 in November 2021. Similarly, the number of e-money media has increased from 74,701 in 2010 to 125,213 in November 2021. Use of credit cards in Malaysia is low relative to debit cards and e-money, and the number of credit cards used is now lower than those owned in 2009 (Figure 9).

FIGURE 9 : The use of e-money in Malaysia has grown dramatically

Number of credit cards, debit cards and e-Money in Malaysia



Note: 2021 refers to November 2021

Source: Bank Negara Malaysia, World Bank calculations

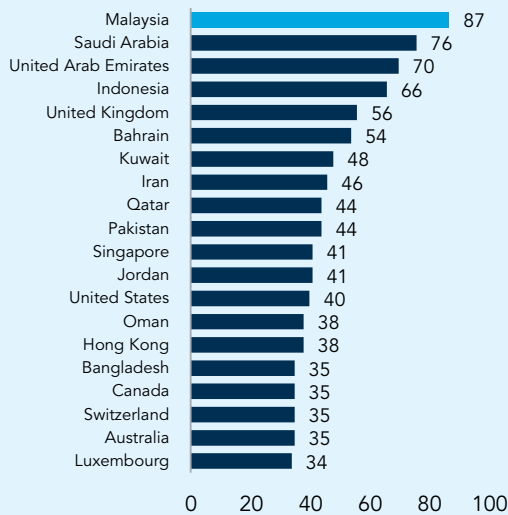
- 20. Malaysia is a leader in Islamic finance and has been playing an important role in the development of Islamic FinTech.** According to the Global Islamic Economy Indicator, Malaysia has been a global leader for eight consecutive years in Islamic Finance. Support from the Government and Bank Negara Malaysia (BNM) in the sector as well as incentives from the Malaysia Digital Economy Corporation (MDEC) to help with the digitalization of the economy have played an important role in creating a conducive ecosystem for Islamic FinTech to thrive. According to the Global Islamic FinTech (GIFT) Index published by the Global Islamic 2021 Report, Malaysia is the leading jurisdiction for Islamic FinTech (Figure 10 a). In addition, Malaysia has the potential to become a major Islamic FinTech hub as it performs relatively well in several Islamic FinTech pillars (Figure 10).
- 21. Government institutions in partnerships with regulators, agencies, corporations, financial institutions, accelerators, and other relevant bodies have implemented several initiatives to develop Malaysia's FinTech sector.** For instance, the Digital Finance Inclusion aims at bringing financial literacy to the bottom 40% of earners and micro-SMEs. The FinTech Booster created by MDEC and BNM, provides capacity-building assistance to FinTech companies to develop their services by

11 E-money refers to an electronic alternative to cash that can be held on cards, devices, or servers.

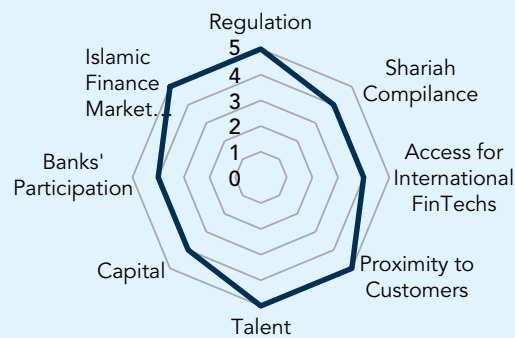
focusing in three areas—legal and compliance, business model, and technology. The Orbit is a co-working place that allows FinTech companies and startups to interact with other local and foreign FinTech players for the exchange of ideas and develop their services. Other initiatives include FinTech Academy, accelerators, and Financial Innovation Lab.

FIGURE 10 : Malaysia is the leading jurisdiction for Islamic FinTech

Top 20 countries by GIFT Index scores



Hub self-assessment of key pillars within of ecosystem development (score out of 5)



Note: Left: The index applied a total of 32 indicators across five different categories for each country. These five categories are: Talent; Regulation; Infrastructure; Islamic FinTech Market & Ecosystem; and Capital. These categories were weighted before in order to derive an overall score, with a heavier weighting given to the Islamic FinTech Market & Ecosystem category, since this is the most indicative by far of a country's current conduciveness to Islamic FinTech specifically. The index comprises an overall ranking of 64 countries.

Right: 5. Considerably Better than Other Hubs (USP), 4. Somewhat Better than Other Hubs, 3. Comparable to Other Hubs, 2. Somewhat Worse than Other Hubs, 1. Considerably Worse than Other Hubs (recognized weak point)

Source: Global Islamic FinTech Report 2021



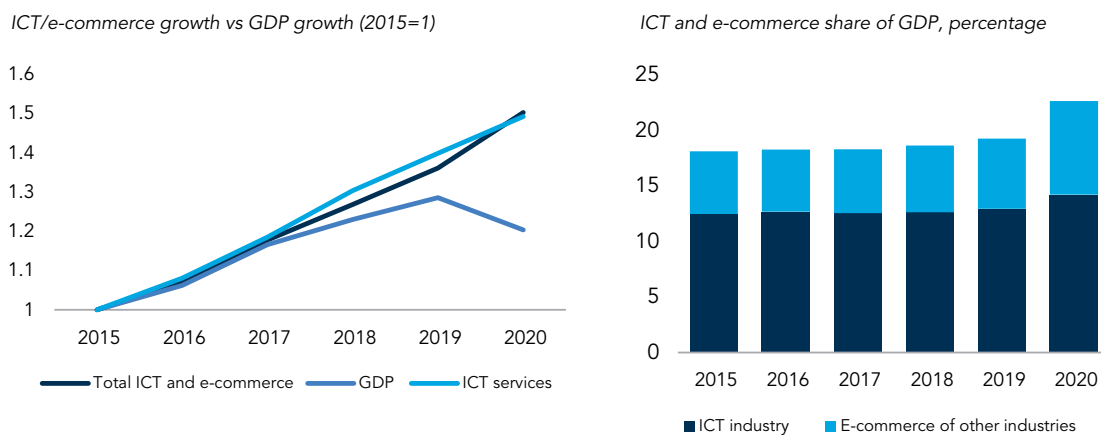
CHAPTER 3

Malaysia's Digital Economy

The digital economy is an important source of growth for Malaysia's economy

22. Malaysia's digital economy has been growing rapidly. Between 2015 and 2020, its ICT and e-commerce industries together grew by an average of 12.5% per year, surpassing overall GDP average annual growth of 6.5% (Figure 11). The contribution of the ICT and e-commerce industry to Malaysia's economy has also been growing, accounting for 22.6% of GDP in 2020—14.2% from gross value-added (GVA) ICT and 8.4% from e-commerce of other industries (Figure 11). The largest contribution to the economy from the ICT sector was from services (45%), followed by ICT manufacturing (34.5%), ICT trade (14.2%), and content and media (6.3%)¹² (Figure 12). The share of ICT services and ICT manufacturing in the ICT industry has also been growing, while ICT trade and content and media has slightly declined.

FIGURE 11: The contribution of ICT and e-commerce industry to the Malaysian economy has grown faster than GDP

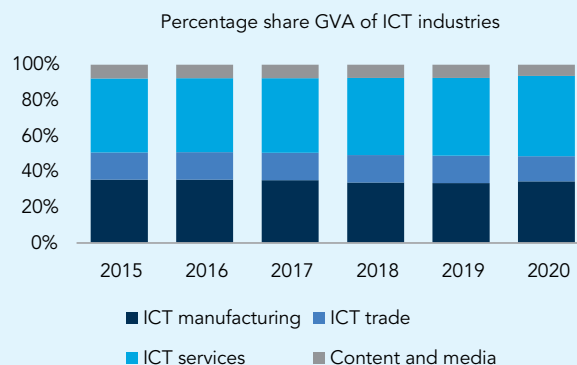


Source: Department of Statistics Malaysia

Note: Data for 2019 is estimated and for 2020 preliminary

FIGURE 12: ICT Industry Gross Value-Added

Percentage share GVA of ICT industries



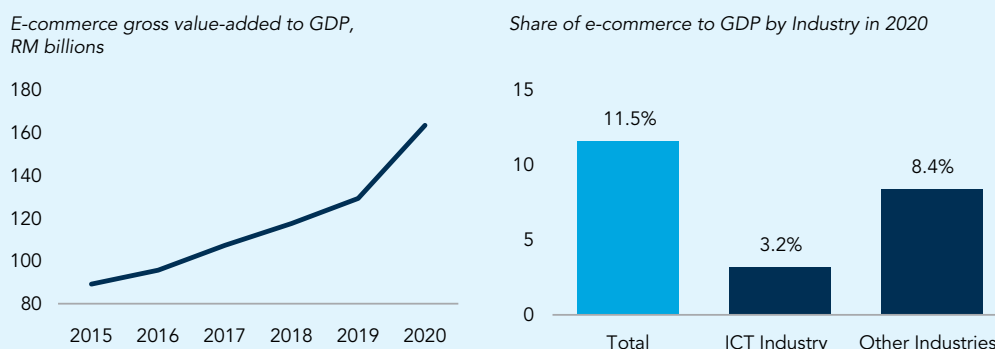
Note: Data for 2019 is estimated and for 2020 preliminary.

Source: Department of Statistics Malaysia

¹² ICT services refer to telecommunications; computer programming, consultancy, information and related activities; and other ICT services. ICT trade refers to wholesale trade and retail trade. ICT manufacturing refers to the production of computers and peripheral equipment, and electronic components & boards, communication equipment and consumer electronics. Content and media refer to the publishing of books, periodicals and other publishing activities; motion picture, video, television programs, photographic and creative activities; and other content and media.

23. E-commerce has also experienced rapid growth. The contribution of e-commerce to Malaysia's GDP was approximately 11.5% in 2020, of which 3.2 percentage points came from the ICT industry, and 8.4 percentage points from other sectors (**Figure 13**). In 2019, the states with the highest adoption rates of e-commerce were Putrajaya (70.5%), Perlis (44.5%), Selangor (40%), Kuala Lumpur (38%), Tenggau (35.5%), and Pulau Pinang (32.5%) (Appendix Figure C). The most common online shopping method in Malaysia is through business-to-consumer marketplaces (B2C¹³), such as Lazada, PrestoMall, Shopee, Lelong, Zalora, Logon, Carousell, eBay, Qoo10, and Taobao.

FIGURE 13 : The contribution of e-commerce to Malaysia's economy has risen dramatically



Note: Data for 2019 is estimated and for 2020 preliminary. Source: Department of Statistics Malaysia

24. Most Malaysians participate in the digital economy by shopping online through their smartphones. According to the e-Commerce Consumers Survey conducted by MCMC in 2018, approximately 78.3% of all online purchases in Malaysia are done through a smartphone, especially among those aged 30 years old or younger. However, most Malaysians aged 40 or older prefer to use a computer. The most common products purchased by Malaysians online are clothing and accessories. However, growth in the digital economy has been largely dominated by a small proportion of firms that tend to be large, foreign-owned, and concentrated in a few states. SMEs tend to be less digitalized and participate less in the digital economy.

Investment incentives have been used to encourage FDI in Malaysia's digital economy

25. Malaysia has created several initiatives to attract investment in its digital economy, including investment incentives and tax policies. For instance, through the Digital Free Trade Zone, Malaysia aims to attract investments to help drive cross-border e-commerce and trade as well as help MSME export growth by working with global and regional marketplaces to increase demand for Malaysian goods and services. MDEC has also been encouraging investments and testing new digital technologies, such as blockchain and FinTech. Moreover, MDEC has developed the Digital Talent Development Strategy Framework to develop its digital talent. As part of its Industry 4.0 strategy, Malaysia is also offering incentives, such as tax breaks for the electronics sector and intellectual property, automation equipment, capital allowance for services, provision of incentives for digitalization and innovation efforts, and a RM2 billion Industry Digitalization Transformation Fund (Malaysian Investment Development Authority, 2020).

¹³ B2C marketplaces refer to online websites/platforms where consumers can shop for a range of goods and services (e.g. fashion, electronics, food, travel) from different brands/sellers at the same time.





CHAPTER 4

Malaysia's Trade in Digital Services



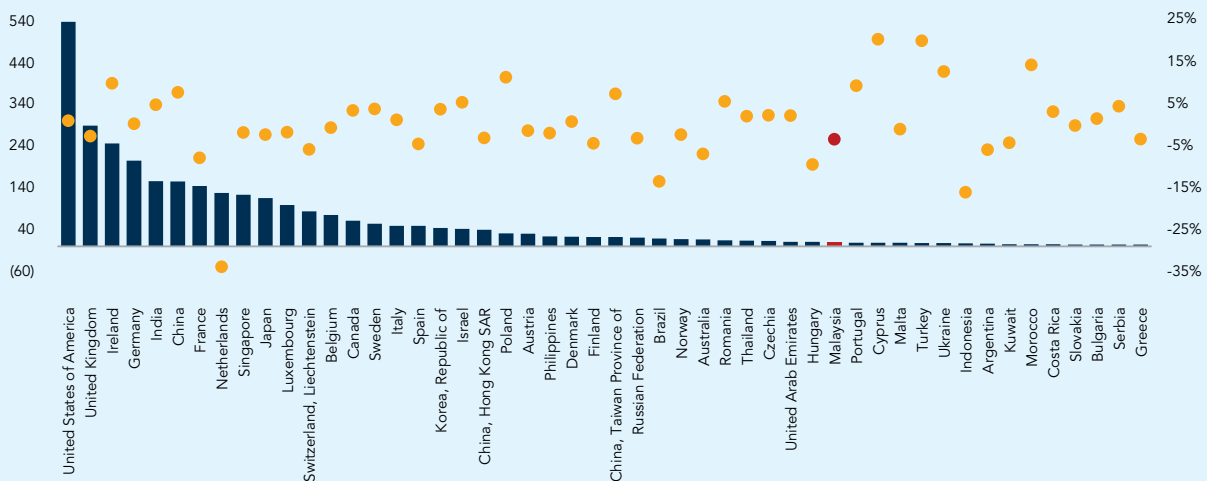
Malaysia's trade in digital services has grown but shows untapped potential

26. **Global trade in both ICT services and digitally deliverable services have been growing.** Developed countries still account for the majority of digitally deliverable services exports, but their share has been decreasing. The United States exports the most digitally deliverable services, accounting for 16.8% of global digitally deliverable services exports in 2020. Malaysia ranked 36th in exports of digitally deliverable services in 2020 (**Figure 14**), accounting for just 0.3% of the total. As a proportion of Malaysia's total services exports, 49.7% were digitally deliverable services.

