Institute of Strategic & International Studies (ISIS) Malaysia

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Strengthening Digital Trade and Digitalisation in Malaysia

Challenges and pathways towards a resilient digital economy post-Covid-19

Acknowledgements

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Introduction and preface

The growth of digital technologies and the digitalisation of the global economy have led to lower costs and efficiency gains for businesses and consumers. For digital-enabled trade, technological innovations like e-commerce platforms reduce search and information costs and boost cross-border trade growth. In terms of the digitalisation of micro, small and medium enterprises (MSMEs), a wide range of digital technologies can make it easier for them to access financing, tap global markets, and realise productivity gains. Similarly, innovations in digital payments increase the efficiency of business transactions and allow entrepreneurs to make and receive payments.

In Malaysia, a 2019 Department of Statistics (DOSM) report estimates that the digital economy, including e-commerce and information technology, contributed about RM289 billion, or more than 19.1% to GDP. One of the targets set under the government's latest Malaysia Digital Economy Blueprint (MyDigital), is to grow this share to 22.6% of GDP by 2025. As the blueprint notes, even as the wider Malaysian economy continues to be ravaged by the Covid-19 pandemic, the digital economy is growing exponentially.

Throughout the pandemic and the ensuing movement restrictions throughout the country, digital technologies like social media and e-commerce were a boon for businesses and MSMEs across the country. Moreover, as restrictions remain in large swathes of the country, there are signs that many of these shifts will be enduring. Indeed, food delivery platforms recorded significant growth in demand since the start of the nationwide movement controls in early 2020. Consumers are turning to online shopping and e-commerce to purchase food and other household necessities. The 2021 e-Conomy SEA report by Google, Temasek and Bain & Company found that since the start of the pandemic, Malaysia has seen about 3 million new digital consumers – while pre-existing digital consumers used an average of 4.2 more digital services compared to the start of 2020 (Google, Temasek & Bain, 2021). In response, more retailers, merchants and restaurants are turning to digital platforms to expand sales and retain customer and supplier relationships. This surge in digital trade and digitalisation has helped to mitigate the economic impacts of the pandemic and spurred job creation for many workers in the digital sector.

As Malaysia moves towards confronting a post-Covid landscape and regaining its progress towards becoming a high-income economy, it is crucial to strengthen and support the digital economy ecosystem. This is true both domestically – by improving digital technology adoption – and internationally, as digital trade and e-commerce provisions become a larger part of modern mega-regional free trade agreements. Bolstering the digital economy at home and abroad would be paramount in the coming years to unlock productivity gains in the economy and propel Malaysia into the ranks of developed nations.

Yet, the transition into a digitally driven knowledge economy is challenging. Numerous obstacles remain for policymakers, businesses, and consumers alike. This report aims to take stock of the major issues in Malaysia's digital economy and explore recent developments in digital policies. Through extensive stakeholder engagement with federal and state government agencies, business owners, and industry professionals, this report outlines the major regulatory and policy barriers to strengthening the digital economy and digital trade. This report comprises three parts. Part 1 covers the main economic-related issues concerning digital trade, MSME digitalisation and digital payments. Part 2 explores the governance and regulatory aspects of the digital economy, including aspects of data protection, cross-border data flows, and regulations related to e-commerce delivery. Part 3 presents policy recommendations to secure the future of the digital economy.

Table of contents

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Part 1
Economic issues

1. Digital trade and e-commerce

1.1 Benefits of strengthening digital trade and e-commerce

The digitalisation of trade benefits the global economy and trade, as well as firms and consumers around the world (Table 1). Digitally enabled trade has significantly lowered the costs of international trade; decreased search costs; facilitated the formation of global value chains; increased the diffusion of ideas and technologies; and connected businesses and consumers around the world (Gonzalez & Ferencz, 2018; Bekkers, Koopman, Sabbadini, & Teh, 2021).

World Trade Organisation (WTO) simulations suggest that technological innovations, including the rise of online platforms, boost overall trade growth through reducing trade costs and more intensive use of information technology (Bekkers, Koopman, Sabbadini, & Teh, 2018). For instance, technologies like e-commerce reduce search costs, enabling transactions and increasing cross-border trade (Bekkers, Koopman, Sabbadini, & Teh, 2021; Borenstein & Saloner, 2001). The digitalisation of custom declarations decreases the time exported and imported goods spend in border compliance by about 70% (WTO, 2018). Advances in the use of digital technologies in logistics boost trade by creating efficiency gains in shipping and processing (Jensen, 2020).

Small businesses and MSMEs also stand to benefit from the digitalisation of trade via lower international trade costs, diffusion of technology and greater connectivity (Gonzalez & Ferencz, 2018). Digitally enabled trade allows MSMEs and entrepreneurs to participate in the global economy and reach new markets via online platforms – creating opportunities for small businesses to internationalise and integrate into global value chains (GVCs) much faster and more cheaply compared to traditional trade channels (OECD, 2019). Digitally enabled trade ultimately helps MSMEs realise productivity gains, with a University Consortium of Malaysia analysis suggesting that MSMEs that use e-commerce see productivity improvements of about 27% (SME Corp & Huawei, 2018). As countries enacted Covid-19 containment measures, digital-enabled trade allowed MSMEs access to consumers at home and abroad even when physical retail locations were closed (see Section 2 on issues related to MSME digitalisation).

From a consumer perspective, the digitalisation of trade and e-commerce, in particular, increases convenience and choice. Online platforms make it quicker, cheaper, and easier for consumers to access a wider range of products from across the country and the world. E-commerce and the internet promote greater product variety, quality, customer satisfaction and increase consumer surplus across various products (Seetanah et al., 2021). Digitally enabled transactions and well-regulated e-commerce platforms also reduce information asymmetries – allowing consumers greater information about prices, product details and warranty information.

Table 1. How digital trade helps…

The economy and trade growth	• Lower costs of international trade • Facilitate formation and growth of global value chains • Increases technological diffusion and use of information technologies • Increases trade growth
MSMEs and businesses	• Lower costs of international trade; lower the barriers for small businesses to access global markets and value chains • Cheaper and greater access to larger consumer base • Productivity gains from technological diffusion and internationalisation
Consumers	• Greater convenience while purchasing goods and services • Quicker, cheaper and easier to access a wider range of products worldwide • Increases customer satisfaction and raises consumer surplus

Source: Authors' illustration based on various sources, including Capillary, 2020; Bekkers, Koopman, Sabbadini, & Teh, 2021; Gonzalez & Ferencz, 2018; OECD, 2019.

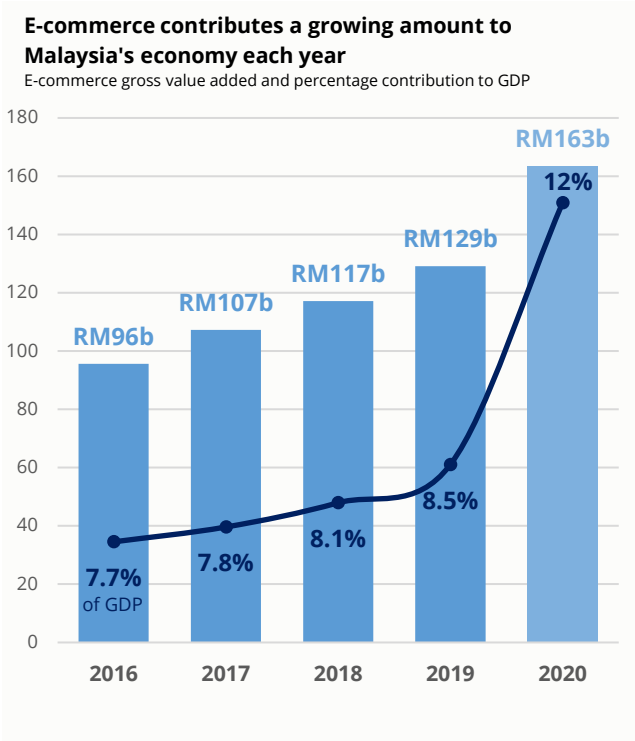
1.2 Overview of e-commerce and digital trade in Malaysia

In Malaysia, official figures suggest that in 2019, e-commerce alone contributed about RM127 billion to GDP in terms of gross value added. The amount and contribution to GDP has grown steadily since the start of data collection, rising from 7.6% of GDP in 2015 to 8.5% in 2019 before the pandemic, and finally to about 12% in 2020 (Figure 1). Data indicates that 26% of this e-commerce value-added is attributed to the information and communications technology (ICT) industry, while the remaining 74% is attributed to e-commerce use in other industries.

Other estimates from consultancy firm AlphaBeta suggest that broadly, digital trade enables about RM24 billion (1.8% of GDP) in economic activity through technologies that increase worker productivity, lower costs, and create new sources of revenue (AlphaBeta, 2019). AlphaBeta forecast suggests that the figure could grow nine-fold to RM222 billion by 2030 if Malaysia is able to increase the rate of digital technology adoption in the economy and leverage on digital trade (AlphaBeta, 2019). Similarly, Google, Temasek and Bain & Company's 2021 e-Conomy SEA report projects the gross merchandise value of digital trade and e-commerce (including online travel, media, transport and food) to grow at a constant annual growth rate of 14% per annum from US$21 billion in 2021 to US$35 billion in 2025 (Google, Temasek & Bain, 2021).

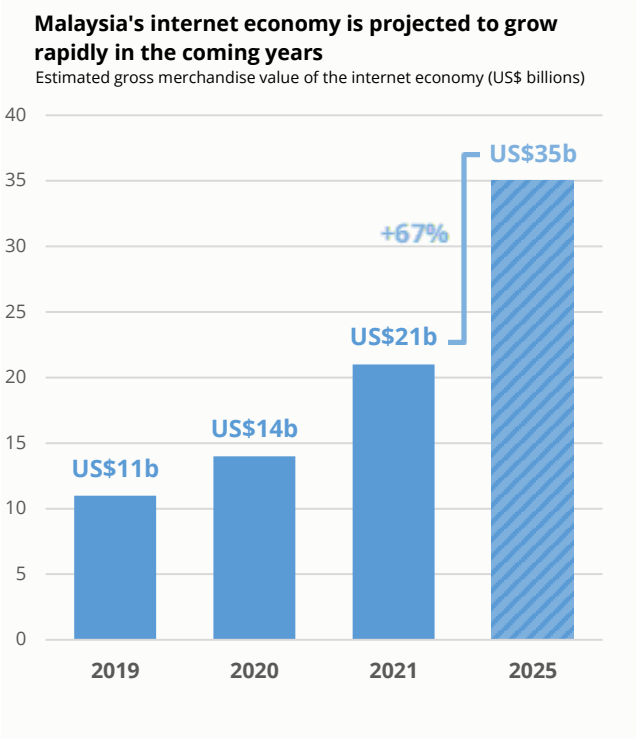
Nonetheless, despite the rising contribution of e-commerce to GDP, the average e-commerce value per capita still lags behind countries like Singapore (Figure 2), and average online revenue per user remains a quarter of the global average (Kemp & Moey, 2019). Government surveys suggest that only 15% of firms used e-commerce in 2019 and that significant disparities in e-commerce adoption exist between states and regions across Malaysia (Figure 3) (MCMC, 2019).

Figure 1. The growth of e-commerce in Malaysia



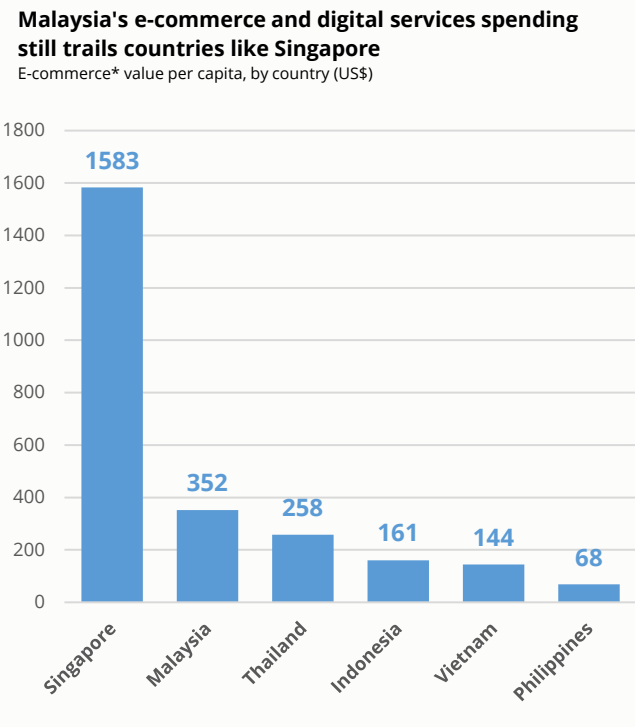
Source: DOSM, World Bank

Figure 2. Malaysia's internet economy growth projection



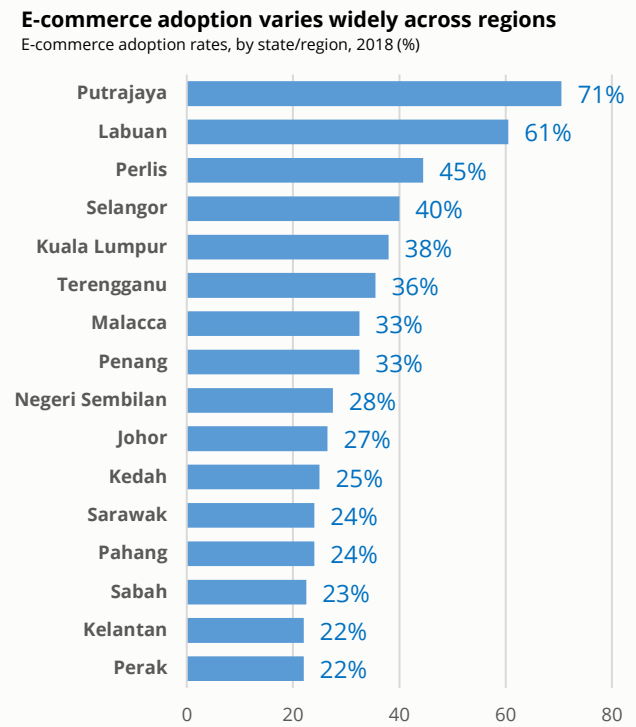
Source: Google, Temasek & Bain

Figure 3. Regional comparisons of e-commerce value



Source: Google, Temasek & Bain, World Bank, authors' estimates

Figure 4. E-commerce adoption across Malaysia



Source: MCMC

1.3 Issues and challenges

There are numerous impediments to the expansion of digitally enabled trade as well as e-commerce in Malaysia, ranging from macro-level challenges like the availability of quality infrastructure and digital trade restrictions to micro firm-level challenges like technological adoption. Overall, these can be grouped into challenges related to digital enablers (infrastructure, trade restrictions) and availability of digital actors (digital adoption in firms). This section focuses on barriers to digital trade while challenges related to the digitalisation of MSMEs are explored in Section 2.

1.3.1 Logistics performance and digital infrastructure

Shortfalls in the quality and availability of infrastructure remain an impediment to the growth of digital trade and e-commerce in many parts of the country. This is true for both traditional logistics infrastructure like roads and ports and digital infrastructure, such as affordable and high-speed internet access. Evidence shows that internet availability and digital infrastructure can substantially increase trade flows (Baghdadi & Guedidi, 2021; Liu & Nath, 2012; Vemuri & Siddiqi, 2009; Freund & Weinhold, 2004). Other reports suggests that an efficient logistics system – from road transport to seaports and customs – is a prerequisite for e-commerce and digital trade development, with improvements in logistics performance having a greater effect on boosting trade than lowering tariffs (Awad-Warrad, Boughanmi, & Hwang, 2021; Rodriguez, 2018; Hoekman & Nicita, 2008).

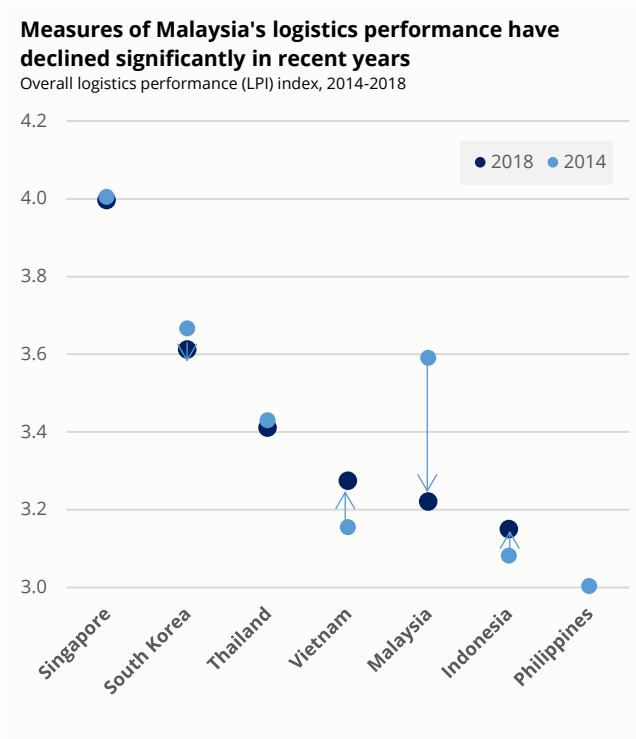
For logistics infrastructure, long-standing issues like traffic congestion and inadequate last-mile connectivity (road and rail) in and around key transport hubs (Port Klang, Penang) continue to be major impediments (EPU, 2014; MOT, 2015). Stakeholder engagement confirms that these "last-mile" issues remain a key obstacle to the successful implementation of the government's e-commerce strategies in some lesser-developed regions. Similarly, interviews indicate that road quality – pavement failure, potholes, and lack of street lighting – and traffic congestion around Port Klang's North Port and container terminals create both safety concerns and efficiency losses.

Other logistics-related issues in Malaysia include low digitalisation across the logistics supply chain, partial implementation of parcel tracking and tracing systems and inefficient customs clearance processes (Bernama, 2020; Kawa, 2020). Aggregated measures of logistics performance show that the quality of Malaysia's logistics infrastructure has declined significantly since 2014 relative to other countries in the region (Figure 4). This is especially acute in areas like customs, tracking and tracing, and timeliness (Figure 5). Engagement with logistics firms operating in Port Klang indicates that the speed and efficiency of customs and port services are lacking. Stakeholders describe customs clearance processes as only being partially digitalised – once shipments were cleared through the Customs Information System (Sistem Maklumat Kastam), forwarding agents still have to deliver hard copy documents to custom agents for verification. There are also reports of bribery and corruption by both customs agents and port authorities.

There is also much room for improvement for digital infrastructure, internet speeds and availability. As outlined in greater detail in Section 2.2.1, Malaysia's overall internet speeds lag far behind its regional peers like Singapore and Thailand. Moreover, there are also large regional differences in internet quality across Malaysia, with speeds and reliability lacking outside major urban areas (Speedtest, 2021; World Bank, 2018). Policymakers report instances in which poor internet connectivity have forced factory managers in rural and

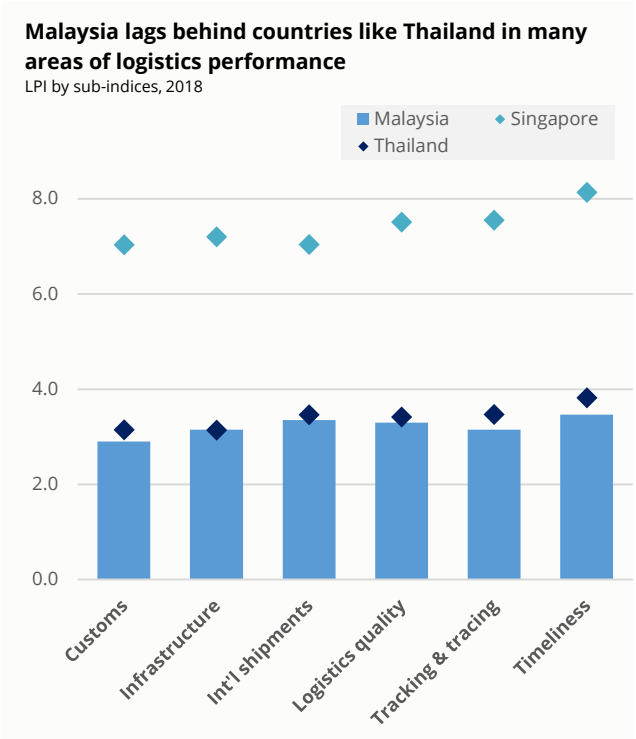
suburban areas to travel to urban areas just to download purchase orders. At the same time, low adoption of digital payments by some MSMEs, vendors and merchants along the supply chain continue to impede the growth of e-commerce (see Section 3.0).

Figure 5. Logistics performance index (LPI)



Source: Logistics Performance Index, World Bank

Figure 6. Regional comparisons of LPI sub-indices



Source: Logistics Performance Index, World Bank

1.3.2 Domestic regulatory and non-tariff barriers

Besides logistical challenges and barriers like tariffs and low de minimis thresholds, the expansion of digitally enabled trade can also be compromised by digital trade barriers and restrictions. Digitally enabled trade transactions rely on digital networks – and as such, may face regulatory barriers including domestic policies affecting telecommunications infrastructure, connectivity and cross-border online payment systems (López-González, 2021). Restrictive policies at any one node of the process from consumer access to internet, access to a retailer's website and electronic payments can impede digital transactions and reduce digital trade.

Table 2. Regulatory barriers around digital trade

Examples of regulatory barriers	• Data localisation requirements • Cross-border data flow restrictions • Local technology and content requirements • Website filtering/access blocking • Intellectual property rights infringements • Cross-border payment restrictions

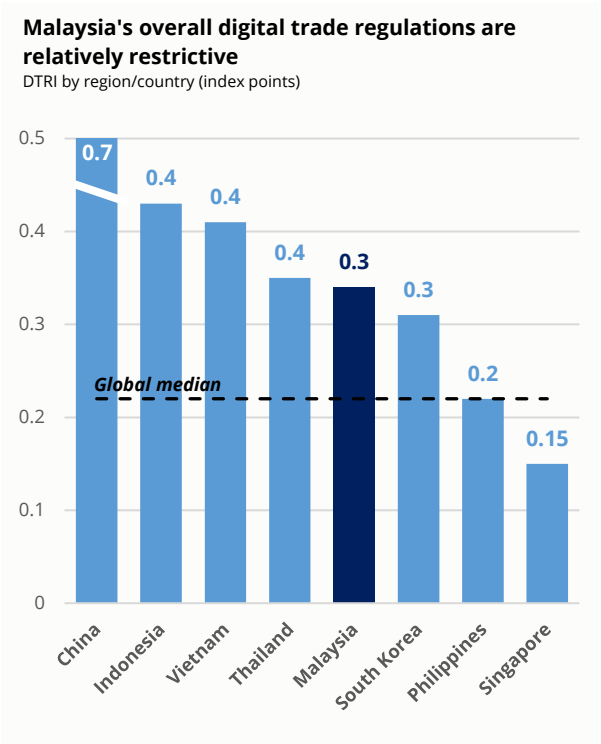
Source: Adapted from Congressional Research Service, 2020

Malaysia currently ranks in the top 11 out of 65 countries as restrictive towards digital trade, according to the Digital Trade Restrictiveness Index (DTRI) developed by the European Centre for International Political Economy (Ferracane, Lee-Makiyama, & van der Marel, 2019). This is attributable to Malaysia having higher regulatory barriers than the global median in three clusters: establishment restrictions (foreign investment and competition policy), data restrictions (content access) and trading restrictions.

On establishment restrictions, the DTRI identifies restrictions such as the dominance of the partially government-owned Telekom Malaysia in the local telecommunications industry and general lack of competition (Ferracane et al., 2019); limited commitments on basic telecommunication services under the General Agreement on Trade in Services (GATS) which include provisions on competition and transparency (WTO, 1996) and strict licensing requirements for telecommunication firms that act as a barrier of entry for new players.

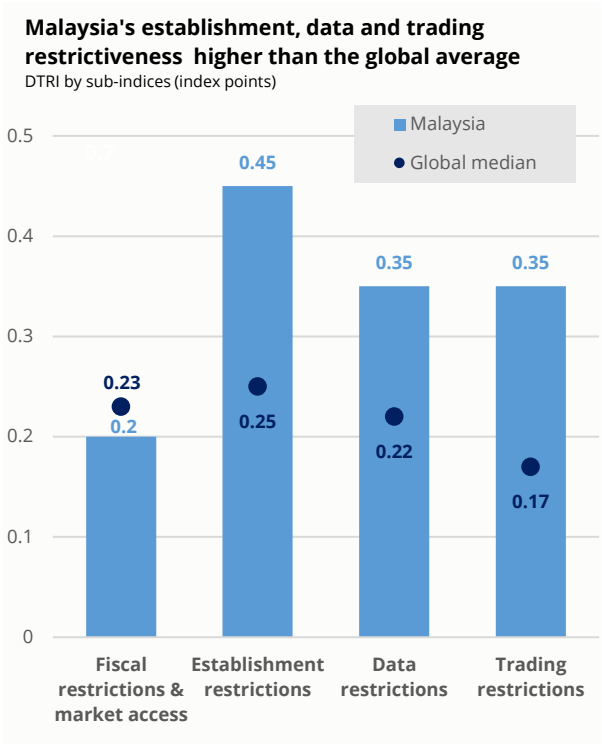
On data restrictions, content access remains a key constraint. This includes the Malaysian Communications and Multimedia Commission's (MCMC) broad powers to censor, regulate, and block content and access. Correspondingly, Malaysia ranks relatively high for quantitative trading restrictions, which cover import/export restrictions like bans or quotas along with restrictive import licensing schemes or local content requirements (Ferracane et al., 2019).

Figure 7. Digital trade restrictiveness index (DTRI)



Source: ECIPE, Authors' estimates

Figure 8. Global comparisons of DTRI sub-indices



Source: ECIPE

1.3.3 Common digital standards and trade agreements

Related to the domestic regulatory environment, differences in regulations and standards on digital aspects across countries create additional barriers to digital trade. To start, while efforts are underway by the Inter-Agency Task Force on International Trade Statistics (TFITS) to set a common standard for measurement of digital trade issues, there is still no internationally defined standards on the usage of terms like digital trade and e-commerce (Ferrantino & Koten, 2019). Further, there is a lack of consistent set of global regulations and a clear framework for digital standards to ensure the free flow of digital trade between countries, particularly within the Asean region (Pratamasari, 2020; MTI Singapore, n.d.). Differing rules and standards increase trade barriers and compliance costs, and stifle the expansion of international digital trade, particularly for developing countries (Darsinouei, 2017). Stakeholder interviews with policymakers and local firms reveal that this absence of standardised regulations and mutual recognition in product certification makes it difficult for Malaysian businesses to penetrate export markets and expand cross-border trade.

More than 80 members of the WTO are in the process of negotiating e-commerce trade rules, while regionally, many WTO members have signed at least one regional agreement that contains provisions on e-commerce (Durant, 2021; Darsinouei, 2017). Mega-regional trade agreements in the Asia-Pacific region, like the Regional Comprehensive Economic Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) all contain digital trade provisions. Asean is also working on implementing its own Agreement on Electronic Commerce (Elms, 2021) and recently announced its intention to start negotiating an ASEAN Digital Economy Framework Agreement by 2025. Some of the main issues discussed in regional and global digital trade agreements are related to the non-discrimination of digital products. Other issues include rules on areas like cross-border data flows, consumer protection, competition, mutual recognition of digital certification and other paperless trade issues (Table 3) (López, Condon, & Muñoz, 2021; Darsinouei, 2017).

Table 3. Main digital commerce-related issues discussed in trade agreements

Market access	• Elimination of customs duties and tariffs • Valuations issues (e.g. application of Article VII of GATT 1994)
Rules and regulations	• Intellectual property rights • Personal information protection • Consumer protection • Competition
Facilitations	• E-certification, e-signatures and digital certifications of origin • Mutual recognition of digital certificates • Paperless trade issues

Source: Authors' illustration based on Darsinouei, 2017

1.3.4 Other obstacles: firm digitalisation and consumer-related issues

Firm-level digitalisation is a pre-requisite for digital trade. For digital trade and e-commerce to expand in an economy, its firms first need to have the ability, capacity, and willingness to and adopt digital technologies (González & Jouanjean, 2017). In Malaysia, digitalisation and digital adoption rates for businesses – MSMEs in particular – are still relatively low (World Bank, 2016). Larger firms export and adopt e-commerce at far higher rates than smaller businesses, while MSMEs only receive a small share of these benefits (World Bank, 2018). With the majority of firms in Malaysia being MSMEs (98.5%), these low e-commerce and digital technology adoption rates among smaller firms represent a major obstacle to the expansion of digital trade (see Section 2).

From a consumers' perspective, there are also a variety of barriers to the expansion of digital trade e-commerce adoption (for more on Malaysia's consumer protections in e-commerce, see Section 5.0). These barriers can be separated into digital access-related issues and consumer trust and safety. On digital access-related issues, these are like the challenges outlined in Section 1.3.1 and in 2.2.1. Consumers in certain regions are hampered by coverage, reliability, internet speed and telecommunications infrastructure (Sothirachagan, 2020). Likewise, MCMC's e-Commerce Consumers Survey 2018, reasons cited by consumers for not utilising e-commerce included a preference for shopping at physical locations, lack of knowledge and digital skills related to the internet (MCMC, 2018).