FIGURE 14 : Malaysia is the 36th largest exporter of digitally deliverable services

Largest 50 exporters of digitally deliverable services, 2020
US dollars at current prices in billions (Left axis)

YoY Change (2019-2020) (Right axis)



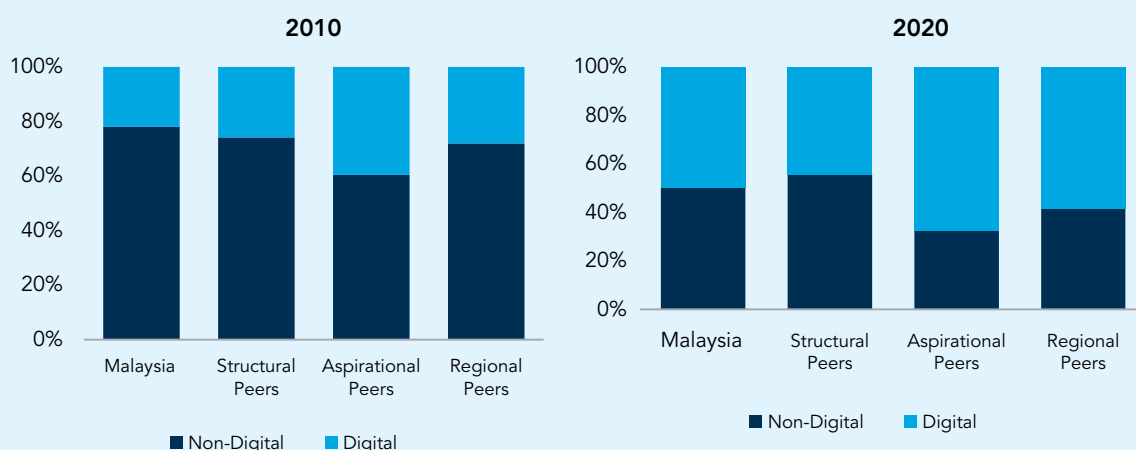
Source: Calculations based on data from UNCTAD.

27. The share of Malaysia's digitally-delivered-services trade in total services trade remains low relative to some peer groups. In 2020, 49.7% of Malaysia's total services exports were delivered digitally (**Figure 15**). While the importance of Malaysia's digital services exports has increased since 2010 (22.0%) and is slightly higher than in structural peers (44.2%), it is still low relative to regional (58.4%) and aspirational peer groups (67.4%), revealing untapped potential for Malaysia to grow exports in the sector.

28. The share of imports of digitally deliverable services in total services imports is also low in Malaysia. In 2020, 49.1% of Malaysia's total services imports were digital, representing an almost 12 percentage points increase from the share in 2010 (37.4%) (**Figure 15**). However, Malaysia's proportion of digitally deliverable services imports remain low relative to its regional (55.8%) and aspirational peer groups (66.7%), but slightly higher than its structural peers (47.7%).

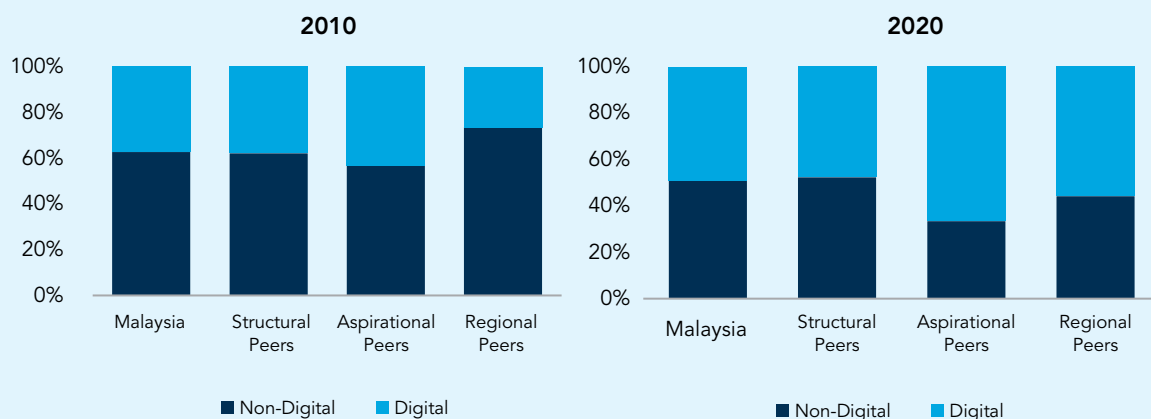
FIGURE 15 : The importance of Malaysia's trade in digitally deliverable services remains lower than its peers

Share of digitally deliverable services exports in total services exports



Source: Calculations based on data from UNCTAD.
 Note: Myanmar not included in Regional Peers 2010

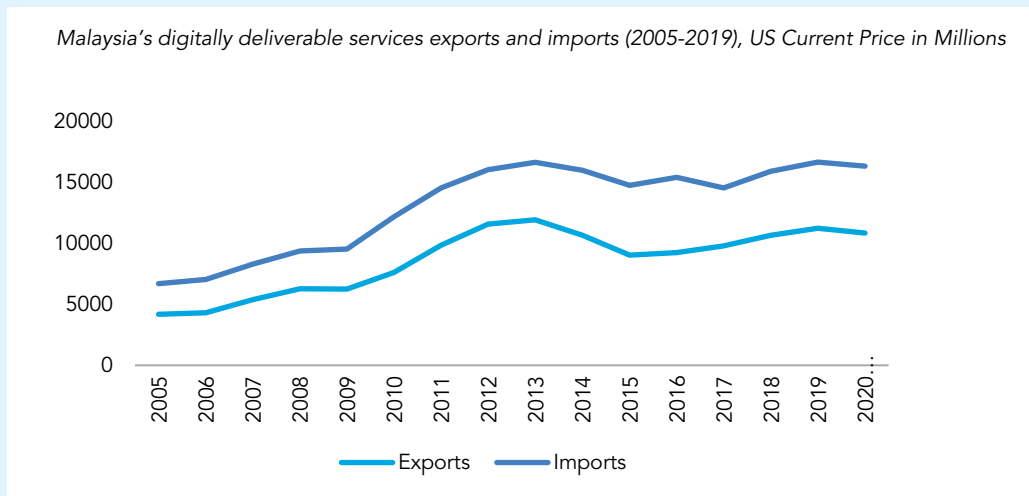
Share of digitally deliverable services imports in total services imports



Source: Calculations based on data from UNCTAD.
 Note: Spain and the Netherlands not included in Aspirational Peers 2010, and Myanmar not included in Regional Peers 2010

29. The growth of digitally deliverable services trade in Malaysia has been below its peer groups in recent years, and Malaysia maintains a trade deficit in digitally deliverable services. While Malaysia's digitally deliverable services trade increased substantially between 2005 and 2013, growth has since decelerated and the gap between imports and exports has been growing (Figure 16). In the period 2016-2018, Malaysia's exports of digitally deliverable services grew by 7.4%—lower than its structural (11.3%), aspirational (8.8%) and regional peer groups (13.7%) (Figure 17). Malaysia's imports of digital services grew by 1.6% over the same period, which was much lower than in structural (9.3%), aspirational (7.2%) and regional peers (10.2%). During the 2018-2020 period, growth was small for Malaysia (approximately 1% for both exports and imports) and all peer groups.

FIGURE 16 : Malaysia has a growing trade deficit in digitally deliverable services

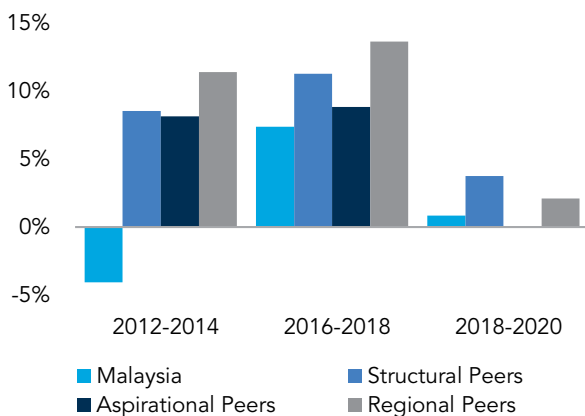


Source: UNCTAD.

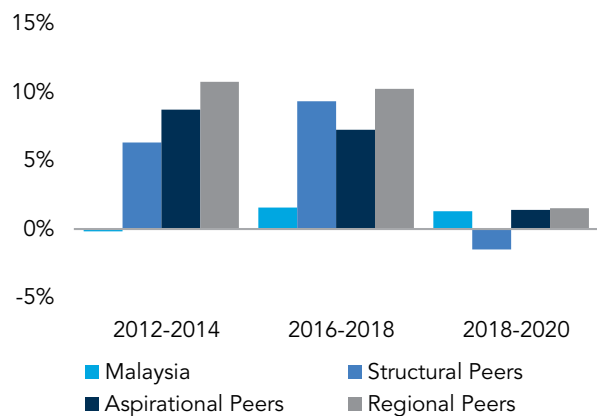
FIGURE 17 : The growth of digitally deliverable services trade in Malaysia has lagged its peers in recent years

Digitally deliverable services trade growth rates (%), 2012-2020

CAGR of Services Exports



CAGR of Services Imports

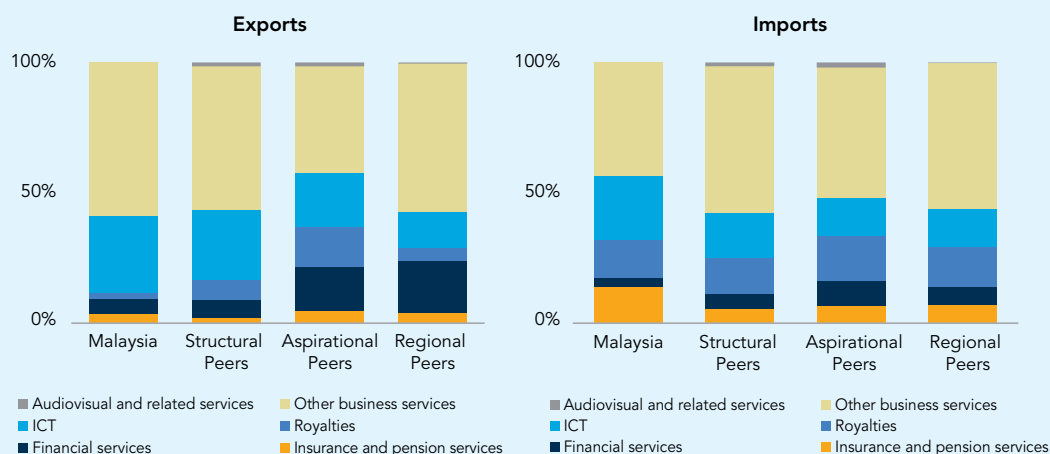


Source: Calculations based on data from UNCTAD.

Note: Spain and the Netherlands not included in Aspirational Peers 2008-2010, Myanmar not included in Regional Peers 2008-2012, the Netherlands not included in Aspirational Peers for year 2012, 2013.

30. Most of Malaysia's digitally deliverable services trade is in business services. In 2020, approximately 59% of its digitally deliverable services exports were in other business services, followed by ICT (29.3%) and financial services (5.8%) (Figure 18 and Appendix D). Similarly, other business services were also Malaysia's main digitally deliverable services import, accounting for 43.4%, followed by ICT services (24.5%) and royalties (14.6%).

FIGURE 18 : Malaysia's digitally deliverable services trade is mostly business services
Composition of potentially digitally deliverable services trade, 2020



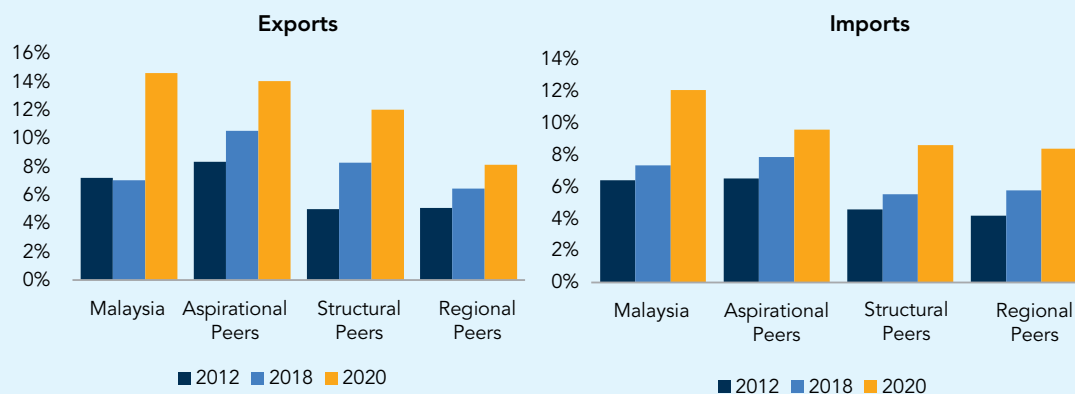
Source: UNCTAD

Note: Based on the concept of potentially ICT-enabled services as developed by UNCTAD.

31. Malaysia's trade in direct ICT services¹⁴ increased in 2020 mainly driven by digitalization caused by the COVID-19 pandemic. The share of Malaysia's ICT services exports as a share of total commercial services exports accounted for 14.6% in 2020 (Figure 19)—a growth of 7.3 percentage points compared to 2019 and surpassing all its peer groups. The share of ICT services in total commercial services exports in 2020 was 14.1% in Malaysia's aspirational peers; 12% in structural peers; and 8.1% in regional peers. The share of ICT services imports has also increased in Malaysia (12.1%) and remains slightly above its aspirational peers (9.6%), structural peers (8.6%) and regional peers (8.4%).