In terms of consumer trust and safety, consumers also report issues like misleading adverts and product information, lack of quality guarantees, slow delivery and inconvenient return policies (Sothirachagan, 2020). Through stakeholder engagement, we find that many consumers generally still lack the confidence to make large purchases online over concerns about quality, security and reliability. Likewise, MCMC surveys also suggest that consumers' concerns about data security and privacy affect the expansion of e-commerce (MCMC, 2018). Issues surrounding data governance are explored in Section 4.0.

1.4 The impact of Covid-19 on e-commerce and digital trade

The Covid-19 pandemic created several opposing effects on e-commerce and digital trade in Malaysia. For one, due to a combination of movement restrictions, physical store closures, strict standard operating procedure, which limit physical store capacity and/or safety concerns, many consumers moved to online purchases and e-commerce. A survey conducted on 32,000 Malaysian adults by market research firm Vodus suggests that online grocery and non-food shopping rose by 144% and 53% respectively since the start of the pandemic (Vodus, 2020). Other surveys indicate that 65% of respondents are at least partly shopping online, and that 55% had a "high perceived value of online purchases" (Vase.ai, 2020; UOWMKDU, 2020). In response, a number of Malaysian businesses have adopted e-commerce (see Section 2.3). The 2021 e-Conomy SEA report by Google, Temasek and Bain & Company suggests that since the start of 2020, Malaysia has added about 3 million new digital consumers while existing digital consumers have more than doubled their use of digital services (Google, Temasek & Bain, 2021). In particular, the report indicates that the Malaysia's e-commerce sector has grown exponentially, recording an estimated gross merchandise value 4.67 times higher in 2021 compared to before the pandemic. Accordingly, DOSM data suggests that e-commerce gross value added increased by 26% in 2020, the highest growth rate recorded since the publication of the

ICT satellite account statistics (see Figure 1). In the longer term, this may benefit the growth of e-commerce and digital trade across Malaysia.

Yet, the pandemic also exerted pressure on consumer spending. Broadly, uncertain economic conditions led many households to reduce overall spending and postpone purchases of durable or non-essential goods. DOSM surveys during the MCO in Malaysia indicate that monthly household consumption declined by about 55% on average compared with pre-pandemic levels (DOSM, 2020). Another survey suggests that the increase in e-commerce spending is mostly concentrated in essential goods like groceries, hygiene products and household items – with only 27% of respondents saying they are still spending on non-essential non-food items (Vase.ai, 2020). This is supported by another Rakuten Insights survey conducted in May 2020 where about 59% of respondents indicated a "reduction in unnecessary expenses amid the economic impacts of Covid-19" as the main reason for reducing online purchases (Statista, 2020). These uneven shifts in online consumer demand across product lines mirror global trends in online sales of essential and non-essential items (OECD, 2021).

In summary, while there is a shift towards e-commerce and online purchases, this increase is mostly concentrated in food and essential household product segments. Meanwhile, e-commerce and digital trade spending overall is affected by a general decline in consumer spending along with sharply lower online spending on digital services like travel services and e-hailing. On balance, the net effect of the Covid-19 pandemic on e-commerce and digital trade in Malaysia, especially in the longer term, appears to be mildly positive. Indeed, the total value of the e-commerce transactions increased in 2020, with e-commerce in Malaysia growing at a marginally faster pace in 2020 (25%) compared with 2019 (23%) (GlobalData, 2020).

1.5 Current policy efforts

The Malaysia Digital Economy Blueprint (MyDigital) is the main government plan that outlines the digital economy strategy. Its objective is to transform Malaysia into a "digitally driven, high income nation and a regional leader in digital economy" and includes six strategic thrusts with clearly defined objectives and targets to strengthen Malaysia's digital economy (EPU, 2021). MyDigital is slated to run from 2021-2030 and complements other national development policies, such as the 12th Malaysia Plan (12MP) and the Shared Prosperity Vision 2030 (SPV2030).

The six thrusts in MyDigital are: drive digital transformation in the private sector; boost economic competitiveness through digitalisation; build enabling digital infrastructure; build agile and competent digital talent; create an inclusive digital society; and build a trusted secure and ethical digital environment (EPU, 2021). Under these thrusts are various initiatives aimed at expanding digital trade and e-commerce and reducing digital barriers (EPU, 2021) (see Table 4).

Thrust 2 Initiative 7 outlines the "creation of a digital trade environment with improved stability, lowered risks and reduced compliance costs" (EPU, 2021). This strategy is targeted at addressing barriers in terms of the regulatory environment and common digital standards identified in the previous section. Led by the Ministry of International Trade and Industry (MITI), this strategy aims to facilitate cross-border trade and investment at the multilateral and plurilateral levels, establish common global frameworks for less restrictive digital trade, and incorporate digital economy provisions in all trade agreements (EPU, 2021).

Thrust 2 Initiative 3 and Initiative 5 aim to address other domestic regulatory barriers identified in the previous section. Specifically, Thrust 2 Initiative 3 intends to review and strengthen domestic intellectual property (IP) laws and drive innovation, while Initiative 5 will review local competition regulations by 2023 and strengthen the domestic competitive environment. Strategic Thrust 3 ("Build enabling digital infrastructure") aspires to alleviate digital infrastructure barriers – including providing supportive regulatory framework for telcos and establishing an enabling environment for local data centre companies to expand high-end cloud computing capacity (EPU, 2021). Thrust 4 Initiative 4 aims to reduce digitalisation barriers to digital trade and e-commerce by accelerating technological adoption for MSMES (see Section 2 for an in-depth look at MSME digitalisation).

Table 4. MyDigital strategic thrusts and objectives related to digital trade barriers

Thrust	Strategy	Initiative	Target
T2: Boost economic competitiveness through digitalisation	**S3:** Nurture a dynamic IP system for the digital economy to encourage innovations	**Initiative 3:** Strengthen IP regulatory framework and enforcement to drive innovation	Review domestic IP laws by 2023, and more than 50,000 IP ownership by 2030
	S4: Developing digital industry clusters and driving entrepreneurial activity	**Initiative 7:** Establish digital economy arrangements and cooperation to support productivity	Key and strategic digital economy elements incorporated in all international trade arrangements and cooperation
	S5: Streamline pro-competition measures with digital economy policy	**Initiative 5:** Ensure efficient and effective implementation as well as enforcement of the competition policies and laws to achieve a level playing field in the digital economy	Review domestic competition laws by 2023

T3: Build enabling digital infrastructure	**S1:** Reviewing regulations to expand infrastructure coverage **S2:** Leveraging on digitalisation to address legacy challenges **S3:** Enhancing digital technology infrastructure capabilities	**Initiative 1 – 6**	Review federal and state regulations related to digital infrastructure, legislate broadband as a basic utility, increase local data centre industry revenue to RM3.6 billion by 2025
T4: Providing an online platform to facilitate better access for vulnerable groups	**S2:** Empowering special target groups in the society to participate in the digital economy through entrepreneurship	**Initiative 4:** Enhance digital technology adoption to empower vulnerable groups	875,000 MSMEs onboard eCommerce by 2025

Source: EPU, 2021

At the implementation level, numerous ministries and agencies will work to achieve these targets set by MyDigital, coordinated by the Digital Economy and Fourth Industrial Revolution (4IR) Council. The prime minister chairs the 4IR council and represents the "highest administrative body for the setting of policies, and implementation and monitoring of the nation's strategies and initiatives for the digital economy" (Bernama, 2020). Each ministry and agency run their own programmes and separate road maps in line with the targets set under MyDigital.

For instance, the National e-Commerce Strategic Roadmap (NESR 2.0) was launched in April 2021. The National eCommerce Council (NeCC) oversees NESR 2.0 and a Malaysia Digital Economy Corporation (MDEC) task force seeks to expand e-commerce/e-procurement among small businesses (MDEC, n.d.). Targets in the NESR 2.0 are in line with those set under MyDigital's Strategic Thrust 4 Initiative 4 – one of the main objectives of NESR 2.0 being to get 875,000 micro MSMEs to adopt e-commerce by 2025 (MDEC, 2021). Thus, the digital economy road maps in specific sectors are components in the implementation plans of MyDigital. Similarly, other recent MITI initiatives include the launch of the Digital Investment Office (DIO) on 2 August 2021 in collaboration between MIDA and MDEC (both MITI agencies) to facilitate end-to-end foreign digital investments.

On the regional level and in line with Thrust 2 Initiative 7, MITI is supporting Asean-level efforts towards greater digital integration via the Asean e-Commerce Agreement and its programmes. According to engagement with MITI, efforts are underway to improve regulatory and legislative coherence; providing more transparent references for regulations and guidelines for e-commerce transaction and supply chain; and enhancing conformance to global standards (barriers identified in Section 1.3.3). MITI is also active in influencing the process at the multilateral and plurilateral levels via ongoing work programmes within the WTO and the Organisation for Economic Cooperation and Development (OECD).

2. Digitalisation of micro, small, and medium enterprises (MSMEs)

2.1 How digitalisation benefits MSMEs and digital trade

For businesses, digitalisation encompasses different technologies and business processes, from the use of e-commerce and digital marketing for sales and communications to the digitalisation of logistics processes via supply chain management (SCM) software. Adopting these digital solutions generates different benefits for MSMEs at the stages of digitalisation. For instance, access to digital technologies like e-commerce can decrease the cost of trade and facilitate MSMEs' access to new markets (OECD, 2019). Digitalisation also lowers the barriers of entry for MSMEs to participate in international and regional production networks and integrate themselves into global value chains (GVCs) – boosting overall trade growth (see Section 1).

Moreover, digitalisation also allows MSMEs greater access to consumers even when brick-and-mortar locations are closed as seen during Covid-19 and the ensuing lockdowns. Throughout the past year, MSMEs have leveraged on digital tools to reach customers, maintain supplier relationships and market their products and services even as lockdown measures continue to hinder traditional operations (Colvin & Gayle, 2020). Meanwhile, digitalisation of other processes like marketing and customer communications via digital marketing and customer relationship management software can create higher engagement levels, give MSMEs greater reach, and allow them to meet the demands of an increasingly online consumer base (OECD, 2021).

Digital technologies can make it easier for MSMEs to access financing, such as via peer-to-peer lending or digital banking – while human capital management software can improve firms' training and recruitment practices (OECD, 2021). Ultimately, MSMEs benefit from technological diffusion from global market access, driving innovation, growth and productivity (OECD, n.d.; OECD, 2019).

International evidence suggests that digital technologies can create opportunities for MSMEs to expand, innovate, access global markets, and improve their productivity (OECD, 2021; Singh & Shukla, 2021). An IDC survey of firms in the Asia-Pacific indicates that businesses report improved profitability, higher productivity and greater customer retention as among the main benefits of digital adoption (Karr, Loh, & Wirjo, 2020). Other evaluations show that MSMEs which spend more on digital technologies see revenue gains far in excess of firms with lower digital spending (Singh & Shukla, 2021). A study in Vietnam and Kenya suggests that firms adopting digital marketing and e-commerce had higher total factor productivity growth and performed better overall (World Bank, 2016; Wanyoike et al., 2012; Igue et al., 2021). In Malaysia, an analysis by the University Consortium of Malaysia shows that MSMEs using social media and e-commerce report productivity impacts of above 26%, while those using data management solutions report productivity improvements of about 60% (SME Corp & Huawei, 2018).

Table 5. How digitalisation benefits MSMEs

Business process	Digital solution area	Potential benefits for MSMEs
Sales	e-Commerce, digital trade platforms, digital platforms	Access global markets and rural areas, lowers cost of access, internationalise business, add to customer base
Marketing communications and customer management	Social media, digital marketing, customer relationship management (CRM) software	Higher engagement levels, greater reach, meet demands of an increasingly online consumer base, CRM
Production	Data analytics, Internet of Things (IoT), cloud computing	Reduce operation costs along the internal value chain of the firm and generate productivity gains
Logistics, sourcing, accounting	Supply chain management software, digital platforms, cloud accounting	Lower cost
Financing and funds management	Digital banking, peer-to-peer lending, alternative risk assessment tools, access to initial coin offerings (ICOs) issuing crypto-assets, fintech	Lower cost, greater access, time efficient
Human resources	Human capital management software, job recruitment platforms, outsourcing and online task hiring	Facilitate access to skills and human capital

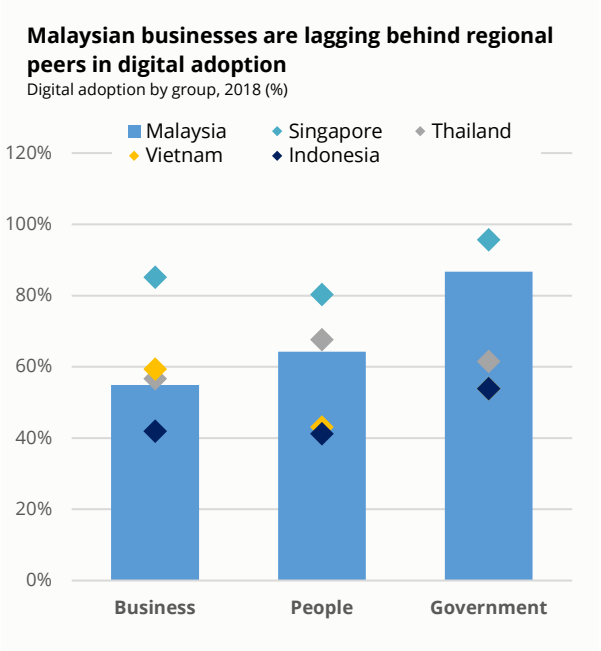
Source: Authors' illustrations from various sources including OECD, 2021

2.2 Issues and challenges

Data from the World Bank's digital adoption index (DAI) shows that overall, Malaysian businesses lag far behind the level of digital adoption of businesses in Singapore and high-income OECD countries as well as businesses in lower-/middle-income countries in Asean like Thailand, Vietnam and the Philippines (World Bank, 2016). Overall, only 62% of Malaysian firms are connected to the internet and just 18%-28% have a web presence – while only 15% use online platforms to export their products internationally (World Bank, 2018; AlphaBeta, 2019). These figures are even worse for smaller firms, highlighting the wide digital gap between larger multinationals and microenterprises.

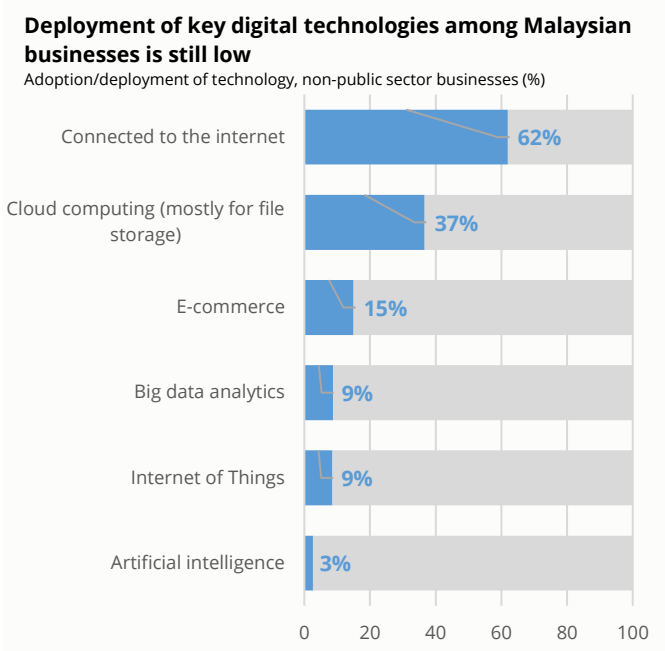
Interviews and engagement with key stakeholders in the industry suggest that it is important to understand that for MSMEs, digitalisation exists on a continuum. There are various stages of digital maturity and degrees of digitalisation for many MSMEs – running the spectrum from MSMEs which are completely analogue to those which managed to digitalise a small portion of their operations, and others close to the cutting edge of digital technologies. As such, different MSMEs in different stages of digital maturity face different challenges and require different solutions. Likewise, MSMEs of different sizes face different digitalisation challenges – from microenterprises with fewer than five employees to medium-size MSMEs with 100 employees.

Figure 9. Digital adoption index (DAI)



Source: DAI, World Bank

Figure 10. Adoption of digital technologies



Source: World Bank, MCMC Broadband Demand Survey 2019

2.2.1 Access to adequate digital and internet infrastructure

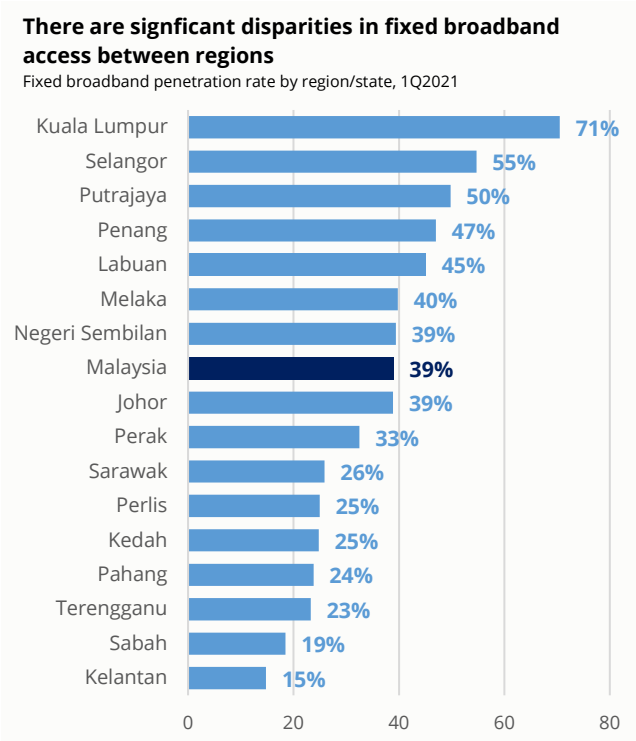
Access to adequate digital infrastructure like high-speed broadband is necessary for the digital transformation of MSMEs. Recent research shows that MSMEs' exports and overall participation in global value chains is higher when internet connectivity and quality of digital infrastructure is improved (Baghdadi & Guedidi, 2021; Ganne & Lundquist, 2019; Lanz et al., 2018). While there have been improvements to internet speed and access in Malaysia over the past few years, a lack of access to affordable, accessible, and high-speed broadband internet in many parts of the country continue to be a barrier to MSME digitalisation (other infrastructure issues related to logistics are discussed in Section 1.3.1).

Overall, about 90.3% of households in Malaysia have some type of internet subscription (DOSM, 2019). However, in terms of fixed broadband, penetration rates are still low, with evidence of regional disparities in access across Malaysia. Nationwide, fixed broadband penetration rates are at 39% as of 1Q 2021, with major urban centres like Kuala Lumpur recording broadband penetration rates closer to 71% while lesser-developed states like Kelantan and Sabah report very low penetration rates of only 18% and 15% respectively.

Yet, beyond just access, internet speeds matter greatly for adoption of digital technologies. Indeed, in the 2019 broadband demand survey conducted by the MCMC, 41% of businesses reported that their internet speed was insufficient for their needs (broadband demand survey 2019, MCMC). Other surveys indicate that 44% of MSMEs report that poor broadband internet service is the main reason not to utilise digital technologies like cloud computing, cloud business applications and cloud data analytics (SME Corp & Huawei, 2018). This is an even more pressing issue for firms located in lesser-developed or remote regions across Malaysia with inadequate access to reliable and adequate internet services.

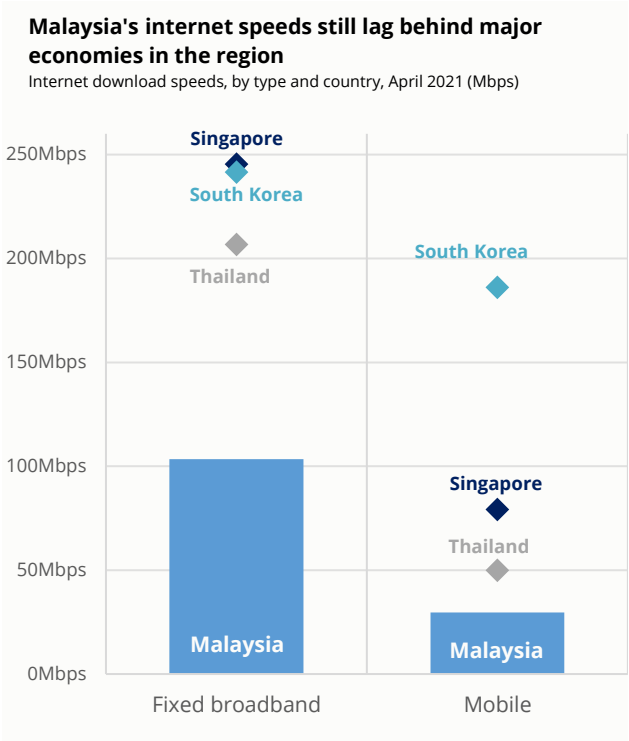
As of April 2021, Malaysia ranks third in Southeast Asia for fixed broadband download and upload speeds, lagging far behind both Singapore and Thailand (Speedtest, 2021). For mobile internet speeds, Malaysia ranked fourth, behind Singapore, Thailand, and Vietnam. (Speedtest, 2021). Yet even these speeds are limited to major metropolitan areas and higher-developed urban areas within Malaysia. As with penetration rates, there exists large regional differences – with internet speeds, reliability and coverage lacking in many suburban and rural areas (World Bank, 2018). A SME Corp and Huawei study indicates that in most regions across Malaysia, average connectivity speeds are about 10Mbps or lower (SME Corp & Huawei, 2018).

Figure 11. Internet penetration across Malaysia



Source: MCMC

Figure 12. Regional comparisons of internet speeds



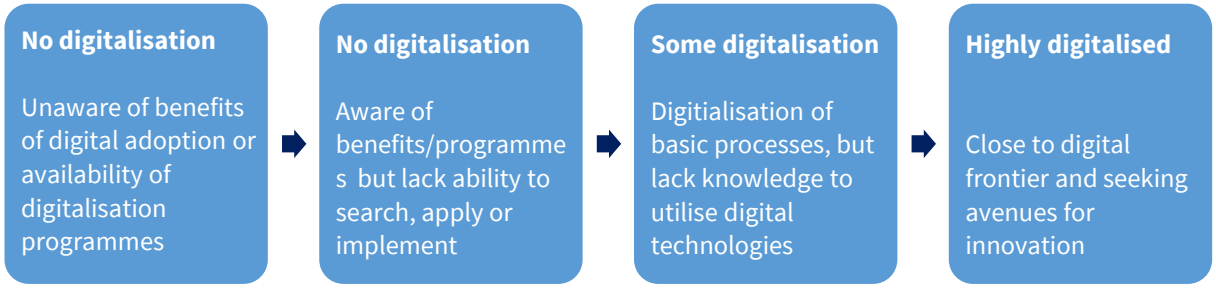
Source: Speedtest

2.2.2 Awareness and digital skills gaps

Other impediments to the digitalisation of MSMEs are technical gaps related to many MSMEs' lack of knowledge, knowhow and skills required for technological upgrading and digitalisation. It often takes long-term investment and digitally trained human capital to drive the adoption of many technologies, particularly for complex processes like cloud accounting and Internet of Things.

As mentioned above, digitalisation exists on a continuum and accordingly, there are different levels of technical gaps depending on the digital maturity of the enterprise and the skill level of its managers. Interviews with policymakers suggest that these technical gaps in Malaysia can range from MSME managers who are completely unaware of the benefits of digitalisation to those who are aware but lack the ability to apply for government programmes, MSMEs which have digitalised small portions of their operations but lack the capacity to go further and finally, to MSMEs that are close to the digital frontier that are seeking avenues for innovation. This is supported by a 2018 SME Corp and Huawei survey which indicated that 60% of MSMEs were not aware of the available government financing for digitalisation, while 18% of eligible MSMEs were aware of these programmes but did not know how to apply (SME Corp & Huawei, 2018).

Figure 13. The digital-knowledge gap continuum



Source: Authors' illustration of findings from stakeholder engagement

Many MSMEs, particularly smaller micro-enterprises managed by older individuals, lack technological skills and digital literacy. Stakeholder interviews reveal many do not have the ability to search and apply for government digitalisation/aid programmes or seek digital solutions online. They are often unable to use simple tools, such as search engines or video streaming sites, to find information, and many are not aware of industry terms like "digital marketing" or "social media". This issue is exacerbated by duplicative, overlapping and/or fragmented government agencies and digitalisation programmes at the federal and state levels – complicating the application process for MSMEs seeking digitisation assistance.

Further down the digital-knowledge continuum, there are MSMEs that have attempted to digitalise basic processes like utilising digital marketing or social media but have inadequate knowledge and ability to fully utilise these technologies. Some MSME leaders report lacking the expertise to properly brand/market themselves, and are unable to gain traction on social media channels and ultimately fail to reap the benefits of digital marketing. These skill gaps ultimately lead to suboptimal results and an incapability for MSMEs to deepen digitalisation of other business processes. Engagement with MSME managers demonstrates that even when policymakers provide infrastructure and funding and link digital service providers to MSMEs to implement new digital technologies, there are often significant knowledge gaps to ensure that the digital adoption is sustainable without external assistance.

These knowledge asymmetries extend to a lack of regulatory knowledge on issues like market access and regulations for cross-border e-commerce trade, government policies on digitalisation, and/or funding opportunities (ITA, 2020, AT Kearney, 2015). This is compounded by the rapidly changing nature of digital technologies. A digital solution that is relevant in one case can quickly become irrelevant or obsolete before MSMEs can fully adopt and harness its potential (Khatibi, Thyagarajan, & Seetharaman, 2003).

2.2.3 Financing, cost and credit constraints

For many MSMEs, unstable cash flows, a lack of available resources to invest in digital technologies, low credit availability, along with rising digital costs remain key barriers to greater digitalisation. The 2018 SME Corp and Huawei survey found that despite the myriad government digitalisation programmes available, about half of all MSMEs in Malaysia cite funding as a key hindrance to digitalisation (SME Corp & Huawei, 2018).

This is especially true for smaller microenterprises or digital MSMEs which are often unable to access traditional sources of credit. This credit gap can be exacerbated by cash-flow shocks and low credit scores. For example, engagement with policymakers reveals that many MSMEs failed to pay their bills amid the onset of the pandemic and have since been "blacklisted" by credit reporting agencies like CTOS. This creates additional barriers for these MSMEs, hindering their ability to access telecommunications or internet services, even with government assistance.

Notably, MSMEs say these financing/cost constraints go beyond the up-front costs of financing digital technology adoption. Business leaders report that recurring digital-related operational costs, particularly digital platforms, are another major impediment. As demand for digital technology has increased over the past few years, costs have also risen. For instance, one MSME in the accommodation sector cited rising costs of travel aggregator sites such as Agoda, which charges businesses up to a 17% commission rate per booking made on the website. Similarly, digital platforms like GrabFood charge up to a 30% commission on orders (Focus Malaysia, 2020).

Some MSMEs report that when a sale is made on these platforms, there may be significant delays in the transfer of payments from the digital platforms back to the businesses. This makes it difficult for microenterprises with smaller financial buffers to maintain their cash flows. Likewise, in engagement sessions, businesses state that operational costs for digital marketing have also risen over the years as demand has grown, with one policymaker noting that services like digital keyword advertising cost about 4 sen per click just two years ago, while today, it is closer to 50 sen per click.

2.2.4 Firm size and microenterprises, and the digital divide

As mentioned earlier, digitalisation is a continuous process, and MSMEs and microenterprises are more likely to be on the lower end of that scale. Globally, data shows that the digital divide in the technological adoption rate between MSMEs and larger firms is constant across different technologies (OECD, 2021). Yet, within MSMEs, there are also disparities in the digitalisation rate by firm size – with microenterprises remaining less digitalised than medium-sized and large firms. Broadly, microenterprises are overall less likely to adopt digital business practices, with digitalisation confined to basic processes like social media or digital sales (OECD, 2019).

Size tends to magnify the challenges firms face with digitalisation. For instance, smaller firms generally report lesser access to digital infrastructure, particularly if they are located in lesser-developed regions. They also contend with larger information asymmetries and knowledge gaps and encounter barriers to financing and funding. Engagement with MSME managers suggests that microenterprises deal with huge uncertainties in

terms of demand, business plans or capital, which means that investing in digital solutions or digital technologies may not always seem to be a good investment. For many smaller firms even before the onset of Covid-19, business priorities are skewed towards solvency and survivability rather than expansion or efficiency gains.

Many major government digitalisation programmes focus on the formal sector medium-sized SMEs rather than smaller firms. For example, eligibility for MDEC's business digitalisation grant requires minimum annual revenues of above RM50,000, while SIDEC's SME digitalisation matching grant requires a minimum annual revenue of above RM300,000 (MDEC, n.d.; SIDEC, 2021). Interviews with business owners suggest that the government's digitalisation efforts are helpful for medium-size enterprises, not small SMEs or microenterprises, which often require tailored, longer-term mentoring.

2.3 The impact of Covid-19 on MSME digitalisation

Covid-19 has had a complex impact on MSME digitalisation in Malaysia. On the one hand, the pandemic and the ensuing containment measures pushed many firms online, with many SMEs adapting to the new normal by utilising digital technologies and implementing novel sales and production methods (OECD, 2021). Global surveys suggest that up to 70% of MSMEs are making use of digital technologies, with estimates indicating that Covid-19 accelerated digitalisation of their processes by three to four years (OECD, 2021; McKinsey, 2020; Elderson, 2020). At the same time, as part of the Malaysian government's Covid-19 economic response packages, many business digitalisation initiatives were expanded, including measures like the SME Business Digitalisation Grant (SBDG) for MSMEs to invest in digital technology and expansion of digitalisation loan facilities like Smart Automation Grant and the SME Automation and Digitalisation Facility.