FIGURE 19 : The importance of Malaysia's trade in direct ICT services was boosted by the COVID-19 pandemic

ICT services exports/imports as a share of commercial services exports/imports

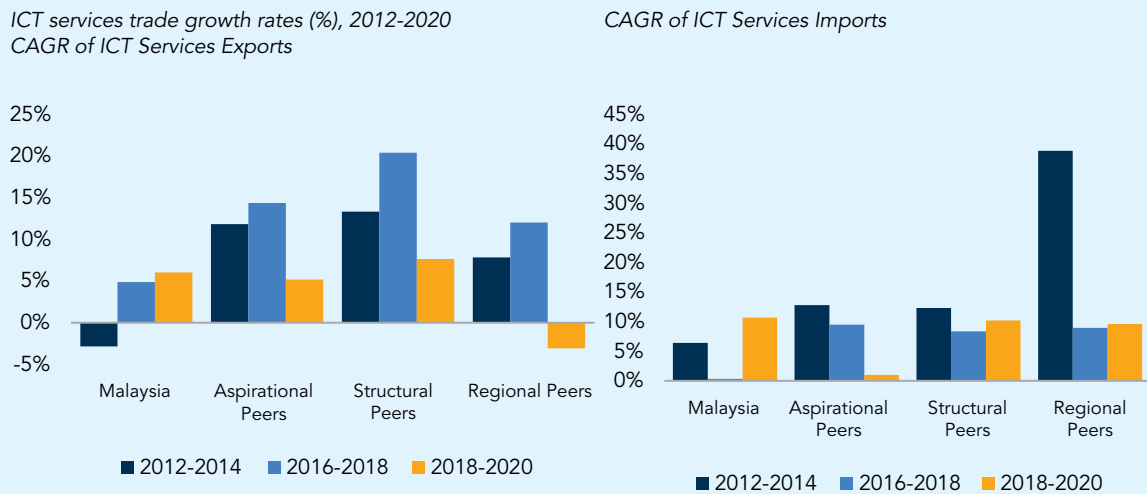


Source: World Bank staff calculations using data from UNCTAD

¹⁴ Trade in direct ICT services refers to ICT services that exported or imported by themselves and not traded in terms of value-added by being embodied in other goods and services.

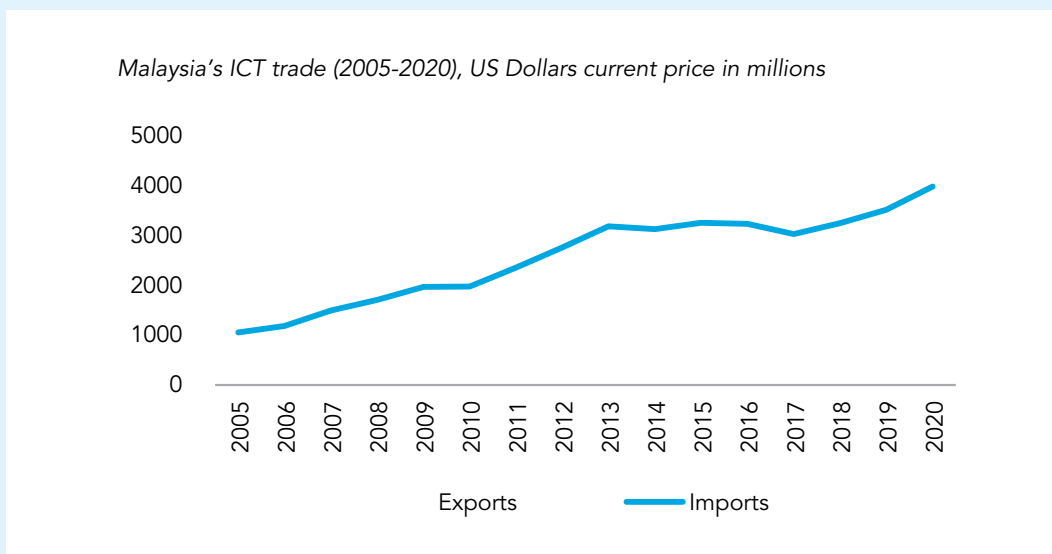
32. However, prepandemic, Malaysia's trade growth in direct ICT services trade lagged its peers and it maintains a trade deficit in direct ICT services. In the 2012-2014 period, Malaysia experienced a 2.8% decrease in its growth rate of ICT exports before increasing to a 6% increase in the period 2018-20 (Figure 20). In contrast, ICT export growth in 2018-20 for its aspirational peers was 5.2%, for structural peers 7.7%, and for regional peers -3.1%. Malaysia's ICT services imports growth rate also increased over the period (Figure 20). In 2018-2020, its ICT services imports grew 10.7%, on par with its structural (10.2%) and regional peers (9.6%). However, since 2013, Malaysia has imported more ICT services than it exported. The deficit has been widening in the past few years with a slight decrease in 2017 (Figure 21).

FIGURE 20 : Malaysia's growth of direct ICT services trade has lagged its peers in recent years

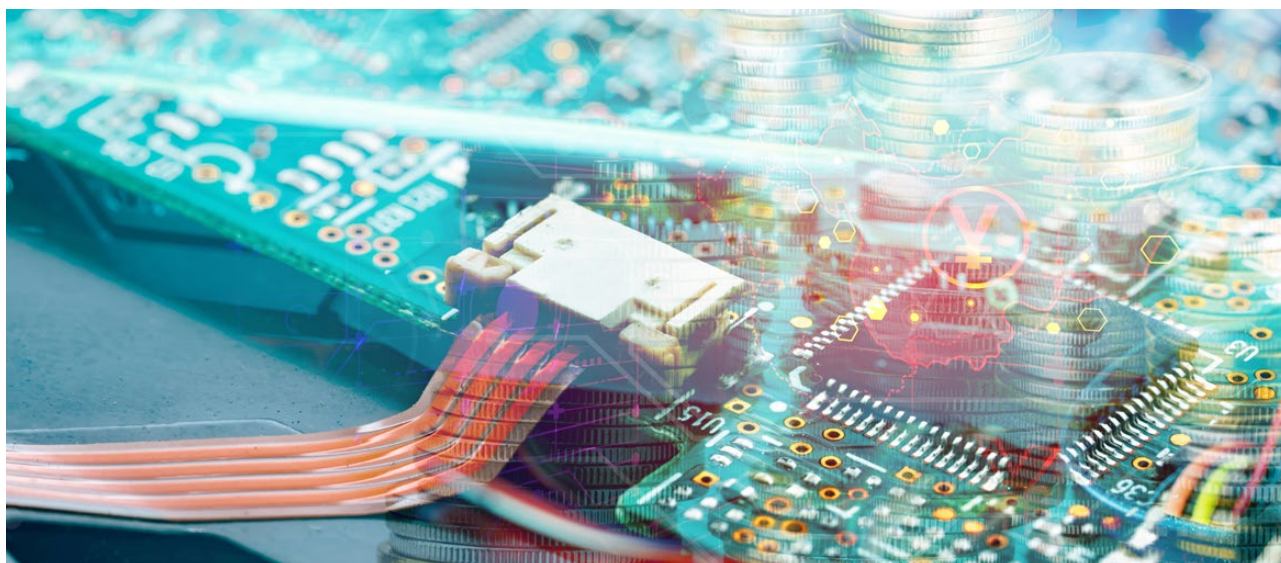


Source: World Bank staff calculations using data from UNCTAD

FIGURE 21 : Malaysia maintains a trade deficit in direct ICT services



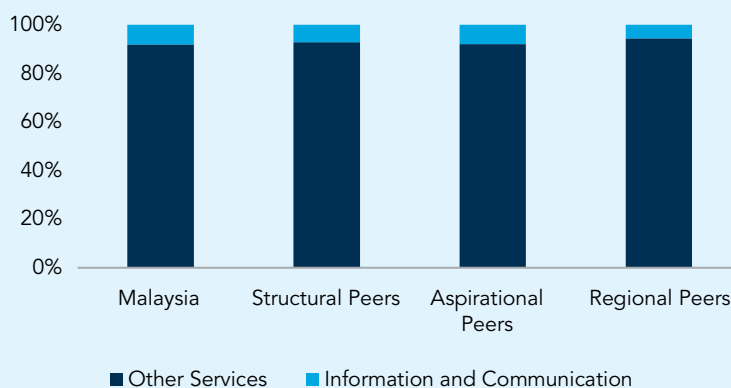
Source: UNCTAD



ICT value-added accounts for just a small part of all services value-added in Malaysia's exports but is higher than in peers

33. Malaysia's ICT value-added in exports is low relative to other types of services, but higher than all its peers groups, with most of ICT value-added coming from IT and other information services and telecommunication services. Information and communication value-added into exports in Malaysia represented 8.1% of all services value-added. Despite its contribution to exports being relatively low, it is slightly higher than all its peers groups (**Figure 22** and **Figure 23**) —accounting for 7.1% in structural, 7.9% in aspirational, and 5.5% in regional peer groups. IT and other information services, followed by telecommunication services, account for more than half of the ICT value-added found in Malaysia's exports. ICT value-added is mostly found in exports of computer, electronic and optical products, electrical equipment, other business services, mining and quarrying, chemicals and non-metallic mineral products, basic metals and fabricated metal products, and transport equipment.

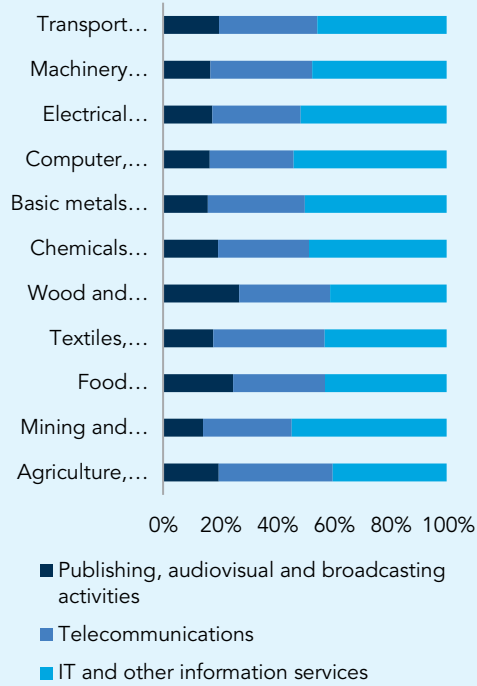
FIGURE 22 : ICT value-added accounts for only a tiny part of all services value-added in exports



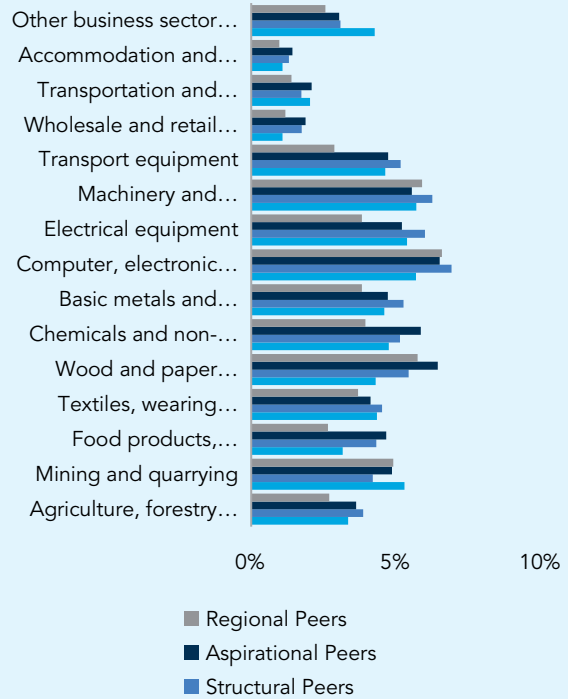
Source: World Bank staff calculations using the latest available data from OECD TiVA

FIGURE 23 : IT and other information services and telecommunication services account for more than half of the ICT value-added found in exports, with some sector, receiving more than others

Information and communication value added in exports for disaggregated sectors, 2015



Information and communication value added in exports for disaggregated sectors, 2015



Source: World Bank staff calculations using data from OECD TiVA



CHAPTER 5

Constraints Affecting Digital Services Trade in Malaysia



34. This section examines those constraints that are holding back the performance of the digital economy and trade in digital services in the Malaysian economy. The main findings in the previous sections were:

- i) Malaysia's Internet penetration ratios are high due to extensive mobile broadband coverage, but firms' usage of the Internet remains low and fixed broadband connectivity is lagging; and
- ii) the digital economy, including sectors such as e-commerce and FinTech are important sources of growth for Malaysia's economy; but
- iii) Malaysia's digital services trade growth has been weak suggesting untapped potential.

What factors might explain why Malaysia has not been able to further develop its trade in digital services?

Skills gaps are a constraint to the development of Malaysia's digital economy

35. A shortage of digitally skilled workers is preventing Malaysia from fully developing its digital economy. For instance, many FinTech companies report a shortage of skilled workers in areas such as machine learning, data analytics, and digital compliance regulatory knowledge. SMEs report that a lack of digitally skilled workers is one of the major constraints they face in further digitalizing their businesses. In a Digital Talent Survey conducted by MDEC in 2021, 85% of firms recognized the need to reskill their employees. Most Malaysians also believe they do not have the digital skills needed to succeed in the labor market. According to a survey by Ranstad in 2018, 89% of Malaysians believed that they needed to improve or acquire new digital skills, and approximately 82% of respondents believed that employers should provide on-the-job training.

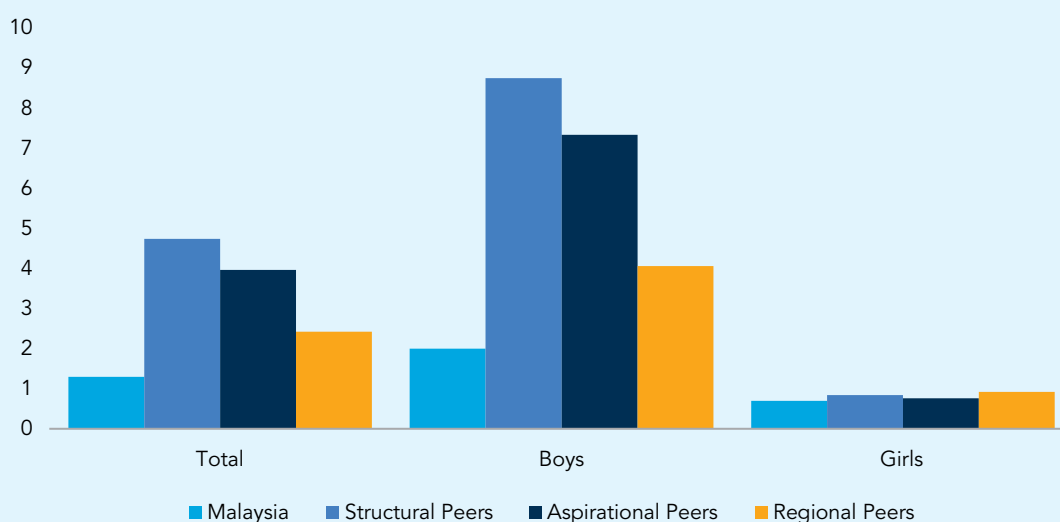
36. Despite the digital skill mismatch found in the labor market, most Malaysians are willing to upgrade their skills. According to a survey conducted by PwC in April and May 2020 when the Movement Control Order (MCO) and then Conditional Movement Control Order (CMCO) were being implemented due to the COVID-19 pandemic, 93% of respondents were willing to better understand or use technology, and 91% reported that their employers are providing opportunities for them to develop

their digital skills. In 2021, PwC reported that while just 19% of Malaysian respondents reported having adequate skills to perform their job, 57% said that they have improved their skills since the pandemic started. However, 78% of respondents said that lack of access to technology has prevented them from developing digital skills.