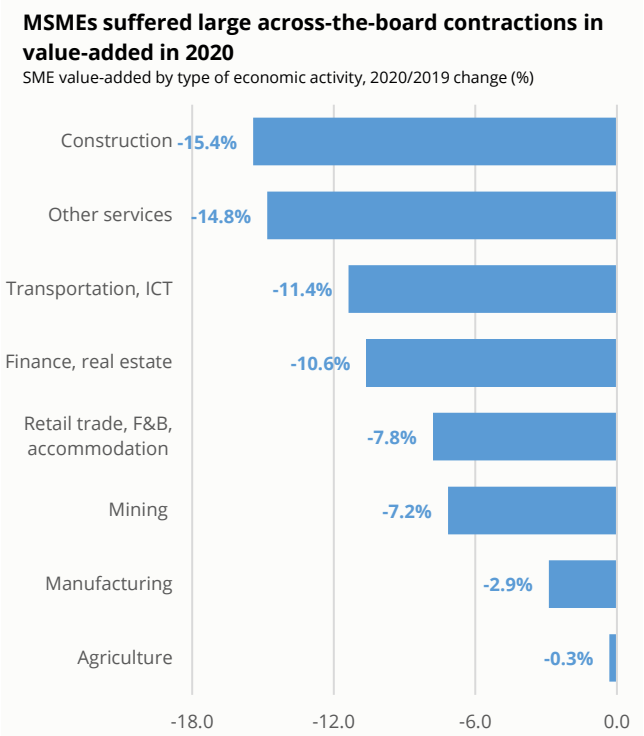
However, engagement with MSMEs leaders and policymakers in Malaysia reveals a more nuanced picture. For one, businesses have been severely impacted by the pandemic and the lockdown measures imposed since 2020. Across Malaysia, economic pressures and the prolonged MCO have led many MSMEs to cease operations, with surveys in early June conducted by the Entrepreneur Development and Cooperatives Ministry (MEDAC) indicating that 90% of MSMEs and informal entrepreneurs are at risk of closing in the coming months. Similarly, SME GDP data indicates that firms across all sectors experienced large contractions in value-added in 2020 (see Figure 13), with MSMEs in the construction and non-food services industry among the worst affected.

The "survivors" have had to make drastic spending changes. The majority of MSME leaders interviewed, from smaller enterprises to medium-sized SMEs, reported severe revenue shocks and a depletion of financing buffers. As such, many MSMEs diverted time and money away from deploying new technologies to simply ensuring survivability. This has had varying impacts on digital adoption among MSMEs. Digitalisation of certain basic front-end processes like sales and marketing accelerated as more enterprises adapt to Covid-19 lockdowns.

However, firms also report that the deployment of more advanced technologies like Internet of Things (IoT) and/or more complex digitalisation efforts like logistics slowed significantly or been shelved altogether. Additionally, policymakers report that because of the large revenue shocks, many are now unable to meet

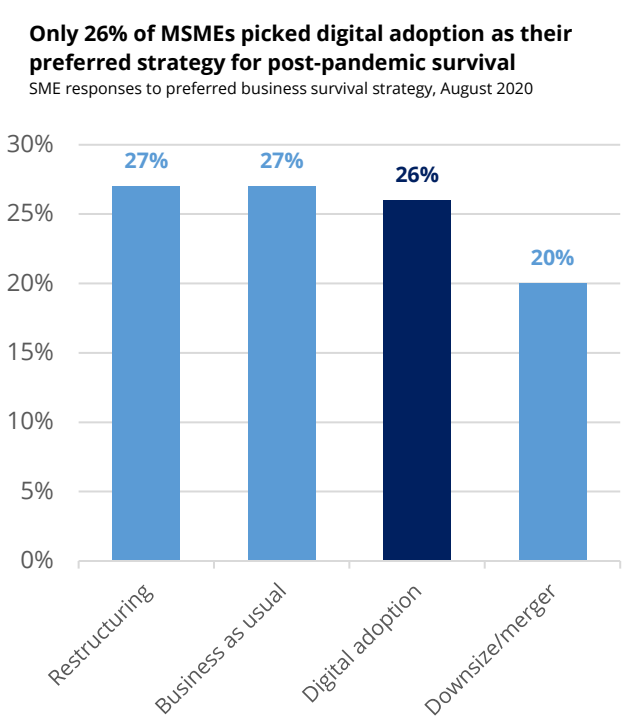
the minimum annual revenue conditions for certain government digitalisation programme – deepening the challenges businesses face with digital adoption in the wake of the pandemic.

Figure 14. SME value-added in 2020



Source: DOSM

Figure 15. SME Association survey responses



Source: SME Association Malaysia

2.4 Current policy efforts

Several initiatives under the MyDigital blueprint are relevant to the digitalisation of MSMEs. These include Thrust 2 Initiative 1, Thrust 4 Initiative 9, and Thrust 5 Initiative 4 (See Table 6).

Strategic Thrust 2 Initiative 1 aims to provide a "digital compass" to handhold businesses at different stages of digitalisation. This initiative is headed by MEDAC and MCM and targets more than 800,000 MSMEs to adopt digitalisation by 2025. Strategic Thrust 4, Initiative 9 aims to introduce a digital training programme to build digital skills among managers, including MSMEs (EPU, 2021). This initiative is headed by the Human Resources Ministry (MOHR), with the target of 50% participation among senior managers by 2025.

Strategic Thrust 5, Initiative 4 aims to use digital technology to empower vulnerable groups through entrepreneurship. This initiative is headed by MEDAC and will provide a one-stop online platform for vulnerable groups like the low income, women, and the disabled to access information and resources to grow their businesses. This initiative targets the creation of 875,000 entrepreneur-driven digital MSMEs on e-commerce platforms by 2025.

Table 6. MyDigital's MSME digitalisation initiatives

Thrust	Strategy	Initiative	Target
T1: Boost economic competitiveness	**S1:** Facilitating digital adoption, access and use of digital technology across all firm sizes and digital maturity level	**Initiative 1:** Provide a tailored 'digital compass' to foster digital usage	More than 800,000 MSMEs to adopt digitalisation
T4: Build agile and competent digital talent	**S3:** Reskilling current workforce with the digital skills needed to stay relevant	**Initiative 9:** Introduce a training programme for senior managers to improve digital skills	50% of senior management in government-linked companies (GLCs), multinational companies (MNCs) and MSMEs to participate in the programme by 2025
T5: Create an inclusive digital society	**S2:** Empowering special target groups to participate in the digital economy through entrepreneurship	**Initiative 4:** Providing an online platform to facilitate better access for vulnerable groups	875,000 MSMEs onboard e-commerce by 2025

Source: EPU

Beyond the MSME-focused initiatives, the infrastructure-related initiatives under MyDigital also support digitalisation through an expansion of digital infrastructure and technology via 5G connectivity, cloud storage, and artificial intelligence. These include targets to connect every Malaysian household, school and enterprise via the Jendela (Jalinan Digital Negara) initiative by 2025, and 5G across all high-density areas by 2023 (EPU, 2021).

At the implementation level, the targets set under the MyDigital initiatives will be implemented by different ministries and agencies. The main entities involved in MSME digitalisation are MITI, and MITI agencies MDEC and Malaysia External Trade Development Corporation (Matrade). These ministries and agencies run their own programmes in line with the objectives set under MyDigital. For example, MDEC has the existing SBDG and Smart Automation Grant (SAG) programmes – while Matrade runs a programme called e-Trade 2.0, which works on achieving the target set under Thrust 5 Initiative 4 of moving 875,000 MSMEs onboard e-commerce platforms by 2025 (Table 6). Since 2020, numerous digitalisation initiatives have also been announced as part of the government's economic response to Covid-19. Some examples include expansions of the existing SBDG and SAG programmes as well as about RM330 million under the MSME e-commerce campaign and RM300 million for the Developing Small Entrepreneur Digitization Empowerment Programme (PUPUK) (Box 1).

There are other smaller digitalisation agencies and programmes at the state and local levels. As at time of writing, at least seven states have their own digital economy-related agencies. These include the Selangor Information Technology & Digital Economy Corporation (SITEC), Digital Penang and the Johor Digital Economy Corporation (JDEC). These state agencies run their own MSME digitalisation programmes concurrently with federal-level programmes, such as SITEC's Selangor Accelerator Programme, Digital Penang's SME Go Digital campaign, and the Sarawak Digital Economic Corporation's (SDEC) SME Digitise! programme.

Table 7. State digital economy agencies

State	Agency
Johor	Johor Digital Economy Corporation (JDEC)
Pahang	PahangGo
Penang	Digital Penang
Perak	Digital Perak Corporation Holdings
Sarawak	Sarawak Digital Economy Corporation (SDEC)
Selangor	Selangor Information Technology & Digital Economy Corporation (SITEC)
Terengganu	TD1303

Source: Authors' research using publicly available information

2.5 Women-owned MSMEs and the digital gender divide

Based on the last economic census conducted in 2015, of the 907,065 MSMEs in Malaysia, 20.6% were women-owned (about 186,930) while the majority (79.4%) were headed by men (Figure 15) (DOSM, 2017). Of the 186,930 women-owned SMEs, about 97.2% were in the services sector – far higher than the 89.2% share of all MSMEs. While the proportion of women-owned MSMEs has gradually risen over the last two decades, from 12% in 2000 to 20.6% in 2015, overall Malaysia still has the lowest women business ownership rates in the region (Figure 15). Data analysed by CEOWorld from the Mastercard Index of Women Entrepreneurs (MIWE) indicates that only 17% of all business owners in Malaysia are women (Figure 16), far lower than Australia (32%), Vietnam (31%) and Singapore (28%) (CEOWorld, 2019).

The disparities between men and women business ownership reflect a range of intersecting socio-economic-cultural barriers and structural inequalities. According to MIWE rankings, Malaysia ranks below other countries in the region in terms of women-friendly entrepreneurship and business conditions, ranking last among the major Asean economies in 2020 (Figure 17). Of the three components of the aggregate MIWE score – women's advancement outcomes; knowledge and access; and entrepreneurial supporting conditions – Malaysia scores particularly low on women's advancement outcomes. Based on the 2020 report, this indicates

the lack of female business leaders and professional/technical workers, as well as relatively low female labour force participation rate and the rate of entrepreneurial activity among women (Mastercard, 2020).

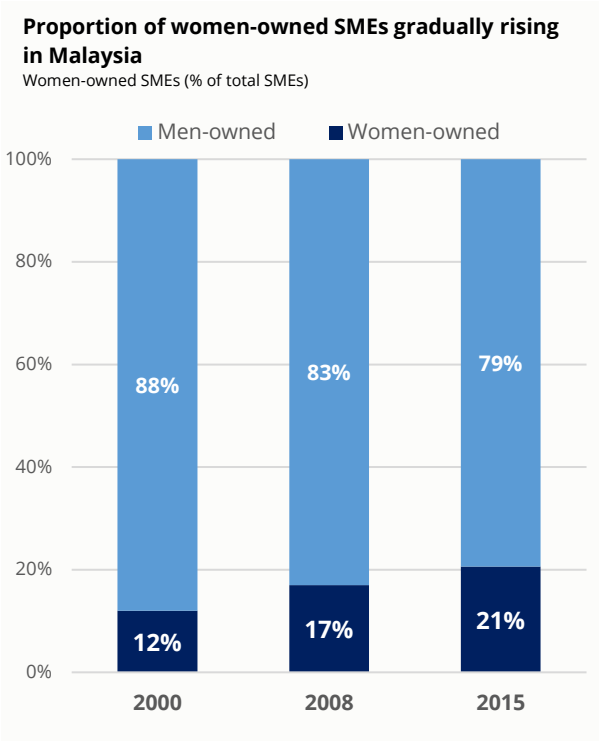
Research in this area also points to the socio-cultural-economic barriers to higher participation of women in business. One study of women micro-entrepreneurs found that societal gender roles, such as childcare and unpaid household work, coupled with a lack of access to childcare services, represented a major impediment to business success and expansion (Musa et al. 2016). Other research by the Apec secretariat suggests that sociocultural norms that see women as maternal limit them in traditional business leadership roles, which are perceived as more masculine (Apec & The Asia Foundation, 2013). Some research notes that women-owned businesses are often taken over by a male member of the family as the business grows (ibid.).

In terms of digital technologies and gender inequities, the concept of a digital gender divide describes gender differences in access and skills related to digital technologies – often as a result of biases in technology and education (OECD, 2018). More broadly, this digital divide is rooted in the wider intersection of socio-economic-cultural structures that enable gender inequality (Wajcman et al., 2020; Sibthorpe, Lopez, & Sticco, 2018). Across the world, particularly in developing countries, this digital gender divide manifests in lower digital technology use, lower digital financial inclusion, and lower digital skills (OECD, 2018). In Malaysia, surveys suggest that digital skills gaps were already present between male and female secondary school-age pupils. Females recorded lower digital skill levels in internet, computer, social and creative skills – with a wider gender skill gaps observed between pupils in rural areas (Ahmad et al., 2019).

To tackle these challenges and increase women's participation in business formation and MSMEs, various government policies are designed to cultivate female entrepreneurship and support women-owned businesses. For instance, as part of the government's economic response to Covid-19, various measures were introduced and targeted at women-owned businesses. These include the Pemerkasa-Nita microfinance and DanaNita business financing initiatives under government-owned entities Bank Simpanan Nasional (BSN) and Majlis Amanah Rakyat (Mara) respectively. On the capacity-building end, SME Corp's Women Netpreneur programme aims to build their digital skills. There are also recent initiatives to expand the formal social safety nets to self-employed women or other non-standard female workers via financial incentives, such as the Social Security Organisation's (Socso) self-employed social security scheme (Mohamed Radhi, 2021).