37. Some of the reasons for the shortage of digitally skilled professionals in Malaysia is that only a small number of students in high school have an interest in pursuing ICT as a subject and as a profession. For those that do follow a career in technology, universities are failing to equip students with the latest skills. The emigration of highly skilled workers exacerbates this shortage. In the increasingly digitalized world in which we are living, literacy could soon mean possessing digital literacy. In this vein, ICT skills are becoming less profession-specific and increasingly demanded as a general-purpose basic education skill, similar to math and reading. Nevertheless, the number of students aged 15 years expecting to work as ICT professionals at age 30 in Malaysia is low and below all its peers groups (**Figure 24**). Most students interested in working as ICT professionals are male in Malaysia (a tendency that is on par with its peers). A study conducted by Huawei also reported that most Malaysians that graduate with technology-related degrees come equipped with knowledge that is already outdated given how quickly technologies change. This is because the time required for universities to create a new program and receive the necessary approval from regulatory bodies (an average of 4 years) is preventing tech programs to be updated more regularly. In addition, the emigration of well-educated graduates—or “brain drain”—exacerbates the shortage of digitally-skilled workers in Malaysia. An estimated 1.8 million Malaysians were residing outside of Malaysia in 2015, with the majority living in Singapore, Bangladesh, and Australia. Approximately one-third of these emigrants are high-skilled, representing about 20% of all Malaysian tertiary graduates. By contrast, most of the immigration into Malaysia is by low-skilled workers (World Bank Group 2018).

FIGURE 24 : The number of students expecting to work as ICT professionals in Malaysia is low

Students expecting to work as ICT professionals at age 30 (15-year-old, %), 2018 PISA



Note: Data not available for Oman, Puerto Rico, and Trinidad and Tobago (Structural Peers); and Cambodia, Lao PDR, and Myanmar (Regional Peers).

Source: OECD PISA 2018

More firms are going digital, but MSMEs are lagging behind large firms in the adoption of digital technologies, especially exporting firms

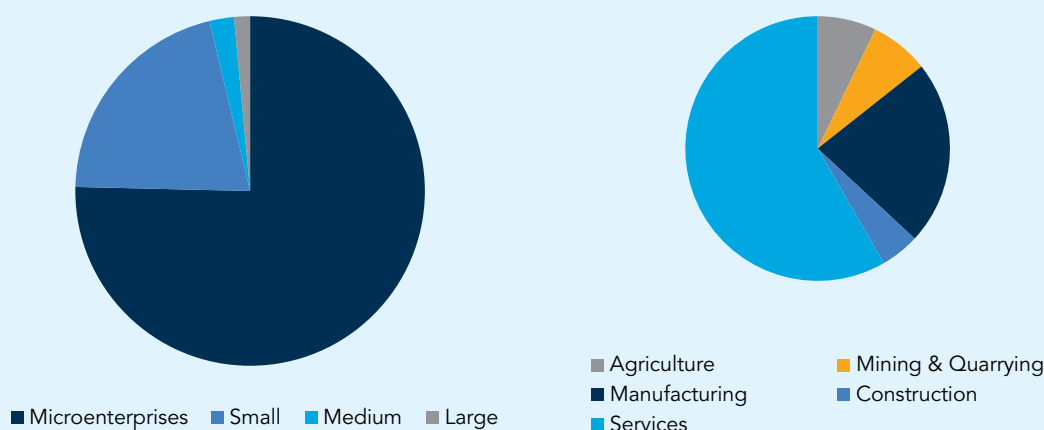
38. More firms are going digital, especially large firms. More businesses, and exporters and importers in particular, have embraced digital technologies and are leveraging them to adapt to the COVID-19 crisis. The share of firms globally increasing the use of digital technologies rose from 31% in the early months of the pandemic to 44% some 7-12 months into the crisis, while the share of businesses making new investments in digital solutions grew from 17% to 29%. Encouragingly, women-led micro firms have been significantly more likely to increase the use of digital platforms than their male-led counterparts. In most countries, when it comes to digital services-related exports, large firms are key. Surveys show that larger, well-established firms have been more agile and better equipped to pivot, adapt, and extend trade in digital services.

39. Nevertheless, most companies in Malaysia are MSMEs that contribute significantly to GDP and employment especially in the services sector. MSMEs accounts for approximately 98.5% (907,065 establishments)¹⁵ of all firms in Malaysia and accounted for almost half of Malaysia's GDP (**Figure 25**). More than two-thirds of all MSMEs in Malaysia are in the services sector, with the services sector providing a substantial contribution to Malaysia's GDP (57.7% in 2019, with approximately half of this contribution coming from services MSMEs). Despite MSMEs generating only a small share of total exports (17.9% in 2019), the services sector still plays an important role in total exports by MSMEs.¹⁶ In 2019, 50.8% of total exports by MSMEs came from the services sector. While manufacturing accounted for 48% and agriculture just 1.1%. MSMEs also account for 48.4% of total employment in Malaysia, with 63% of MSMEs employment coming from the services sector.

FIGURE 25 : Most Malaysian firms are MSMEs with the services sector contributing the most to GDP

Firms size in Malaysia, 2018

Sectoral contribution to GDP, 2019



Source: Department of Statistics, SME Corporation (left), National Accounts, Gross Domestic Product, Department of Statistics Malaysia (right)

¹⁵ Economic Census 2016, reference year 2015 (latest available data by the time of this publication).

¹⁶ The contribution of services from MSMEs to exports declined significantly (-62.1%) due to restrictions in response to COVID-19.

40. Most MSMEs in Malaysia lag relative to larger companies, especially exporting companies, in fully exploiting their digital potential. A study by The Asia Foundation found that most MSMEs were not familiar with business digitalization and e-commerce prior to the COVID-19 pandemic. Similarly, according to a survey by YCP Solidiance, most MSMEs are still at the basic digitalization level (**Figure 26**), using only a few digital resources to assist their operations, such as basic accounting and sales software or cloud storage solutions. In contrast, most larger companies are at the level of active digitalization—with a digital strategy as part of their overall business plan—or at the most advanced level of digitalization—with the adoption of not only a digital strategy but also use of basic operational software, digitalization of their production, sales, and marketing; online presence through a website or social media; and use of analytics to better understand their digital operations. In Malaysia, many MSMEs still do not use the cloud (56%), IoT (65%), or data analytics (46%) (SME Cop and Huawei, 2018) (**Figure 27**). For those that do use these tools, the most common use of cloud-based services and technologies was online storage (e.g., Dropbox) and business applications (e.g., Salesforce); the most common use for IoT was security and surveillance and fleet management; and the most common use for data analytics was spreadsheet software (e.g. Excel). Movement restrictions introduced to counter the COVID-19 pandemic have forced firms in Malaysia to rethink their business strategies and incorporate digital technologies as part of their operations. However, adoption remains lower relative to larger firms.

FIGURE 26 : MSMEs in Malaysia lag behind large companies in their level of digitalization

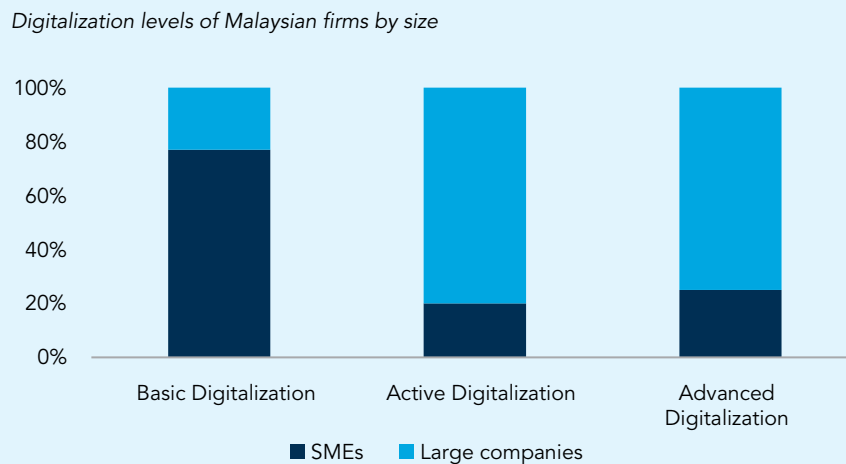
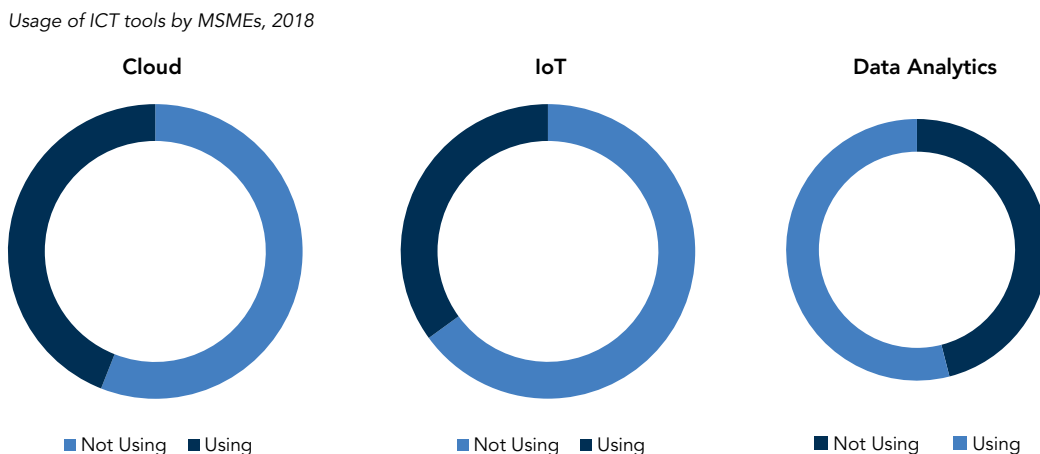


FIGURE 27 : Many MSMEs in Malaysia still do not use modern ICT tools



41. Many MSMEs have been affected by the lockdown measures implemented in response to COVID-19. Digital platforms have been the most common strategy adopted by firms, which led to an increase in the use and investment of different digital technologies (Figure 28). However, this increase was mostly driven by existing users, with relatively few new adopters (Figure 29). For instance, 55% of firms reported an increase in the use of digital platforms for sales and payments, but only 3% of firms are new adopters. In addition, evidence shows that MSMEs still lag in the adoption of more advanced digital technologies even after COVID-19, such as Customer Relationship Management (CRM), Supply Chain Management (SCM), and Enterprise Resource Planning (ERP). Conversely, digital technologies have made more significant changes in the business models of larger firms (World Bank Group’s COVID-19 Business Pulse Survey Round 3, July 2021).

FIGURE 28 : In response to COVID-19, firms increased their use of digital technologies, although the number of new adopters are relatively low. MSMEs still lag in the adoption of more advanced technologies, such as ERP software

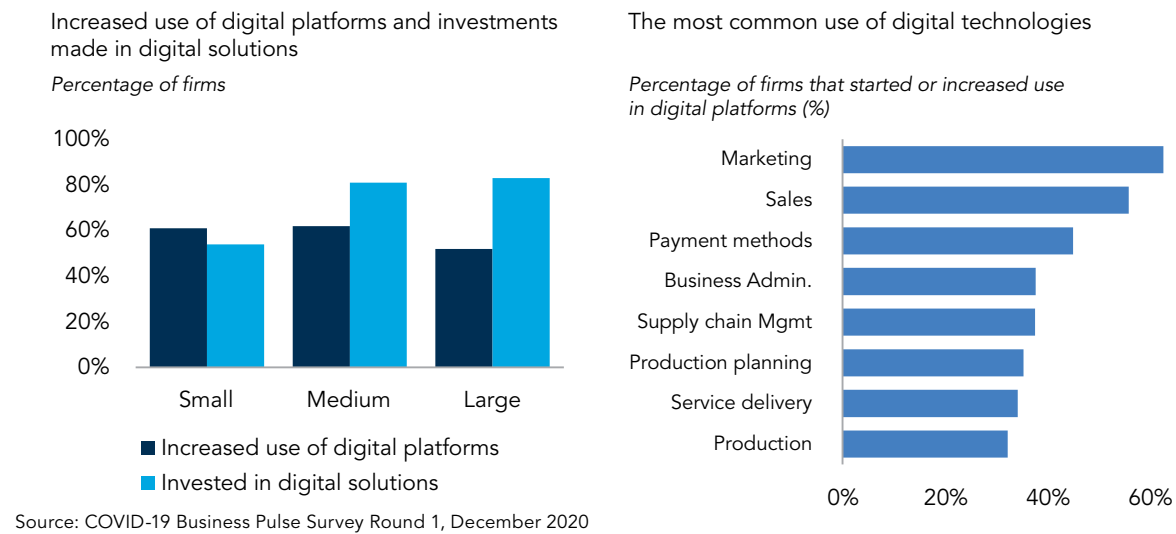
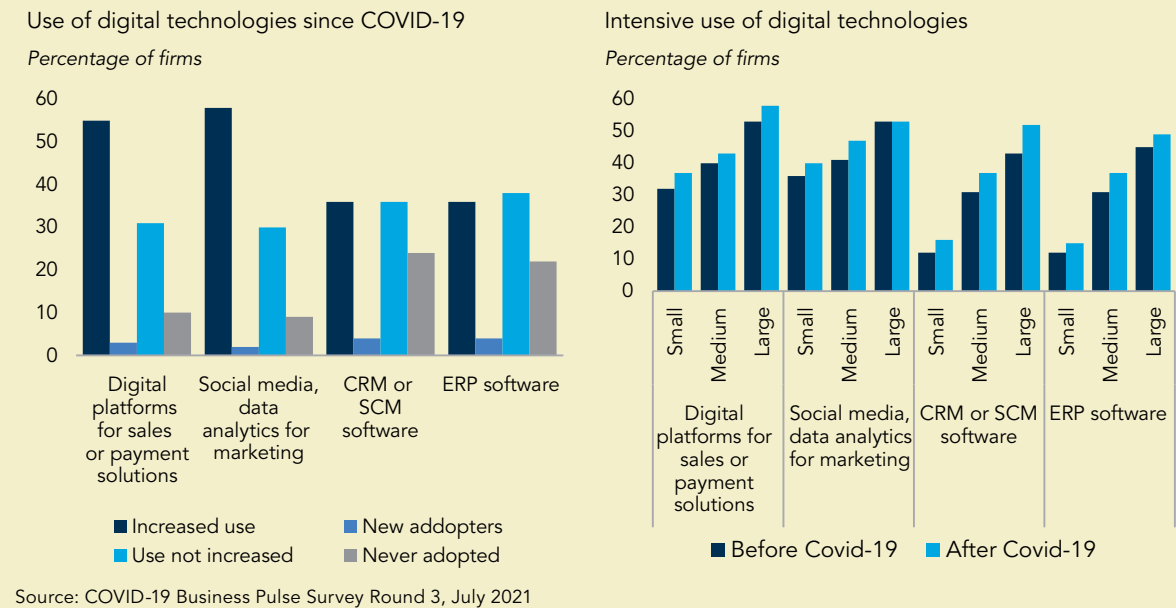


FIGURE 29 : In response to COVID-19, firms increased their use of digital technologies, although the number of new adopters are relatively low. MSMEs still lag in the adoption of more advanced technologies, such as ERP software

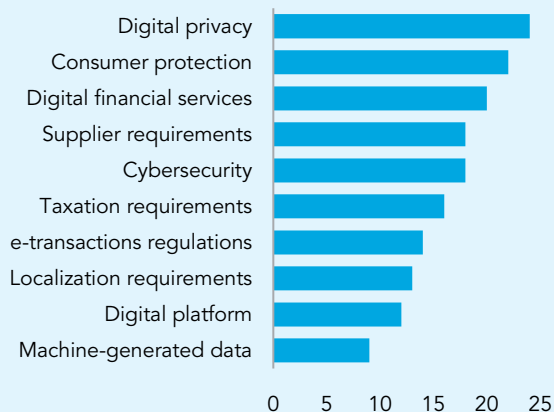


- 42. The main obstacles that MSMEs face when trying to digitalize are financing, a shortage of digitally skilled employees, inadequate technology, difficulty incorporating a digital strategy into their business plan, and regulatory awareness.** A study conducted by SME Corp Malaysia and Huawei analyzing 2,033 MSMEs in all sectors and regions in 2018 revealed that MSMEs, in particular microenterprises, cannot afford investments in technology, such as cloud, analytics of other software, while larger MSMEs have difficulties understanding their investment returns. The majority of MSMEs (60%) also reported being unfamiliar with financing options available and had misconceptions about the affordability of digital technologies and services, such as cloud computing. They also reported that their employees do not have the skills to assist with the digitalization process and that digital talent is hard to find. While there are many initiatives developed by the government, universities, banks, and other organizations to help MSMEs digitalize, uptake is limited. The main reasons reported by MSMEs were insufficient information about these initiatives and inconvenient locations and times.
- 43. Furthermore, there are several regulatory constraints preventing firms from increasing their use of digital platforms.** According to the COVID-19 Business Pulse Survey Round 3 conducted in July 2021, firms already using digital platforms reported several regulatory constraints preventing them from increasing their use of the Internet, social media, and digital platforms. These constraints included digital privacy, consumer protection, and the lack of digital financial services (**Figure 30**). Firms using digital platforms for marketing and sales reported requirements on prices, other requirements set by the platforms, and restricted access to data as their top three constraints (**Figure 30**).

FIGURE 30 : Firms report several regulatory restrictions affecting their current use of digital platforms

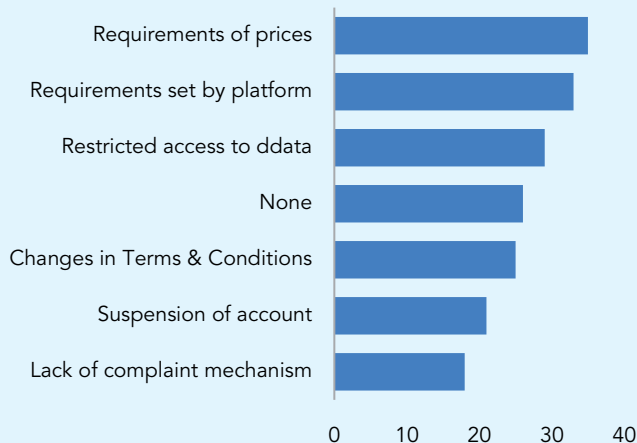
Regulatory barriers to increasing use of Internet, social media and platforms by firms already using these platforms

Percentage of firms



Regulatory constraints in using platforms for marketing and sales

Percentage of firms

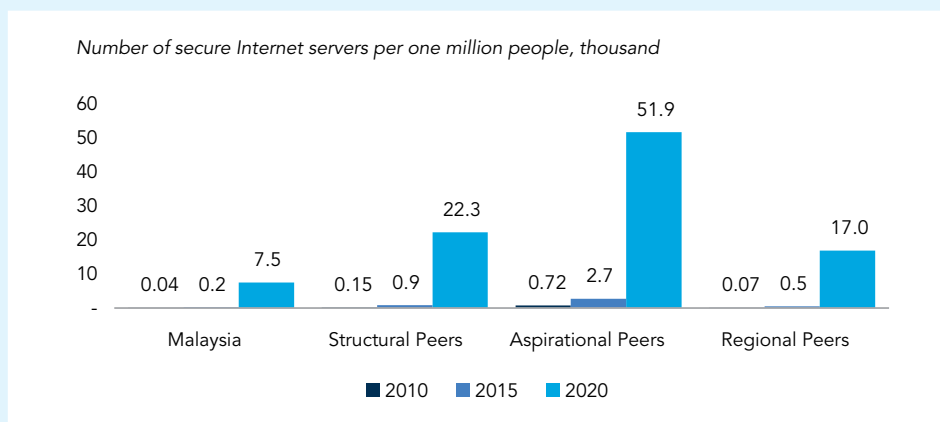


Source: COVID-19 Business Pulse Survey Round 3, July 2021

The number of cyber threats in Malaysia has been increasing, while there is a shortage of cybersecurity professionals

44. A secure cyber environment is a critical enabler of trade in digital services. However, the number of secure Internet servers in Malaysia is still significantly low relative to peers. In 2020, there were only 7,494 secure Internet servers per one million people in Malaysia (Figure 31), which was much lower than in aspirational (51,896 per million), structural (22,319) and regional (16,954) peers. A lack of cybersecurity is costly and can undermine the trust of consumers and businesses in engaging in international trade.

FIGURE 31 : Malaysia lacks secure Internet servers



Source: WDI, WB calculations

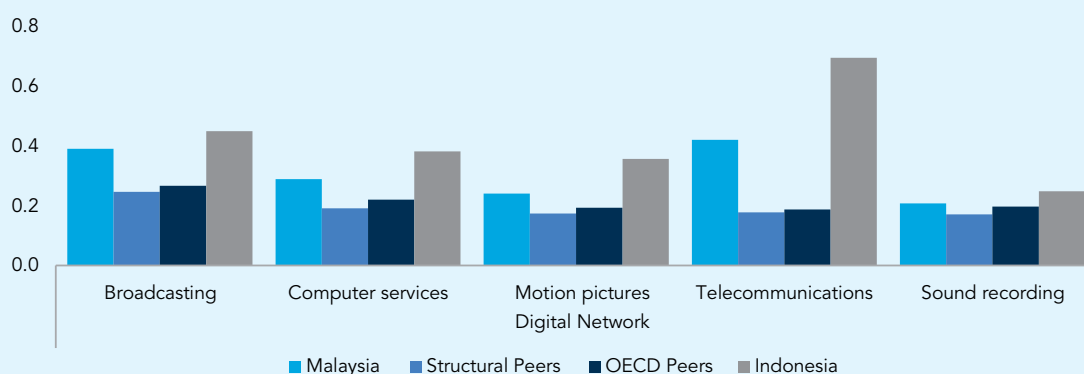
- 45. Furthermore, the number of reported cyber incidents has been increasing, posing serious threats to the digitalization of the Malaysian economy.** Between 2015 and 2017, Malaysia experienced a decline in the number of reported cyber incidents. However, between 2017 and 2021 this number has been increasing. In 2021, there were a total of 10,016 reported cyber incidents in Malaysia—an increase of 25.8% (Appendix Figure E). The top three types of cyber threats that have increased the most since 2015 are vulnerabilities report (213.6%), content-related (175.8% increase), and fraud (117.9%) (Appendix Figure F). However, the number of botnet drones and malware infections by unique IP address also decreased by 0.9% between 2015 and 2021 (Appendix Figure G). The most common type of cybercrime in Malaysia is telecommunications fraud and e-commerce fraud according to the Royal Malaysian Police (Appendix Figure H).
- 46. Most MSMEs in Malaysia have been threatened by cyberattacks.** Approximately 84% of MSMEs have been affected by cyber threat incidents in one form or another. Of those that have suffered from cyber threats, 76% experienced more than one threat. The biggest challenges faced by MSMEs when trying to address cyber security issues are reported to be limited budgets and limited knowledge of cybersecurity. In order to help address these threats, MDEC, in cooperation with SME Corp and NACSA, have created the MATRIX initiative—a government collaboration with several industries to help enhance cyber security. The initiative focuses on three pillars: prevention, assessment, and protection.
- 47. A shortage of cybersecurity personnel hinders efforts to improve cybersecurity in Malaysia.** According to research by ISACA in 2020, 62% of companies globally were understaffed in cybersecurity personnel and 57% reported unfilled cybersecurity positions. Malaysia also faces a shortage of cybersecurity professionals. The largest skill gaps are in intrusion detection, secure software development, and attack mitigation.

Limits to competition and regulatory restrictions in Malaysia's digital network services restrict its ability to deepen foreign linkages

48. Malaysia imposes significant restrictions on foreign entry into its digital network services sub-sectors, particularly in telecommunication services. Malaysia Services Trade Restrictiveness Index (STRI) is high relative to all its peers (except Indonesia) in digital services such as broadcasting, computer services, motion pictures, telecommunications, and sound recording (**Figure 32**). Restrictions in telecommunication services are particularly high relative to peers.

FIGURE 32 : Malaysia imposes some of the greatest restrictions to foreign entry in telecommunication services

OECD STRI by sector for selected economies, 2020



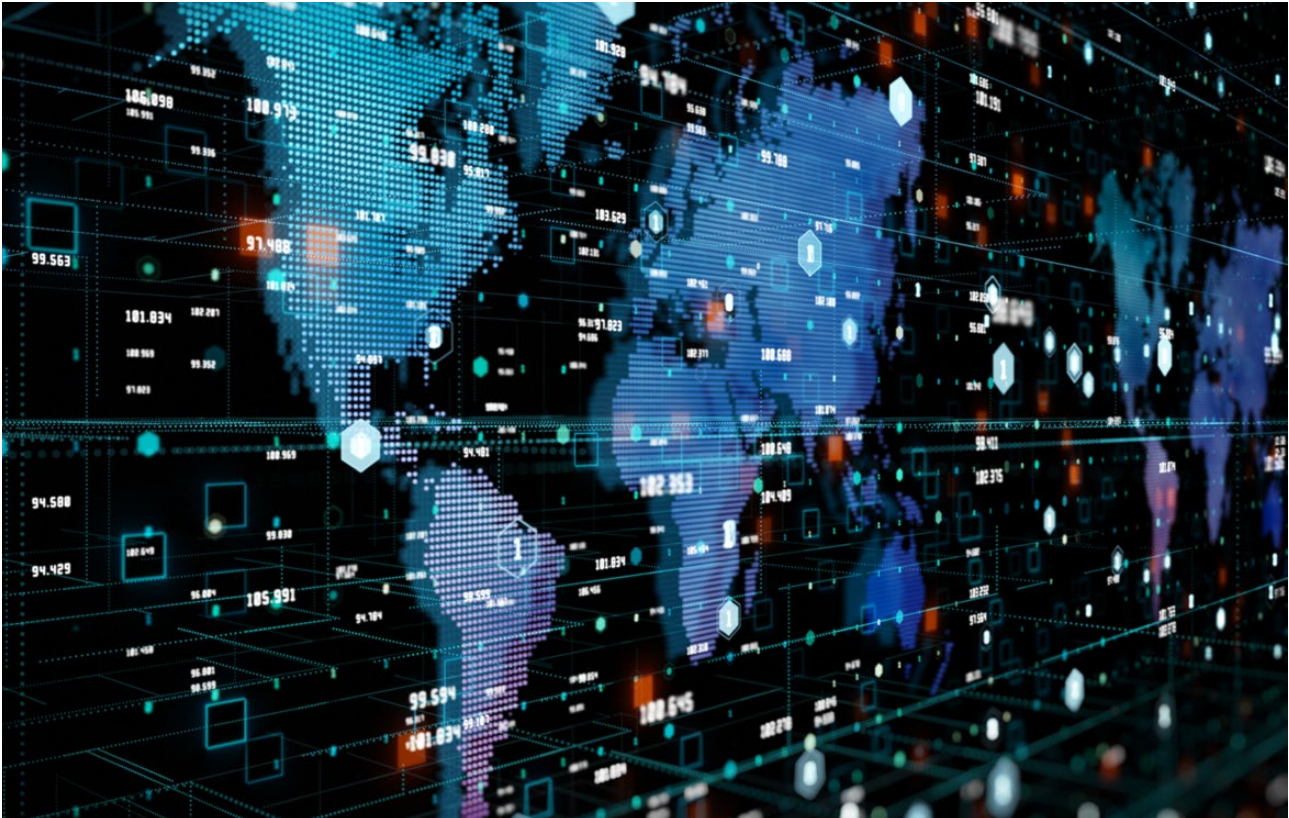
Source: OECD.

Note: Structural Peers exclude Argentina, Croatia, Oman, Panama, Saudi Arabia, Trinidad and Tobago, and Uruguay. Data for Regional Peers was only available for Indonesia.