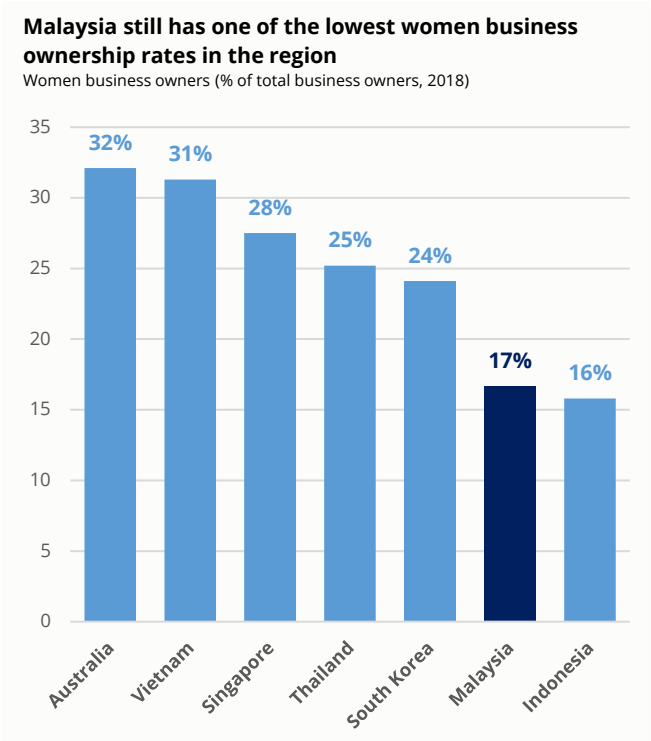
Other pre-Covid government programmes that aim to support female entrepreneurs include the Women Entrepreneur Financing Programme by SME Bank, and the Temanita Financing Scheme under Tekun Nasional (Allianz, 2017). Nonetheless, stakeholder engagement with policymakers and SME owners suggests that in terms of digitalisation and the digital economy, there is less focus on the gender dimensions of MSMEs. There is a perception that most federal and state government digitalisation programmes do not set gender parity as an objective. Likewise, there appears to be less focus overall on bias training and socio-cultural education to erode the structural societal barriers.

Figure 16. SME ownership by gender



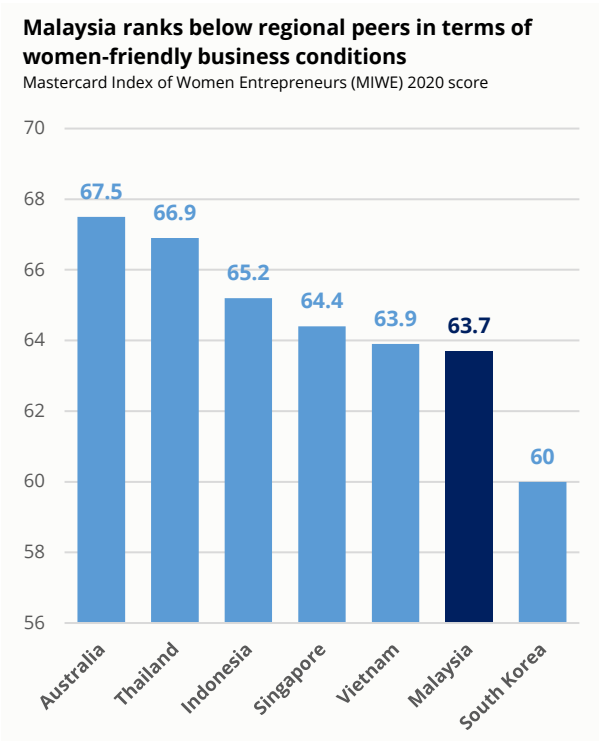
Source: DOSM

Figure 17. Regional comparisons of business owners



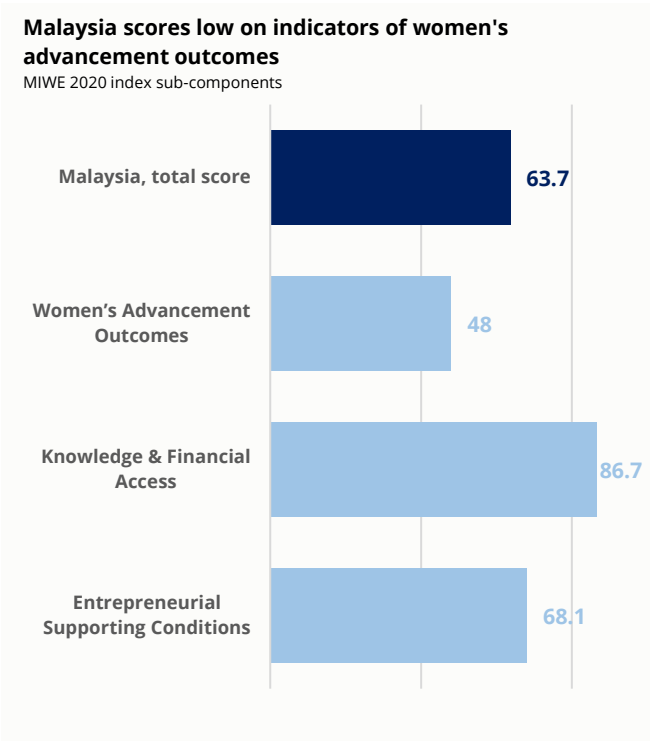
Source: CEOWorld, Mastercard

Figure 18. Mastercard Index of Women Entrepreneurs



Source: Mastercard

Figure 19. MIWE sub-components



Source: Mastercard

3. Digital payments

3.1 Benefits of strengthening digital payments

Digital payments increase the efficiency of transactions and can help link entrepreneurs and small businesses with the banking system, suppliers and consumers in the domestic and international markets (Klapper, 2017). Digital payments improve productivity and make it easier for entrepreneurs to set up new businesses and pay for licences and permits. Digital payments also help MSMEs expand and enable cross-border digital trade (see Section 1 on digital trade). For governments, digital payments can increase efficiency, transparency, accountability and convenience (AASC, 2018; Visa, 2020).

Digital payments and mobile money can also improve financial inclusion by extending financial services to unbanked individuals as well as increasing MSMEs' access to savings accounts and credit (AASC, 2018; Klapper, 2017). The increase in financial inclusion can have a positive gender impact as it reduces the gender gap in financial inclusion and advances women's participation in economic activities (Goosen, 2017). Further, the adoption of digital payments and digital financial services reduces poverty through facilitating higher rates of saving and financial flexibility by lower-income households (Goosen, 2017). Many countries, including Malaysia, also use digital payments for social assistance transfers. The majority of Bantuan Prihatin Rakyat (Malaysia's income-targeted cash transfer programme) beneficiaries receive their benefits digitally via a bank account, while other benefits like eBelia are credited into e-wallets (MOF, 2021).

Bank Negara Malaysia (BNM) reports suggest that strengthening Malaysia's electronic and digital payments system plays a role in supporting economic transition to a high-income, high-value-added economy (BNM, 2011). Studies cited by BNM show that shifting from cash to electronic payments can generate savings of up to 1% in GDP annually (BNM, 2011). Similarly, a Moody's Analytics study suggests that the use of electronic payments added about RM13.17 billion to GDP through better security, efficiency, and a reduction in the "grey" economy (Digital News Asia, 2013).

3.2 Current policy efforts

At the federal government level, MyDigital includes two main strategies related to digital payments. Strategic Thrust 1 Initiative 9 aims for all government agencies to adopt e-payments as their primary transaction method by 2022. Strategic Thrust 5 Initiative 3 targets 400 e-payments transactions per capita and 36 electronic fund transfers at point-of-sale (EFTPOS) terminals per 1,000 inhabitants by 2022. Numerous agencies also have a mandate for improving the adoption of digital payments. For example, MDEC (in line with MyDigital and the NESR2.0) is working to improve e-payment adoption among small business and MSMEs.

Table 8. MyDigital's digital-payment strategies

Thrust	Strategy	Initiative	Target
T1: Drive digital transformation in the public sector	**S5:** Increasing scope and quality of online services for better user experience	**Initiative 9:** All federal and state agencies to adopt cashless payments	All ministries and agencies to provide cashless payment option by 2022
T5: Create an inclusive digital society	**S1:** Increasing inclusivity of all Malaysians in digital activities	**Initiative 3:** Promote e-payments for merchants and consumers towards a cashless society	400 e-payments transactions per capita and 36 EFTPOS terminals per 1,000 inhabitants by 2022

Source: EPU

As the main regulator in this sector, BNM's agenda to strengthen Malaysia's e-payments and digital payments ecosystem is outlined in the Financial Sector Blueprint 2011-2020 (BNM, 2011), which includes targets to decrease usage of cheques and to increase the number of electronic transactions (including digital payments and e-money) per capita towards 200 transactions. BNM's efforts towards this target include improving digital payments infrastructure like point-of-sale terminals and mobile banking (BNM, 2011). The next iteration of BNM's Financial Sector Blueprint (Blueprint 3.0) is slated to be published early 2022 (Latiff, 2021). Blueprint 3.0 will focus on facilitating technology-driven innovation and improving access to financial solutions.

3.3 The digital payments landscape in Malaysia

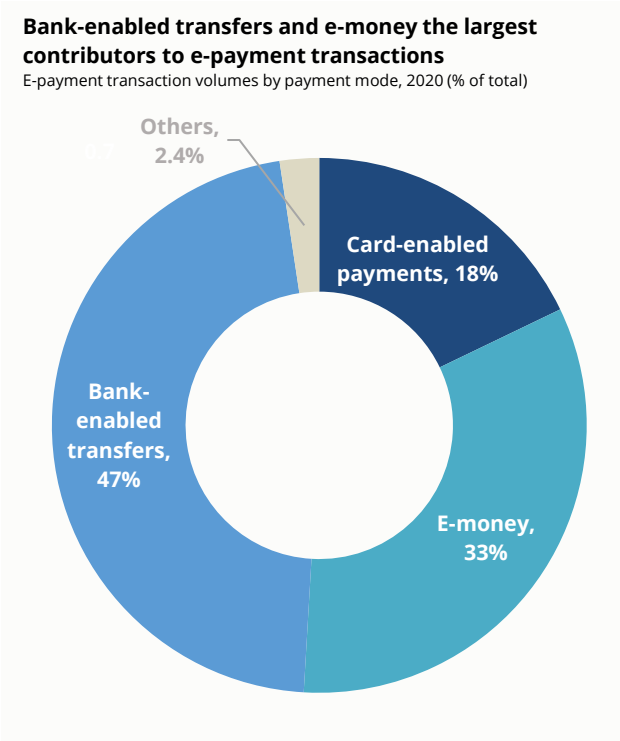
Digital payments encompass more conventional payment methods like standard bank transfers and card-enabled e-payments to newer innovations, such as e-wallets, virtual currencies (including cryptocurrencies), digital banking services and real-time payments systems. Other more nascent technologies include things like central bank digital currencies (see Auer & Böhme, 2021 and BNM, 2021).

In Malaysia, e-payments transactions volumes and values have been increasing steadily over the past decade (Figure 19). BNM payments statistics indicate that from 2010 to 2020, e-payments transaction values grew by 102% and transaction volumes grew by 296%. In terms of digital payment modes, in 2020 nearly half (47%) of e-payment transactions are classified as bank-enabled transfers – a category that includes interbank transfers and internet/mobile banking (Figure 19). Meanwhile, 33% of e-payment transactions are e-money transactions (including e-wallets) while 18% are card-enabled payments like credit and debit cards.

Nonetheless, despite the growth in e-payments transactions, preliminary data for 2020 suggests that Malaysia's e-payments transaction volumes are about 170 transactions per capita (Figure 20). This figure falls short of BNM's target of 200 transactions per capita by 2020 – a target comparable to e-payment transaction

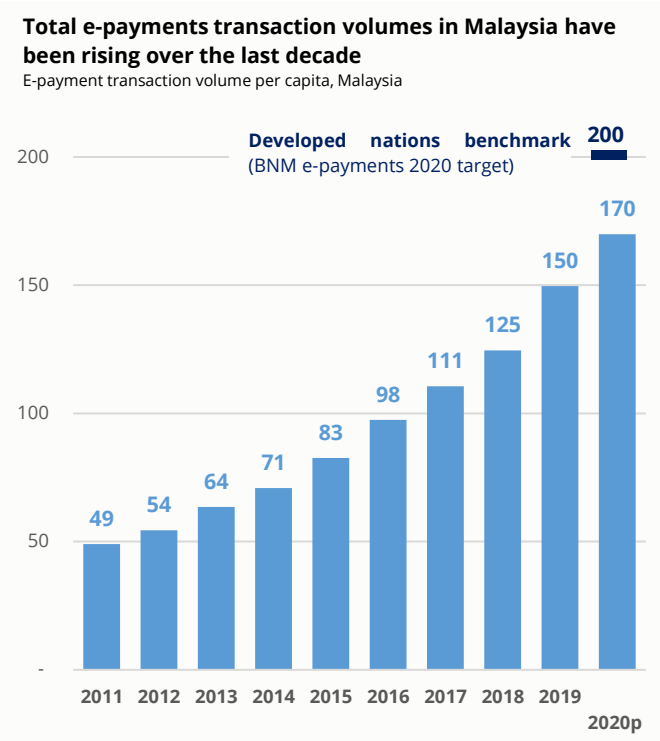
volumes of developed nations (BNM, 2011). The latest data for 2020 shows that Malaysia is also missing other digital payments-related targets laid out in the blueprint (Table 9). This includes targets of 30 debit card transactions per capita and 25 EFTPOS terminals per 1,000 inhabitants.

Figure 20. E-payment modes



Source: BNM

Figure 21. E-payment transaction volumes



Source: BNM

Table 9. Digital payment-related targets under BNM's Financial Sector Blueprint 2011-2020

	2020 target	2020 data	Status
E-payment transactions (per capita)	200	170	Not achieved
Debit card transactions (per capita)	30	15	Not achieved
EFTPOS terminals (per 1,000 inhabitants)	25	23	Not achieved

Source: BNM

3.4 Issues and challenges

The barriers to digital payments can be organised into four sections, loosely according to the digital payment ecosystem outlined by The Australian Apec Study Centre in its "Apec Fintech E-payment Readiness Index 2016" report. These are the regulatory and policy environment; infrastructure availability; consumer demand; and availability of products and services.

Table 10. Digital-payment barriers

Regulatory and policy environment	• Digital payments and digital finance regulations • Degree of regulatory burden/red tape • Competitive environment
Access to adequate infrastructure and financial services	• Financial inclusion • Access to mobile and broadband internet • Access to internet-enabled devices
Demand-side factors	• Consumer digital literacy • Convenience of digital payments • Reliability and security of digital-payment systems • Level of e-commerce adoption

Source: Adapted from The AASC, 2018 "Apec Fintech E-payment Readiness Index 2016"

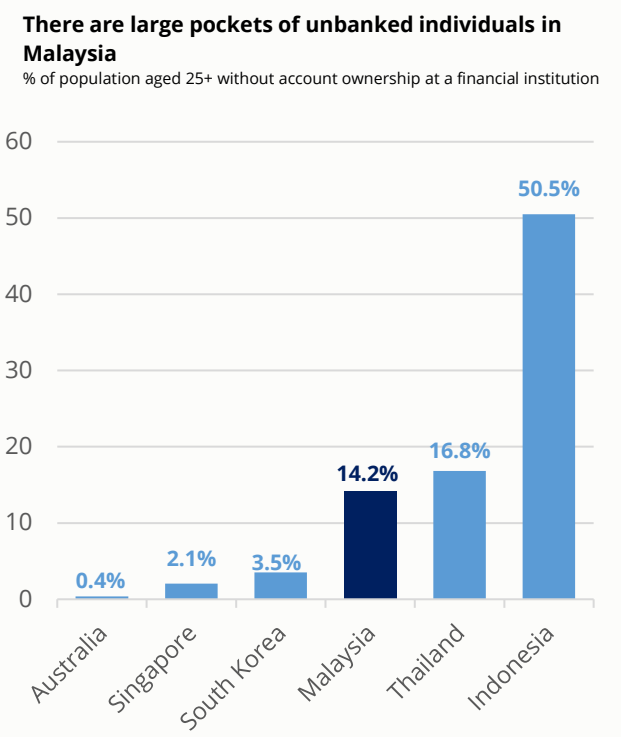
On the regulatory and policy environment front, stakeholder interviews indicate that while the regulatory environment is mostly positive, there is a sense among industry players that domestic digital payments and finance regulations tend to lag industry trends and developments. This delay in the issuance of regulations, guidance notes and decisions has limited the ability of service providers to innovate. Stakeholders also report that BNM is generally conservative and protective of traditional industry players like banks and local conglomerates, with banking regulations and red tape continuing to act as a barrier to new entrants in the digital-payment space. Overall, these regulatory barriers along with delays in domestic digital regulations may lead to lost opportunities for greater competition and innovation in the digital payment and finance space. Digital-payment firms point out that the reliance on traditional legacy banks has wider effects on financial inclusion and the ability of smaller non-traditional businesses to access financing.

Another barrier is access to infrastructure and services. Digital payments rely on businesses and consumers being able to access basic financial services and adequate access to digital devices and infrastructure. While financial inclusion and mobile internet penetration in Malaysia are relatively high relative to middle-income countries in the region, it still lags high-income nations. On aggregate, the financial inclusion data shows that more than 14% of adults older than 25 still do not have any kind of account at a bank or e-money provider (see Figure 21) (Demirguc-Kunt et al., 2018). Similarly, International Telecommunication Union data indicates that nearly 16% of the population do not use the internet – with another 10% of households without any kind of internet subscription. There are still large pockets of underserved populations, particularly in lesser-

developed regions, with variations in fixed broadband access across the country (see Section 2.2.1 on digital infrastructure).

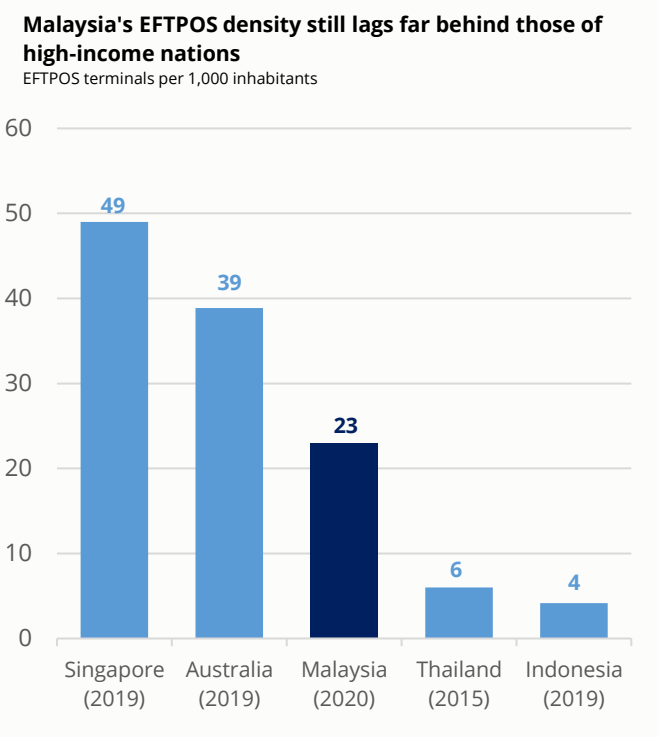
Demand-side issues also play a large role in driving adoption of digital payments. For instance, even within the population with access to bank accounts and digital infrastructure, there remains a subset of the population lacking sufficient digital literacy and familiarity with digital payments (World Bank, 2018). MCMC surveys suggest there is still a strong preference for physical cash, particularly among groups like pensioners and housewives (MCMC, 2018). In fact, more than 17% of e-commerce shoppers still list cash on delivery as their preferred payment option (ibid.). Beyond digital skills, stakeholder engagement suggests that demand-side barriers also involve the convenience and security of digital payments for consumers (UNCTAD, 2019). This includes the reliability and ubiquity of payments systems such as EFTPOS terminals. A Pymnts.com analysis indicates that availability of POS terminals per inhabitant lowers a country's cash transactions share (Pymnts.com, 2017). In Malaysia, the number of EFTPOS terminals per 1,000 inhabitants still lags far behind those in high-income countries like Singapore and Australia (Figure 22).

Figure 22. Financial inclusion



Source: World Bank

Figure 23. Regional EFTPOS density



Source: BNM, BIS, World Bank

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Part 2

Governance and regulatory issues

4. Data protection and cross-border data flows

4.1 Overview of domestic data protection and privacy regulations

International data flows are essential to the global digital economy and digital trade. Cross-border data transfers facilitate activities like e-commerce and video-streaming services, allow businesses access to real-time services like data analytics, cloud computing and efficient supply chain management; and facilitate consumer access to a greater range of products and digital services (Van Overstraeten, 2021). Nonetheless, the proliferation of cross-border data flows, particularly in relation to personal and sensitive data, can create policy challenges for privacy and data protection. In response, many countries regulate data flows, balancing personal privacy priorities with a growing need for cross-border data transfers amid an expanding global digital economy.

In Malaysia, the main personal data protection legislation for the commercial sector is the Personal Data Protection Act 2010 (PDPA), which came into force in 2013 and updated in 2016. The PDPA is implemented and enforced by the personal data protection commissioner in the Department of Personal Data Protection (DPDP) under the Communications and Multimedia Ministry. The commissioner is advised by a minister-appointed, term-limited committee, and the commissioner's decisions can be appealed through a personal data protection appeal tribunal (DLA Piper, 2020). The PDPA aims to regulate the processing of personal data and only applies to entities that process data in commercial transactions (DPDP, 2010). The PDPA does not apply to transactions related to government activities; personal or household affairs; non-commercial transactions; data processed outside Malaysia; and/or credit reporting agencies.

The PDPA separates data users from data processors and data subjects (see Table 11) (DPDP, 2020). Under the PDPA, certain classes of data users may need to be registered under the PDPA, and data users generally need to give subjects notice and receive consent before collecting and processing personal data (Ikigai Law, 2020). The PDPA exempts seeking consent for activities, such as law enforcement; regulatory functions; tax assessment and collection; health; and research (DPDP, 2020). Similarly, data users cannot disclose a subject's personal data without consent unless the disclosure is determined to be necessary for public interest or law enforcement (Ikigai Law, 2020). Other data protection principles in the PDPA state that users need to take steps to protect personal data from misuse; delete permanently personal data after it is no longer required; take steps to verify the accuracy of data; and give subjects access to their own personal data (Abdul Aziz, Samuel, & Azami, n.d.).

The penalty for breaching the provisions under PDPA is the imposition of a fine not exceeding RM300,000 and/or imprisonment (Global Compliance News, n.d.). Across the years since the PDPA has come into effect, there have been enforcement actions against several data users for infractions, such as processing personal data without registering as a data user (Lee Hishammuddin Allen & Gledhill, 2020).

As mentioned, the PDPA does not apply to the public sector. Public sector data practices are instead regulated by the Official Secrets Act 1972 (OSA), Section 4 of the Statistics Act, Section 19 of the National Land Code and Section 139 of the Consumer Protection Act. One reason for this difference is that while the

PDPA separates information between personal data and sensitive data – government data classifications follow those outlined in the OSA, namely: top-secret, secret, confidential, and restricted.

In 2020, the DPDP commissioner published a public-consultation paper seeking feedback on amendments to certain provisions, such as consent, data-breach notifications and whether governments should be exempted from the PDPA (DPDP, 2020b; Ikigai Law, 2020). The MyDigital blueprint (see Section 1.4) lists one of its initiatives as strengthening data protection (Thrust 6, Strategy 2, Initiative 3), with the listed target of reviewing the PDPA by 2025 and other relevant laws (Digital Signature Act, Official Secrets Act) by 2030.

Table 11. Key parties outlined in the PDPA

Data users	An entity which either processes any personal data or authorises the processing of any personal data i.e. telecommunications firms, utilities
Data processors	An entity which processes personal data on behalf of the data user i.e. third parties/dealers/vendors
Data subject	An individual who is the subject of the personal data i.e. students, patients, employees, citizens, non-citizens, customers

Source: DPDP

4.2 Regulations on the cross-border transfer and data localisation

Based on the PDPA, Malaysia's current legal environment is sufficient to facilitate cross-border data transfers and grow digital trade. Cross-border transfer of personal data is allowed if it meets one of these conditions: the recipient country is included on a whitelist issued by the communications and multimedia minister on recommendation of the PDP commissioner; the data subject has consented to transfer; the data transfer is necessary to execute a contract between the subject and data user; the data user has taken all reasonable steps and exercised all due diligence to ensure that the personal data will not be processed in a manner that would contravene the PDPA; the data user has reason to believe that the data transfer is necessary to protect the data subject's vital interests; or the minister determines the data transfer is necessary in public interest (DLA Piper, 2020; Ikigai Law, 2020; DPDP, 2020b).

The inclusion of a data-recipient country in the whitelist is based on whether it has adequate levels of data protection at least equivalent to the protections afforded under the PDPA (DLA Piper, 2020). In a draft public-consultation paper issued in 2017, the PDP Department listed regions like the European Union, Australia and Japan having adequate privacy standards for cross-border transfer of personal data but as of time of writing, no country has been whitelisted (BSA, 2018; DLA Piper, 2020). In its latest public consultation paper issued in 2020, the commissioner noted that it is considering removing this whitelist requirement entirely as it may act as a barrier to cross-border data flows and may hinder e-commerce transactions and free trade agreements (DPDP, 2020b; DLA Piper, 2020). There are no explicit local data localisation requirements under the PDPA, in line with most countries in the Asean region except for Vietnam and Indonesia (Table 12).

Overall, in terms of cross-border data flows, stakeholder engagement with policymakers suggests that there is a perception that a regulatory environment facilitating greater cross-border data transfers is inevitable as international digital trade continues to grow. Nonetheless, among the numerous agencies and ministries promoting international trade, increasing awareness on rules and regulations regarding cross-border data flows and data privacy is not a priority.

Table 12. Data protection laws across Asean

Country	Legislation	Cross-border data flows	Data localisation
Singapore	Personal Data Protection Act (2014)	Permitted. Requires organisations to put data safeguards (including contractual measures) to ensure that data transferred abroad is accorded comparable standard of protection under the PDPA	None
Indonesia	Government Regulation (GR) No. 82 (2012) on Electronic Systems and Transactions	Permitted except for 'strategic data'	Local copy and action (Indonesia OEST and PPDES regulations)
Malaysia	Personal Data Protection Act (2010); Personal Data Protection Act Standards (2015)	Generally permitted if requirement of PDPA is observed according to equivalent standards; data-subject consent; transfer is necessary for the performance of a contract	No absolute requirement for data to reside in Malaysia
Philippines	Data Privacy Act (2012) and DPA Implementing Rules and Regulations	Generally permitted	None
Thailand	Personal Data Protection Act, effective June 2022	Generally permitted except for 'material, strategic' services activities which require government approval	None

Vietnam	Vietnam is currently in the process of developing their Personal Information Protection Law with the first draft decree released in February 2021. Privacy requirements spread across multiple laws including the Law on Cyber Information Security; Law on Protection of Consumers' Rights; Law on Information Technology	Permitted except for information considered as 'state secrets'	Local copy (Vietnam Law on Cybersecurity). Local copy and action (Vietnam Decree 72).

Source: Adapted from Pasadilla et al, 2020; DLA Piper, 2020

4.3 Issues and challenges with the data regulatory environment

Data regulation straddles the space between providing sufficient protection for consumers, as well as facilitating greater flow of information. Protections build trust in the digital environment while the flow of data adds value to current and future economic activities (Daza Jaller, Gaillard and Molinuevo, 2020). United Nations General Assembly resolutions such as resolution 73/179 articulates the importance of privacy in the digital age vis-à-vis ongoing technological developments. The articulation of concern, in addition to ongoing regional trends on data governance such as EU's extra-jurisdictional General Data Protection Regulation (GDPR), Asean Data Management Framework and Model Contractual Clauses for Cross Border Data Flows indicate the two-pronged approach of building trust in digital spaces while growing the potential of cyber and technologies. As an environment of trust and a thriving cross-border data flow environment is facilitated by domestic practices, the performance of the PDPA and subsequent legislations is imperative to understand Malaysia's potential in digital trade.

In conversations with stakeholders, findings indicate that the PDPA can be improved in areas such as streamlining regulation for the private sector and government, increasing monitoring and enforcement capabilities and providing a data breach notification provision (Global Compliance News, n.d.). However, balancing awareness, regulation and developments of digital trade, regulating the data environment can have various consequences. An example is the lax stance taken in monitoring and enforcement of the PDPA, which in part due to fears of harming small businesses – while the law can demarcate between personal data and sensitive data, many MSMEs are unaware and/or unable to. As such, there is a sense that stricter enforcement of the PDPA may create disproportionate compliance costs for smallest, least capable, firms. Unfortunately, this lax stance has had the unintended consequence of allowing many MSMEs to neglect the importance of protecting sensitive data shared by customers.

Further, engagements with policymakers and MSMEs indicate that government digitalisation programs do not focus on building data protection awareness amongst MSMEs, and data protection is reportedly not part of the KPIs of these programs. If the development of future technologies is dependent on data flows,

awareness and data protections would be needed to create an environment of trust. Thus, an updated or upgraded PDPA would have to consider the various objectives and approaches in addition to regulation.

Stakeholders state that sufficient data protections would aid the development of the digital economy and strengthen protections against data abuse and cybercrime. Many of these PDPA-related issues are among the 22 areas highlighted in the public-consultation paper (01/2020) issued by the DPDP commissioner in February 2020 (DPDP, 2020b). The DPDP is in the process of evaluating the regulatory environment, with MyDigital blueprint targets aiming for amendments by 2030. Updates would take into account present trends of data regulation such as the principles in the EU's General Data Protection Regulation (GDPR), as well as those in line with other provisions listed as part of the signed RCEP and CPTPP free trade agreements.