49. There are several restrictions to foreign ownership and other market entry conditions in the telecommunication services sub-sector in Malaysia. For instance, the maximum foreign ownership allowed is 70% for fixed and mobile lines and at least one member of the board of directors must be a resident. Screening also explicitly considers economic interests for fixed and mobile lines. There are performance requirements where the criteria to issue an individual license includes shareholding conditions where the regulator takes into account the need to encourage local incorporated companies, with the majority of shares owned by Malaysian nationals, to participate in the local ICT industry. Moreover, there are also restrictions on the acquisition and use of land and real estate priced above RM20 million. Firms interested in providing cross-border services are required to incorporate a local firm or register a branch in Malaysia. Firms also need to appoint at least one Company Secretary who is a national or permanent resident to advise on compliance with local regulation.

50. Restrictions on the movement of foreign workers also affects foreign investment in digital services. For instance, there are labor-market tests for intra-corporate transferees and the duration of their stay is limited to 24 months. Although there is no labor-market test for contractual services suppliers and independent services suppliers, there is a cap of only 12 months for their stay.

51. There are also other discriminatory regulations and barriers to competition. Other discriminatory measures include public procurement giving explicit preference for local suppliers in telecommunications. Barriers to competition include Telekom Malaysia in which 28.65% of the total shares are owned by Khazanah Nasional Berhad in which all its shares are owned by the Ministry of Finance incorporated. There is also a minimum capital required and the government can overrule the decision of the regulator.



Malaysia's digital trade would benefit from more substantial and clearer international rules

- 52. Malaysia adopts a conditional transfers model for cross-border data flows.** The *conditional transfer model* sets a series of mandatory regulatory safeguards that once met allow for the free flow of cross-border data. These safeguards can restrict data transfer to only jurisdictions that meet the required regulatory safeguards. The Malaysia model is based on the Data Protection Directive 95/46/EC of the European Union (now EU General Data Protection Regulation).
- 53. Malaysia enacted the Personal Data Protection Act (PDPA) in 2010 (which came into force in 2013) that restricts the transfer of personal data to jurisdictions outside of Malaysia, unless approved by the Malaysian government.** Exceptions to this restriction include when the data subject has provided consent to the transfer, the transfer is necessary for the execution of a contract between the data subject and data user, the data user has taken all necessary steps to ensure that the personal data will be used in accordance with the PDPA, and the transfer is necessary to protect the data subject's vital interests. In 2017, Malaysia released a public consultation paper on the Personal Data Protection (Transfer of Personal Data to Places Outside Malaysia) Order 2017 to request public feedback on the proposed jurisdictions to which personal data from Malaysia may be transferred.
- 54. Public discussions on amendments to the PDPA have been held in recent years in Malaysia.** For instance, in 2020, the Minister of Communications and Multimedia reported gaps between the PDPA and data protection laws in ASEAN member nations, Japan, the Republic of Korea, and the European Union's General Data Protection Regulation. Following this announcement, the Malaysian Personal Data Protection Commissioner issued the Public Consultation Paper ("PCP") No. 1/2020, with an aim to collect feedback on its proposal to update the PDPA.

55. Free cross-border data transfer plays an important role in supporting trade in digital services.

According to the *World Development Report: Data for Better Lives*, countries with a more open model of transfers of data internationally tend to have a higher volume of trade in digital services. In addition, a strong domestic regulatory framework for personal data, privacy, security, and consumer protection is also shown to be critical to supporting digital transactions and is positively associated with trade flows of digital services trade, even compared to those models that are open but exercise little government regulation on personal data.

56. Trade agreements have been at the forefront of global digital governance, featuring the first binding international rules on cross-border data flows. Rules on digital trade in the context of preferential trade agreements, including those that Malaysia is party to such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CP-TPP) and Regional Comprehensive Economic Partnership (RCEP) agreement, are growing in both scope and depth, as well as in importance in trade negotiations (Table 1).**57. Commitments on digital trade under RCEP and CP-TPP are comprehensive.** RCEP commitments on digital trade are more comprehensive than under some ASEAN+1 FTAs but are not higher than commitments under the CP-TPP.**Table 1: Key provisions on digital trade in recent trade agreements**

	US – Singapore FTA (2004)	Canada – EU CETA (2014)	ChAFTA (2015)	CP-TPP (2018)	ASEAN (2019)	USMCA (2020)	DEPA (2020)	RCEP (2020)
Non-discrimination of digital products	¢	–	–	¢	–	¢	¢	£
E-documents & e-signatures	–	–	¢	¢	¢	¢	¢	¢
Paperless trading	–	–	¢	£	¢	£	¢	£
Online consumer protection	–	–	£	¢	¢	¢	¢	¢
Privacy protection	–	£	£	¢	¢	¢	¢	¢
Cybersecurity	–	–	–	£	£	£	£	–
Unrestricted cross-border data flows	–	–	–	¢	£	¢	¢	£
Prohibition of data localization	–	–	–	¢	£	¢	¢	£
Customs duties	¢	¢	¢	¢	–	¢	¢	¢
¢ Binding provision £ Soft law provision – No provision								

Source: WDR 2021 team.

Note: ASEAN – Association of Southeast Asian Nations; CETA = Comprehensive Economic and Trade Agreement; ChAFTA – China-Australia Free Trade Agreement; CP-TPP = Comprehensive and Progressive Agreement for Trans-Pacific Partnership; DEPA = Digital Economy Partnership Agreement; RCEP = Regional Comprehensive Economic Partnership; USMCA = United State-Mexico-Canada Agreement.





CHAPTER 6

Conclusion and Policy Recommendations

- 58. Global trade in digital services has been growing rapidly over the past few years with the expansion of digital technologies.** For example, the share of digitally deliverable services already accounts for 63.5% of total services traded globally. Similarly, ICT services have increased as a share of total services trade. Although developed countries still account for the majority of digitally deliverable services exports, their share has been gradually decreasing as more developing countries are increasingly becoming more digitalized.
- 59. The digital economy in Malaysia has been growing rapidly.** Most Malaysians are connected to the Internet, particularly through smartphone subscriptions. FinTech is also expanding in Malaysia, with the number of online payments increasing while the number of ATMs transactions is decreasing. The share of ICT and e-commerce in GDP in Malaysia has also increased by an average of 12.5% per year from 2015 to 2020, surpassing overall GDP average growth. This shows that Malaysia is gradually transitioning into a more digitalized economy.
- 60. With the goals of creating a more digitally driven economy and becoming a regional leader in the digital economy, the Malaysian Government has created the Malaysia Digital Economy Blueprint (MyDigital).** MyDigital outlines six strategic pillars to be implemented by 2030. These include driving digital transformation in the public sector, boosting economic competitiveness through digitalization, building enabling digital infrastructure, building agile and competent digital human capital, creating an inclusive digital society, and building a secure and ethical digital environment. These pillars will be implemented in three phases which will include 22 strategies, 48 national initiatives, and 28 sectoral initiatives. The document sets goals to improve the digitalization of the population, businesses, and government (Malaysia Digital Economic Blueprint).
- 61. Nevertheless, the share of digitally deliverable services trade in total services trade remains low in Malaysia relative to peers, which reveals untapped potential to grow the sector.** Growth in digitally deliverable services has also remained weak, performing below of all peers. However, ICT services trade has been growing in Malaysia. ICT services value-added in exports of other goods and services is low in Malaysia but above its peers. Most trade in digitally deliverable services in Malaysia is through business, ICT, and financial services.
- 62. There are several constraints affecting Malaysia's digital competitiveness in digital services trade.** These include a shortage of digitally skilled workers, low adoption of digital technologies by MSMEs, which accounts for 98.5% of all firms in Malaysia, a weak cyber security environment, and high regulatory restrictions facing foreign entry. Malaysia also needs to address its growing digital divide among urban and rural areas, gender, and generations to promote and ensure an inclusive digital economy for all. Unlocking inclusive digital opportunities could help improve the productivity of Malaysia's private sector, contribute to the jobs and economic transformation agenda, and help achieve the country's overall development objectives. Digital transformation would also be important in improving the competitiveness of services firms and enhance digital services trade in Malaysia.
- 63. Addressing these constraints will be essential for Malaysia to become a competitive player in a more digitalized world.** The COVID-19 pandemic has accelerated digital transformation and adoption by businesses at a global scale. This has significantly expanded opportunities for modern services trade to grow as they can be delivered cross-border without physical proximity. A survey by McKinsey & Company reports that as consumers and interactions moved primarily to online channels, companies and industries have adapted in turn. The survey also points out that most digital changes experienced during the pandemic are likely to stay in the long-term. The remainder of this section explore several policy recommendations to help improve Malaysia's digital economy and digital services trade and enhancing its digital trade competitiveness.

Easing foreign entry restrictions could help boost investments in modern, high-quality, and affordable telecommunication services, which have the potential to improve the degree of digitalization of the Malaysian economy

- 64. Investing in modern, high-quality, and affordable communication infrastructure and services is an important step for Malaysia to continue its digital transformation.** This is because these services significantly reduce the cost of the many transactions needed to produce and distribute services and goods. They also improve firms' efficiency by allowing them to better connect, manage, and communicate with supply chains, increase competition by making prices more transparent and provide firms access to a broader market of consumers and trading partners. Malaysia should take steps to increase investments in improving the quality and speed of its telecommunications services, especially through fixed fiber broadband and in the next generation of communication networks, such as 5G, to keep up with advancements in digital technology. Fixed fiber broadband networks are important because they provide support to increased Internet speeds and capacity across other digital technologies such as cloud computing and IoT.
- 65. Easing foreign entry and markets restrictions in the telecommunications sector could help firms access higher-quality and more affordable telecommunications services, boosting connectivity and competitiveness.** A competitive telecommunications market is associated with higher broadband penetration and lower costs. Access to lower-priced telecommunications services could help all firms in Malaysia adopt digital technologies and better integrate into regional and global value chains. As the world becomes more digitalized, especially in light of the COVID-19 pandemic, it is critical that Malaysia continues to deepen the digitalization of its economy to ensure greater connectivity with a more digitalized international market. More affordable services could also allow MSMEs to more actively participate in the digital economy, helping attenuate the current divide among larger firms and MSMEs. Policies to improve the openness of the telecommunication services sector might include easing the cap of 70% of foreign ownership for fixed and mobile lines firms; removing screenings based on economic interests; loosening restrictions on land and real estate acquisition; and relaxing restrictions to the movement of foreign workers.
- 66. Malaysia will need to bridge its digital divide to build an inclusive digital economy.** The current digital divide in Malaysia includes differences in broadband between urban and rural areas; gaps in the use of Internet between firms owned by men versus women; and differences in skills between different generational and income groups. In remote areas where private investment is lowest in the telecommunications sector, public-private partnerships or incentives could be considered in order to bring high-quality and affordable telecommunications services for rural communities. Incentives could include competitive tendering for partial tax exemption; changes to spectrum license arrangements; or loans at subsidized rates. Policies should be carefully drafted to not restrict competition. Moreover, although Malaysia has significantly improved the number of women in the science and technology field, there is still room to further narrow its gender digital divide. Decreasing the gender digital divide will require policies that encourage and provide more opportunities and support systems for girls and women in technology and entrepreneurship. Finally, improving the digital divide among generations and income groups will be important for an inclusive digital economy, especially as more jobs will require digital skills and more public services are increasingly being offered online. Often older generations and low-income groups are the most vulnerable as they often do not have the digital skills needed. Malaysia could promote and provide training opportunities to target these groups. It is also important that public services provided to the elderly population online are offered in a simplified user-friendly way.

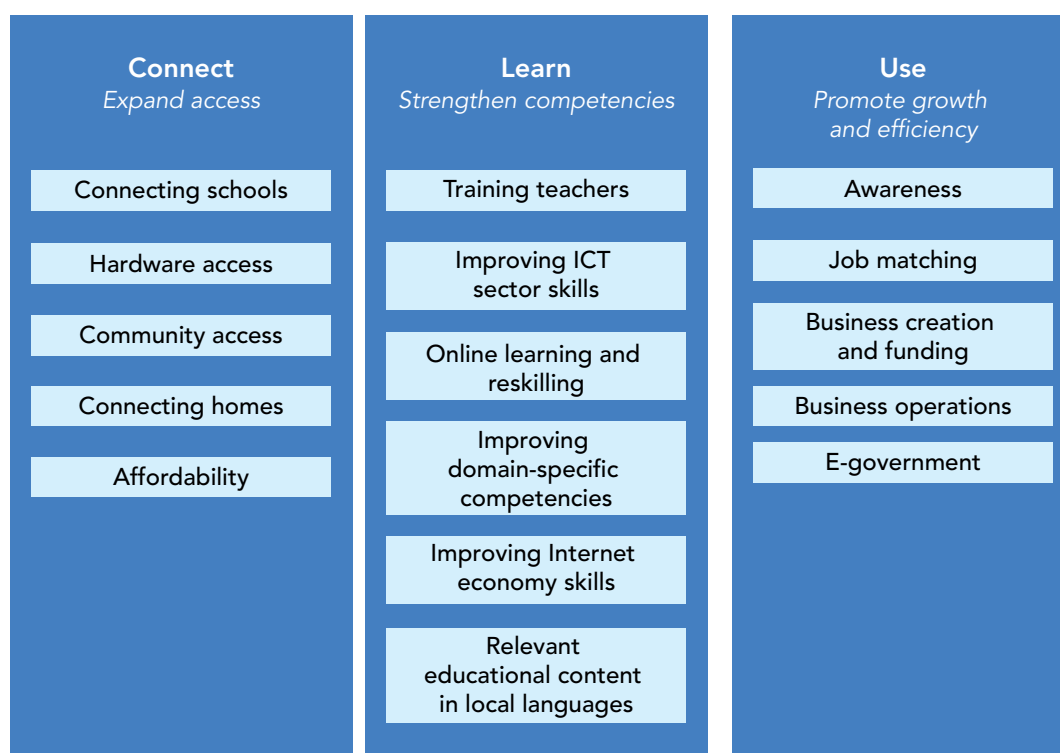


Upgrading the digital skills of the labor force will help provide firms with the talents needed to thrive in the digital economy

- 67. With further digitalization of Malaysia's economy, there will be a higher demand for ICT and digitally skilled professionals.** These professionals include not only professional directly linked to the ICT sector, such as computer scientists and engineers, but also professionals with complementary ICT skills. For instance, as the Internet becomes more ingrained in work processes, workers will rely more on digital technologies in their work.
- 68. Upgrading the digital skills of the labor force will be essential to provide firms with the talents needed for them to digitalize their operations.** As was discussed earlier, many firms in Malaysia, report facing difficulties in finding applicants with the requisite digital skills. Decreasing the digital skill mismatch in the labor market will require closer collaboration between government agencies, education institutions, and the private sector to provide education and training to students as well as current workers. Firms could also provide on-job training to employees to better prepare them with the digital skills needed in their current job. With the fast pacing of new technologies coming to the market, it will also be necessary to upgrade educational programs accordingly.
- 69. Developing a comprehensive framework for developing the workforce's digital skills will help Malaysia develop its digital skills base.** The OECD digital skill framework can be used as a reference point to develop such framework (**Figure 33**). The OECD framework focuses on developing, activating, and putting digital skills to use. The first step is expanding connectivity by connecting schools, communities, and homes with adequate hardware access (computers, tablets, routers/networking equipment) and affordable high-quality telecommunication services. It is important that rural areas as well as low-income neighborhoods are also connected to ensure inclusiveness. In more remote and low-income communities, schools, community centers, and government buildings can initially serve as

connectivity-community access centers that provide access to computers and the Internet. The second step in the framework is strengthening digital competencies. This step requires the training of teachers supported by a national plan aimed to strengthen teaching skills throughout the country. This can be done through online courses. Integrating digital technologies into traditional curricula at schools will be important to help students learn basic digital skills at an early age. At more advanced educational levels, it will be necessary to nurture a close collaboration with the private sector to ensure that curricula are planned according to the digital skills needed in the market in order to avoid skills mismatch. **Table 2** provides a comprehensive framework for general digital skills development adapted from the European Union as an example. Finally, the last step is integrating workers with digital skills in the labor market. This can be done by bringing awareness of digital opportunities, facilitating programs that match workers and employers, as well as enhancing and expanding career guidance services for young adults completing their education as well as older adults transitioning careers. Digital or digital-related entrepreneurship could also be encouraged through the provision of training and funding.

FIGURE 33 : Skills Development Strategy (OECD framework)
Policy innovation in the digital economy for new and better jobs



Source: Adapted from OECD Skills and Jobs in the Digital Economy

Table 2 : Summary of Digital Competences, based on EU DigComp 2.1 and Digital Literacy Global Framework (DLGF)

Competence Areas	Competences	Proficiency Levels	
0. <i>Devices and software operation</i>	Identify and use hardware and software tools and technologies.	Foundation (Levels 1 and 2)- Can deal with simple tasks that involve remembering content and instructions but also requires some guidance to execute.	
	2 competences involving physical and software operations of digital devices.		
1. <i>Information and data literacy</i>	Search for, judge the relevance (including its source) and organize digital content.		
	3 competences involving browsing, evaluating, and managing digital content.		
2. <i>Communication and collaboration</i>	Interact and engage in citizenship through digital technologies while adhering to netiquette and managing one's digital identity.		
	6 competences involving communicating, collaborating, and engaging in citizenship through digital technologies as well as netiquette and digital identity management.		
3. <i>Digital content creation</i>	Create new or modify existing digital content while correctly applying copyright and licenses as well as programming.	Intermediate (Levels 3 and 4) - Can independently deal with well-defined, routine and nonroutine problems that involve understanding content.	
	4 competences involving developing and integrating digital content as well as understanding copyrights, licenses, and programming.		
4. <i>Safety</i>	Ensure security measures while safeguarding against risks threatening devices, privacy, health, and the environment.	Advanced (Levels 5 and 6) - Can deal with and provide guidance to others on different tasks and problems that involve applying and evaluating content in complex situations.	
	4 competences involving protecting devices, personal data, privacy, and health as well as the environment.		
5. <i>Problem-solving</i>	Solve problems in digital environments and use digital tools to innovate and keep abreast of the digital evolution.		
	5 competences involving resolving digital issues, creatively using digital technologies, bridging personal gaps in digital skills as well as computational thinking.		
6. <i>Career-related competences*</i>	Use specific career-related digital technologies and content to have access to opportunities in the digital economy.		Highly specialized (Levels 7 and 8) - Can resolve complex problems with few or several moving pieces, guide others, contribute to professional practice and propose new ideas to the field.
	2 competences involving operating specialized digital technologies as well as working with digital content for specific career-related fields.		

Source: Based on Carretero et al. 2017, and UIS 2018. Table extracted from the World Bank report on Digital Skills: Frameworks and Programs

- 70. Older generations and low-income groups are generally more vulnerable to the changing nature of work in a more digitalized society.** These groups are among the most at risk of losing their jobs as they often lack the necessary digital skills. Targeting training opportunities at these groups could be important to ensure that no one is left behind in a more digitalized economy.

Supporting the digitalization of firms, especially MSMEs, could help better exploit opportunities in digital services trade

- 71. Expanding the digitalization of MSMEs will require raising awareness of several educational and investments initiatives currently being offered by the Malaysian government.** There are many educational initiatives currently being provided by government agencies and other institutions to help MSMEs to digitalize their operations. However, as reported by many firms, they are mostly unaware of these initiatives, and the locations and timing of these initiatives/programs are often not convenient for them. Promoting these initiatives and closely working with these firms to better schedule workshops, classes, and informational meetings could help these firms better access these resources offered to them.
- 72. Policies to promote access to IT platforms could also be used as productivity-enhancing mechanisms for MSMEs and the informal sector more generally.** Policymakers could also consider leveraging digital platforms through PPP arrangements to foster technology adoption by MSME and the informal sector. Many digital platforms provide basic management, marketing and market access tools that would go a long way to improve the productivity of MSMEs and informal operators if they had better access to them.

Building a safer digital environment will help firms have a stronger presence on the Internet and increase the confidence of consumers in participating in online transactions

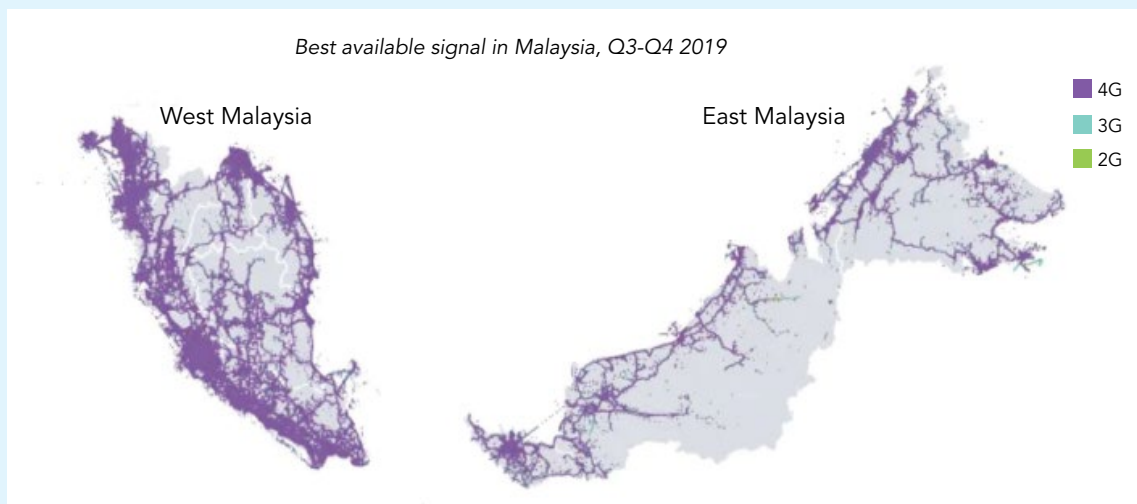
- 73. Reinforcing cyber security is also important for firms to safely digitalize their operations, make online transactions and have a stronger presence on the Internet.** Cybersecurity policies are important for the digital economy because they help reduce costs caused by cyberattacks and data breaches. According to the World Economic Forum's Global Risk report 2020, cyber-related issues, such as cyber-attacks and data breaches or frauds, are among the top 10 long-term risks. As discussed earlier, there is a shortage of cyber security professionals in Malaysia. As the economy becomes more digitalized, it also becomes more vulnerable to cyberattacks. For this reason, Malaysia will need to implement measures to decrease the shortage of cybersecurity professionals in the market as well as improve cyber security.

Incorporating digital elements in Malaysia's international trade agreements could help digital services trade integration and deepen Malaysia's participation into digital global value chains

- 74. Malaysia's digital economic growth and global digital integration will depend on the incorporation of digital elements in Malaysia's international trade agreements.** Digital trade integration between countries requires the removal of barriers to digital trade, digital trade facilitation, investments in digital technologies, and legal and policy coordination across countries (Mitchell *et al.*, 2020).
- 75. Reducing barriers to digital trade is important for the digitalization of the economy.** Digital trade barriers include domestic laws and regulations that impose discriminatory requirements for foreign firms such as through licensing and certification requirements. Other barriers also include restrictions on data flows as well as geo-blocking (restrictions on accessing Internet content depending on the location of the user).
- 76. Preferential trade agreements such as RCEP and CP-TPP offer opportunities for Malaysia to bring its digital development concerns to international fora.** Malaysia is expected to ratify both RCEP and the CP-TPP soon; both of which include provisions on digital trade. In negotiating new PTAs with disciplines on digital trade and ultimately implementing the rules, coordination and expertise from policymakers will be needed, as well as a strong and vocal domestic digital sector that can identify the precise challenges they face, and potential solutions.
- 77. Digital trade facilitation is also an important component of digital trade integration.** It includes measures that facilitate transactions necessary for digital cross-border trade. For example, interoperability between digital frameworks is important as e-commerce grows, and more consumers make purchases abroad. A reliable and secure electronic payments system can help MSMEs have greater access to international markets, and a paperless system can help decrease administrative costs. The United Nations Commission on International Trade Law (UNCITRAL) presents guidelines on this matter.
- 78. Domestic frameworks on digital trade and digital trust policies can also help the digitalization of firms.** These include measures and regulations that enable digital trade and foster digital trust at institutional, business, and individual levels through privacy and data protection, online consumer protection, cybersecurity, spam, competition, and intellectual property. For instance, Malaysia could adopt APEC's Cross Border Data Privacy Rule System and ISO Standards that help protect personal data. Supporting cross-border data flows would help firms connect with consumers abroad, maintain operations, and better compete internationally. Malaysia could also coordinate institutionally to promote regulatory cooperation and monitor digital trade integration. Promoting industry best practices at a global and regional level, as well as exchanging information on relevant digital topics among trading partners, can help foster greater interoperability of digital technologies, improve digital security, transparency, and further digital integration.

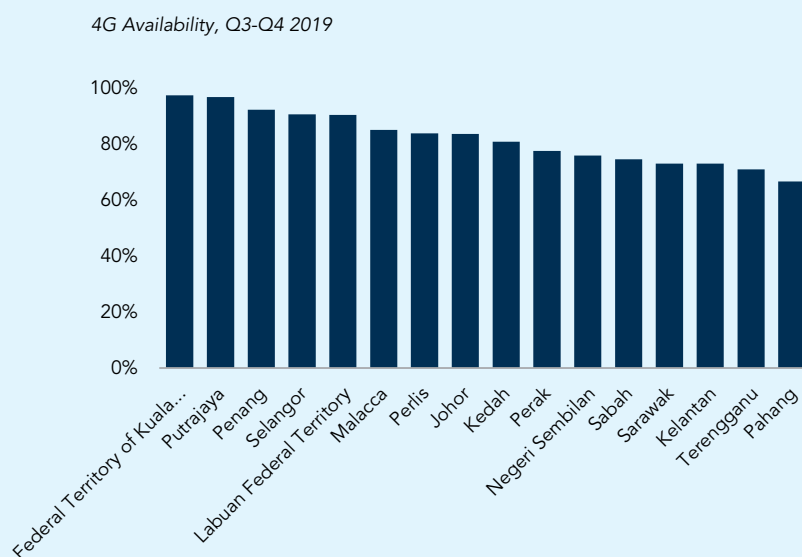
Appendix

FIGURE A : 4G is the most prevalent type of mobile network in Malaysia



Source: Ookla's speedtest

FIGURE B : 4G is available in all states in Malaysia



Source: Ookla's speedtest

Table A : Internet speeds in Malaysia have improved, but still lag behind the fastest five

Tested speeds in Mbps	Fixed Internet		Mobile Internet	
	November 2020	November 2021	November 2020	November 2021
Fastest five (average)	119.6	167.9	80.2	110.6
Malaysia	51.9	74.8 (1.4x)	16.3	24.6 (1.5x)
Global comparison (F5/MY)	2.3	2.2	4.9	4.5

Source: WB calculations using data from Ookla Speed Test (Median)

Table B : Internet speeds by state and federal territory in Malaysia, Q3-Q4 2019**Fixed broadband speeds:**

State or Federal Territory	Download (Mbps)	Upload (Mbps)	Latency (ms)
Selangor	91.83	57.89	14
Federal Territory of Kuala Lumpur	82.38	53.96	17
Negeri Sembilan	72.56	46.44	25
Putrajaya	69.43	40.1	15
Johor	66.93	39.66	28
Sarawak	65.2	36.95	56
Sabah	59.29	33.19	61
Malacca	58.9	35.56	26
Perak	55	31.11	29
Pahang	53.79	31.68	30
Terengganu	51.49	30.26	32
Penang	49.12	45.46	32
Perlis	45.7	29.2	41
Labuan Federal Territory	43.5	27.37	69
Kelantan	42.75	24.93	42
Kedah	36.62	25.59	40

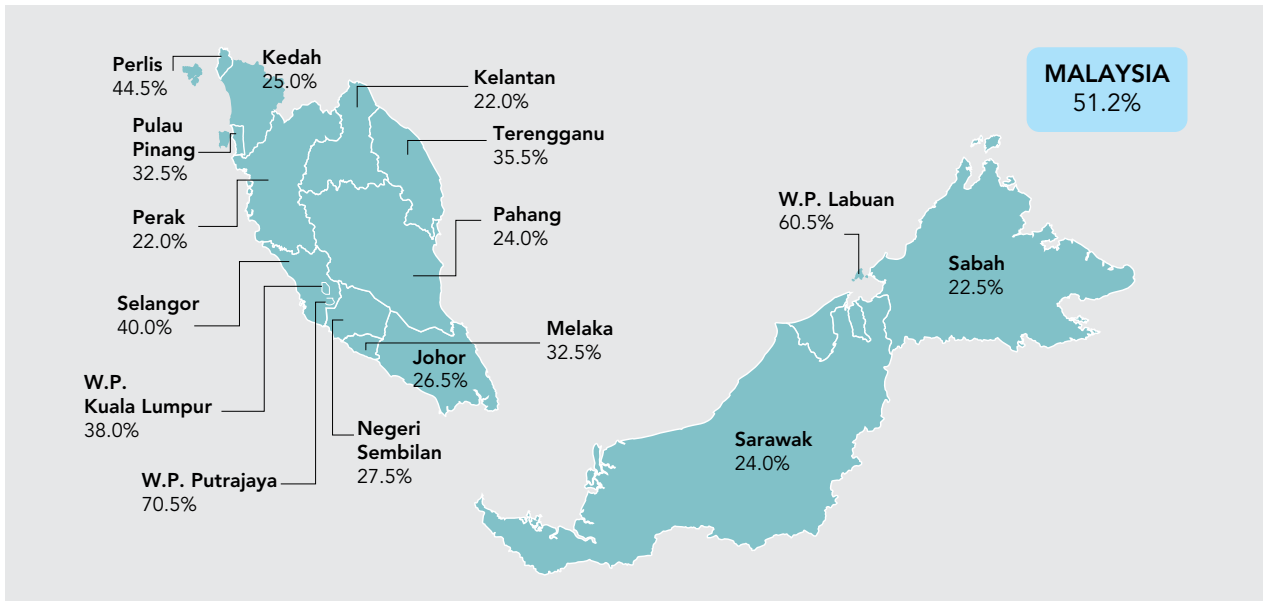
Mobile speeds:

State or Federal Territory	Download (Mbps)	Upload (Mbps)	Latency (ms)
Sarawak	25.71	12.31	59
Pahang	24.76	11.68	43
Labuan Federal Territory	24.28	12.02	57
Perak	23.21	11.18	40
Sabah	23.2	12.16	57
Selangor	23.16	11.45	36
Negeri Sembilan	22.19	10.65	38
Federal Territory of Kuala Lumpur	22.18	11.79	38
Terengganu	21.88	10.97	49
Putrajaya	21.16	11.3	33
Johor	21.02	11.29	44
Kelantan	20.61	9.77	55
Penang	19.38	11.57	42
Kedah	19.29	10.85	46
Malacca	19.18	11.01	40
Perlis	16.49	10.48	52

Source: GSMA, Ookla Speed Test, 2020

FIGURE C : The adoption of e-commerce in Malaysia varies widely by state

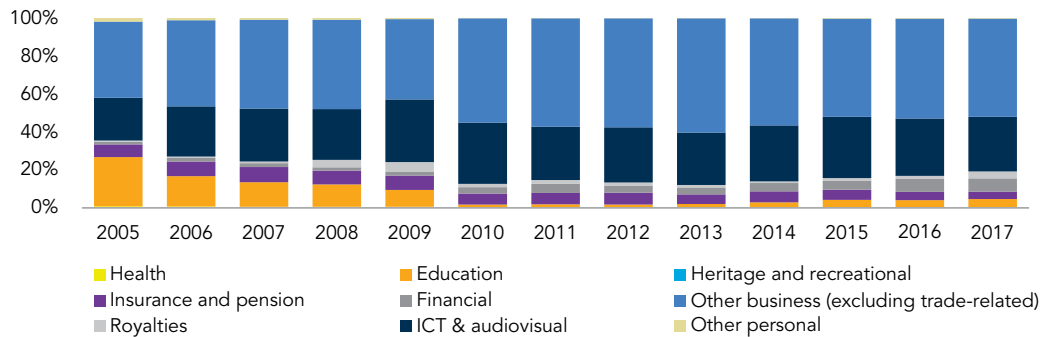
E-commerce adoption rates by state (%)



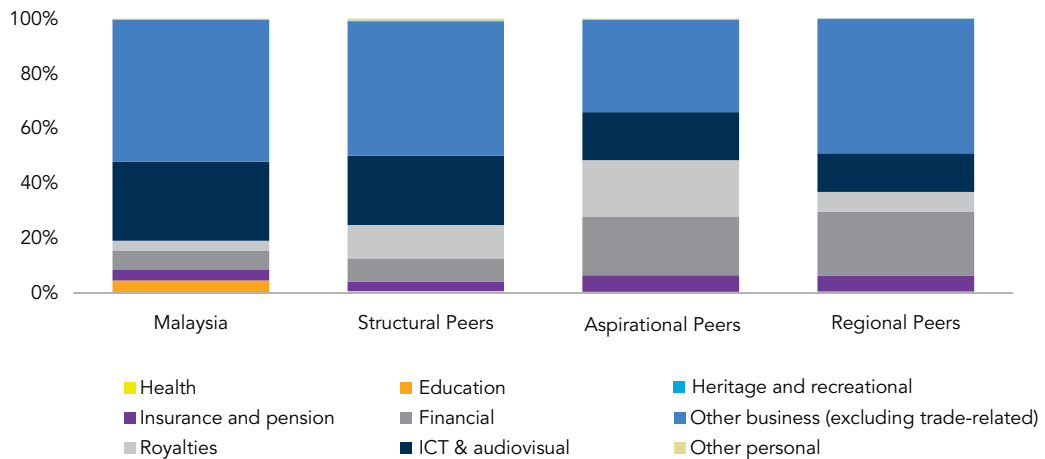
Source: e-Commerce Consumers Survey 2018, Malaysian Communications and Multimedia Commission

FIGURE D : Malaysia's digital services exports are mostly other business services and ICT & audiovisual services

Composition of Malaysia's digital services exports (Mode 1)

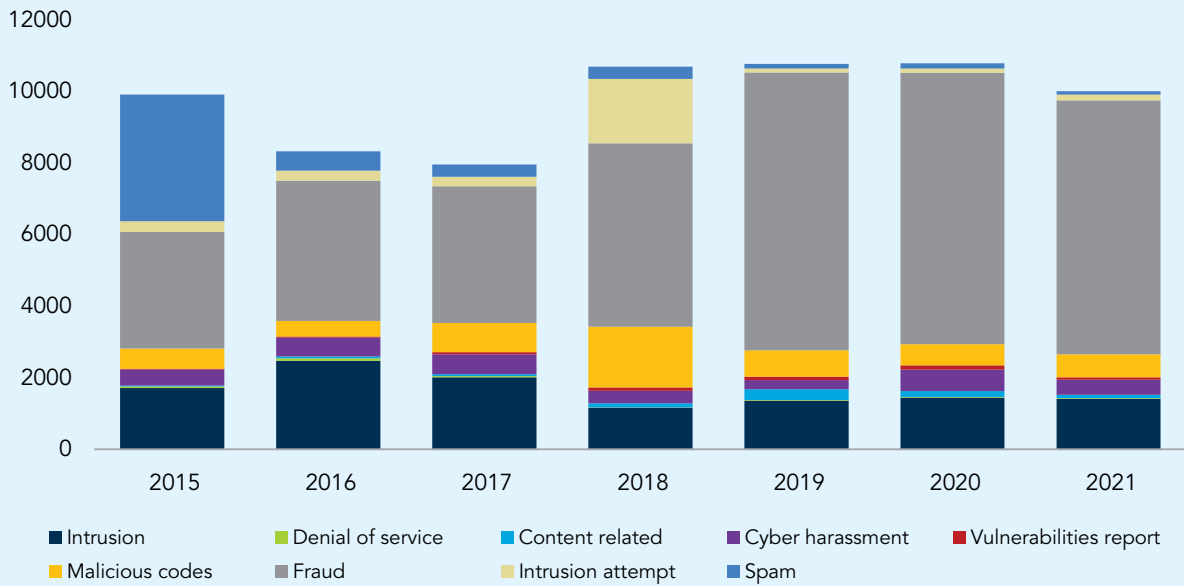


Composition of Malaysia's digital services exports vs peers (Mode 1)



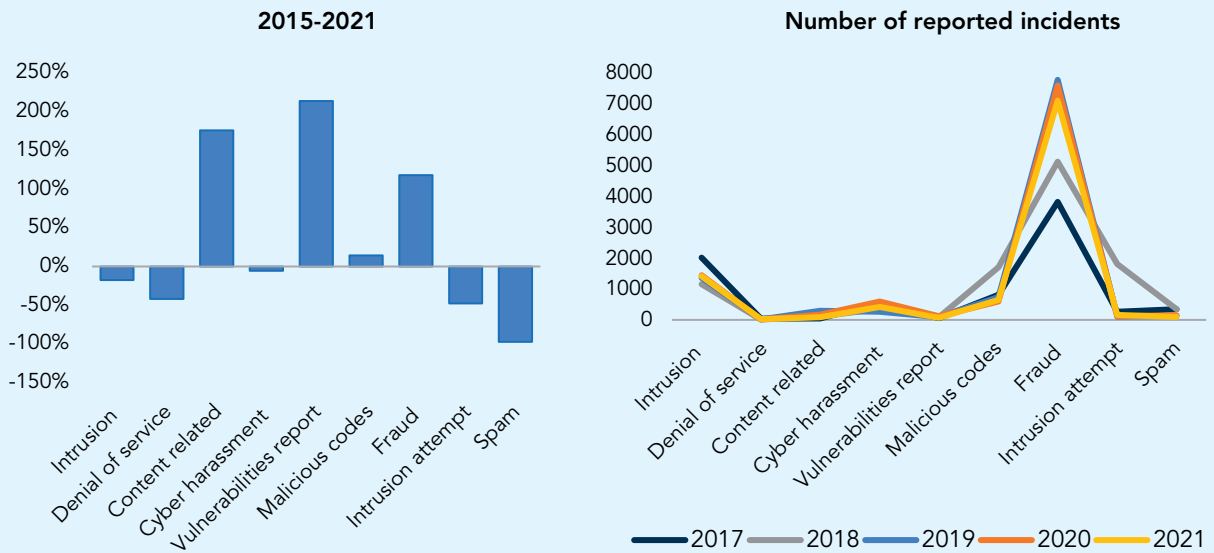
Source: Calculations based on TISMOS

FIGURE E : Number of reported cyber incidents



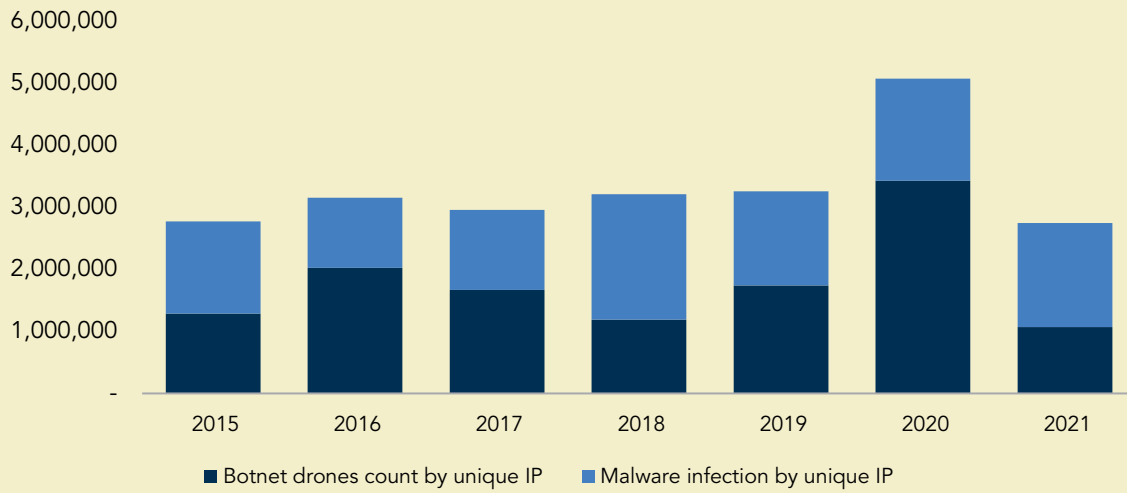
Source: Malaysia Computer Emergency Response Team, CyberSecurity Malaysia
 Note: 2020 exclude December as data was not available at the time.

FIGURE F : Growth in the number of reported incidents



Source: Malaysia Computer Emergency Response Team, CyberSecurity Malaysia
 Note: 2020 exclude December as data was not available at the time.

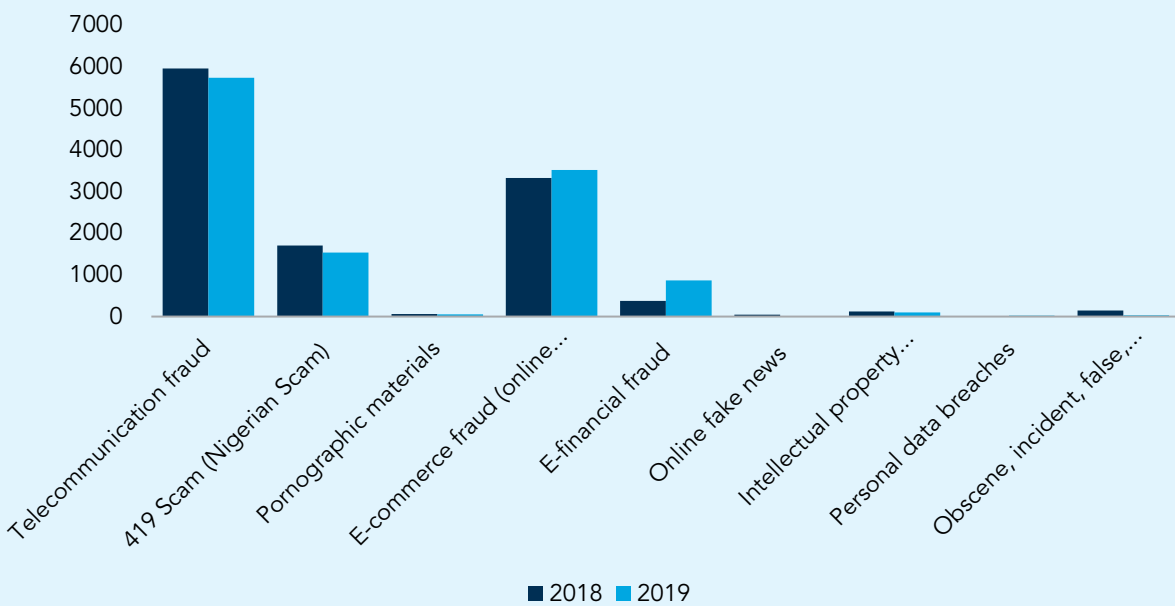
FIGURE G : Botnet drones and malware infections by unique IP



Source: Malaysia Computer Emergency Response Team, CyberSecurity Malaysia

Note: 2020 exclude December as data was not available at the time.

FIGURE H : Cybercrime by offences



Source: Royal Malaysian Police

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