5. Regulations and procedures related to e-commerce

5.1 Systems for consumer protections

Malaysia's main laws on consumer protections for e-commerce include the Electronic Commerce Act 2006, Consumer Protection Act 1999, Digital Signature Act 1997 and Computer Crimes Act 1997 (Nawang, n.d.). Other laws that apply to all businesses include the Trade Description Act 2011, Price Control and Anti-Profiteering Act 2011, and Weights and Measures Act 1972. MDTCA remains the key regulator and issued guidelines including the Consumer Protection (Electronic Trade Transactions) Regulations 2012 (Nawang, n.d.; Saberi, Sopiee, & Hapiz, 2020).

MDTCA's Consumer Protection (Electronic Trade Transactions) Regulations 2012 regulate the disclosure and display of information that online sellers must display. The regulations also set standards for online marketplace operators (such as Lazada and Rakuten) to keep and maintain records on online sellers on their platform. However, it does not require these operators to regulate the sellers and products, unlike regulations in China, India, Cambodia and Indonesia, which allow regulators to impose liabilities on operators (Sothirachagan, 2020).

Additionally, online businesses must be registered with the Companies Commission of Malaysia (SSM). SSM also has a certification programme, BizTrust, for online businesses based on its SSM BizTrust criteria. Compliance with SSM BizTrust standards allows online businesses to display a logo as a marker of trust (Saberi, Sopiee, & Hapiz, 2020). Nonetheless, as mentioned earlier, Malaysia does not have a specialised privacy act to protect and guarantee individuals' right to privacy beyond the PDPA.

Table 13. Laws and regulations related to consumer protection for digital trade

Directly related to e-commerce	• Electronic Commerce Act 2006 • Digital Signature Act 1997 • Computer Crimes Act 1997 • Consumer Protection (Electronic Trade Transactions) Regulations 2012 • Personal Data Protection Act 2010
General consumer protection laws	• Trade Description Act 2011 • Price Control and Anti-Profiteering Act 2011 • Weights and Measures Act 1972 • Consumer Protection Act 1999 • Contracts Act 1950 • Sale of Goods Act 1957
Indirectly related to consumer protections	• Registration of Businesses Act 1956 • Companies Act 2016 • Financial Services Act 2013 and Islamic Financial Services Act 2013 • Direct Sales and Anti-Pyramid Scheme Act 1993 • Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001

Source: Saberi, Sopiee, & Hapiz; Nawang

5.2 Taxes and customs procedures

5.2.1 Taxation

The Inland Revenue Board of Malaysia (LHDN) first introduced guidelines on the taxation of e-commerce transactions in 2013, with an updated Guidelines on the Taxation of Electronic Commerce Transactions published in May 2019 (LHDN, 2019). According to these guidelines, LHDN adopts the principle of tax neutrality and, as such, subjects e-commerce transactions and conventional non-digitally enabled transactions to the same tax treatment (LHDN, 2019). This includes direct taxes for businesses and individuals and indirect taxes such as sales and services tax (including for digital services).

In general, income from e-commerce transactions is taxable in Malaysia if it is deemed to be related to activities in Malaysia, regardless of whether that income is received here or otherwise. Business incomes of individuals conducting substantial business operations in Malaysia are subject to tax in Malaysia. In cases of double-taxation agreements, taxing rights are determined based on whether a permanent establishment exists (LHDN, 2019). Special classes of income and royalty payments earned by non-residents, such as service fees or commissions related to e-commerce, are both subject to withholding tax under Section 109 and Section 109B of Income Tax Act 1967 respectively.

Table 14. E-commerce tax treatment by different sources of income

Business income	• Income attributable to business operations is subject to tax in Malaysia • In the case where a double-taxation agreement is present, taxing rights are determined by the existence of permanent establishment
Special classes of income	• Under Section 4A of Income Tax Act 1967, special classes of income earned by non-residents (e.g. services fees and commissions) derived in Malaysia are subject to withholding tax
Royalty	• Royalty payments to a non-resident in relation to e-commerce transactions are subject to withholding tax

Source: LHDN

5.2.2 Customs duties and procedures

For goods trade, Malaysia's de minimis value is RM500 (see table 15 for regional comparisons). That is, goods imported into Malaysia valued below RM500 are not subject to import duties and/or taxes. The latest data indicates that the average tariff rate for all products is about 6.2% in 2016 (World Bank, n.d.). In Malaysia, customs duties are generally paid on an ad valorem basis, with high excise duties charged on items like alcohol, tobacco, pork and poultry (Santander, 2021)

Preferential tariff rates (lower or zero) are available for countries with which Malaysia has a free trade agreement, including the seven bilateral FTAs with Australia, Chile, Japan, India, New Zealand, Pakistan, and Turkey; six Asean plus one FTA with Australia, China, India, Japan, New Zealand, and South Korea. Two mega-regional trade agreements, the RCEP and CPTPP, have been signed but yet to have been ratified by Parliament (Santander, 2021).

On the services side, Malaysia introduced a 6% services tax on imported digital services provided by foreign entities like Netflix, Spotify and Google effective January 2020 (JP Morgan, 2020). This is in line with value-added taxes (VAT) applied on imported digital services in Singapore, Australia and South Korea – as well as similar planned taxes in Thailand and Vietnam (see Table 15).

For information on all customs procedures and regulations, the Royal Malaysian Customs Department (an agency under the Finance Ministry) maintains the Malaysia National Trade Repository (MNTR), in accordance with the Asean Trade in Goods Agreement (ATIGA) and the Asean Trade Repository (ATR) initiative. The MNTR is intended to be a one-stop online platform for all trade and customs-related laws and regulations related to Malaysia and Asean, including information on trade agreements, tariff schedules, national trade and customs laws and trade facilitation measures applied by each Asean member state (Royal Customs Department Malaysia, n.d.).

Table 15. Taxes and duties of major countries in the region

Country	De minimis values		Customs and duties (% of tax revenue)	Digital taxes
	Local currency	US$		
Malaysia	RM500	119	1.5%	6% services tax on imported digital services (in force)
Singapore	S$400	296	0.0%	7% VAT on imported digital services (in force)
Thailand	THB1,500	45	4.0%	5% VAT on all e-commerce goods and services (planned)
Vietnam	VND1,000,000	44	No data	10% VAT to non-resident e-commerce sales (planned)
Australia	A$1,000	739	3.5%	10% VAT on digital services (in force)
South Korea	-	150 (non-US countries)	2.6%	10% VAT on digital services (in force)

Source: Zonos, World Bank, Quarderno, Avalara, Morningstar

Note: foreign currency conversions subject may vary based on exchange rate fluctuations

6. Current regulatory ecosystem for digital payments

BNM is the principal regulator for the financial sector and payments systems in Malaysia, including electronic and digital payments. This mandate is conferred through legislation to regulate and supervise Malaysia's financial system under the Financial Services Act 2013 (FSA), Islamic Financial Services Act 2013 (IFSA), Development Financial Institutions Act 2002 (DFIA), Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001 (AMLATFPUAA).

The FSA and IFSA – which replaced the repealed Payments Systems Act 2003 – enable BNM to specify standards and guidelines, and issue directions and enforcement actions to ensure the "safety, integrity, efficiency and reliability of the payment systems and payment instruments" (BNM, n.d.). On issues related to digital payments, BNM issued a revised Interoperable Credit Transfer Framework (ICTF) in 2019, which lays out the regulatory framework for electronic payments, bank and non-bank e-money issues, and the interoperability of payments systems (BNM, 2019). BNM also published an Exposure Draft on Merchant Acquiring Services in 2020 and an Exposure Draft on Electronic Money in June 2021, which propose regulations for payment systems in stores and e-money respectively.

In terms of domestic payment-network infrastructure, Payment Network Malaysia (PayNet) – formed in 2017 after the merger of the Malaysian Electronic Payment System (MEPS) and the Malaysian Electronic Clearing

Corporation (MyClear) – acts as the central network for payment systems, with a mandate to improve the development of Malaysia's financial system via digital payments. This network is separated into MyDebit, which consists of FPX online payment gateways, inter-bank and instant transfer payments; the Shared ATM Network; and the JomPay national bill payment scheme which includes eSPICK (cheques), RENTAS (real-time gross settlement), and FAST (bonds) (BNM, 2017).

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Part 3
Future policies

7. Policy recommendations

7.1 Improving logistics performance and customs procedures

As discussed in Section 1.3.1, the overall performance of Malaysia's logistics infrastructure and customs procedures remain a barrier to the expansion of digital trade. Industry engagement indicates that despite attempts moving towards a paperless system, the customs clearance processes still require physical documentation, particularly outside Port Klang. Other long-time issues include traffic congestion in and around key transport hubs and container terminals and depots along with poor road quality and lack of amenities.

In terms of customs processes, the government could increase the speed and efficiency of the clearance process by moving towards paperless application for goods shipments through a web-based system similar to the discontinued uCustoms and DFTZ application systems. The government could look towards integrating technologies into the digital customs clearance system – such as automated risk-management systems that help differentiate between low-risk and higher-risk goods, and overall increasing the level of automation in customs processes (World Bank, 2020). These upgrades could start with Port Klang, as the most efficient and digitally enabled port, and gradually phased into major ports across Malaysia (ibid.). Overall, restarting efforts to digitalise the customs clearance process and increase automation would eliminate the need for physical documentation, increase efficiency and reduce time goods spend at border control. A digital system could also improve coordination between port authorities, customs agents and freight-forwarding agents and reduce leakages in terms of bribery and corruption.

For logistics infrastructure, as the National Transport Policy notes, the government could support greater investment and deeper integration across all modes of transport with particular focus on improving the utilisation and efficiency of rail-based freight – which has been identified as the weakest and most underused link among Malaysia's transport modes (Chen, 2020; Othman et al., 2016). Amid the numerous government stimulus measures since the onset of the Covid-19 pandemic, the government could expand spending on infrastructure investment. Currently, only about RM4 billion is allocated under the stimulus packages for infrastructure spending on small-scale projects (Cheng, 2021). Increasing infrastructure spending could have the twin benefits of boosting aggregate demand and hastening the economic recovery while improving the performance of Malaysia's logistics.

This could entail spending more to accelerate the railway double-tracking and electrification upgrading projects, including expediting the stalled Klang Valley Double Tracking Phase 2 project. Similarly, the government could fast-track approved shovel-ready projects like the Serendah-Port Klang rail bypass aimed at redirecting cargo away from the Kuala Lumpur city centre. Other possibilities for infrastructure spending could look into improving road quality and safety by enforcing cargo load limits and roadworthiness certificates (Kawa, 2020). Likewise, funds could also be channelled towards the upgrading and digitalisation of port services and infrastructure. Amid the adverse impacts of the pandemic, stakeholders report the need for a loosening of race-based equity/ownership restrictions on domestic logistic service providers. Altogether, greater infrastructure investment would grow rail freight volumes, reduce dependence on road freight, and improve the performance of Malaysia's logistics.

7.2 Improving the policy environment for investments in submarine cables and connectivity

In order to improve Malaysia's internet speeds (see section 2.2.1) and to ensure affordable, reliable internet access for all Malaysians, it is important for Malaysia to create an enabling policy environment for investments in submarine cables. These cables are the global backbone of the internet, carrying around 99% of the world's internet, voice and data traffic, including the backhaul of mobile network traffic and data for digital trade.

In 2019, the Ministry of Transport issued an exemption to the Merchant Shipping Ordinance 1952 that would allow non-Malaysian ships to conduct submarine cable repairs in Malaysian waters. The exemption was key in reducing the time required to conduct submarine cable repairs. However, this was reversed in November 2020 when the exemption was revoked, in part to protect the domestic shipping industry from foreign competition. Following this, there have been concerns raised by industry groups on the perceived arbitrary nature of the revocation and the impact that this would have on current and future foreign investment in submarine communications cables and data centres.

This would undermine the government's MyDIGITAL targets under Thrust 3 Initiative 6, which aims to attract more investments in submarine cables in Malaysia and for Malaysia to have the "highest number of submarine cables landing in Southeast Asia by 2025" (EPU, 2021). Moving forward, ensuring fair competition in the domestic shipping industry while improving the policy environment for foreign investments in submarine cables would increase certainty for the investment landscape while improving internet connectivity in the country.

7.3 Regional integration and free trade agreements

With a smaller domestic market than many of its neighbours, Malaysia is among the most export-dependent and open economies in the region. As such, deepening regional integration and pursuing and ratifying regional FTAs with strong digital trade rules could boost cross-border digital trade and improve regional digital connectivity by expanding market access, harmonising e-commerce regulations, increasing trade facilitation and enhancing regional economic cooperation. Deeper regional integration and more FTAs would offer opportunities to reduce non-tariff barriers to trade and increase certainty and progress regarding issues like paperless trade and mutual recognition of digital certificates, which were identified in Section 1.3 as among the key regulatory barriers to the expansion of cross-border e-commerce and digital trade.

This would include deepening regional integration efforts within Asean and its development partners as well as improving cooperation on digital trade issues within the Asia-Pacific Economic Community (Apec). Likewise, this would also entail ratifying the two mega-regional FTAs, RCEP and CPTPP that the government signed in 2018 and 2020. Indeed, more than 70% of Malaysia's external trade is with countries outside Asean – and RCEP and CPTPP are represents some of the largest trade agreements in the world (Asean Statistics Division, 2018).

On the regional front, accelerating implementation of the 2018 Asean agreement on e-commerce (AAEC) would be a good start. The AAEC would facilitate cross-border e-commerce transactions, improve consumer

trust and security and, more importantly, enable capacity building initiatives to intensify e-commerce adoption across the region. Similarly, the government could also be more proactive in the implementation and adoption of the trade-facilitation initiatives at the Asean level – primarily the Asean Single Window and the Asean Customs Transit System – and at the multilateral level through the World Trade Organisation (WTO) Trade Facilitation Agreement (TFA) to reduce trade costs and promote the harmonisation of standards. Finally, the government can also more proactively promote the ASEAN model contractual clauses for cross-border data flows and join the APEC Cross-Border Privacy Rules system so that MSMEs in Malaysia can better engage in digital trade in regional markets.

The government could pursue other avenues for integration like digital economy agreements with other countries. A number of countries in the Asia-Pacific region, particularly Singapore, Australia and New Zealand have taken this approach of forging the next generation of FTAs in the form of Digital Economy Agreements. These agreements set common digital standards, outline commitments for digital collaboration and support the growth of digital trade between member countries (MTI, 2021). Malaysia should similarly look to join such arrangements such as the Digital Economy Partnership Agreement between Singapore, Chile and New Zealand, and initiate bilateral digital economy agreements with its key trading partners.

In terms of the mega-regional trade agreements, CPTPP's e-commerce chapter (Chapter 14) remains the agreement with the most ambitious digital trade rules which will help to facilitate the growth of e-commerce and address non-tariff barriers to digital trade. Disciplines on cross-border data flows, data localization, a permanent customs duties moratorium on electronic transmissions, protection of source code etc. will help to strengthen the digital economy and create more opportunities for digital trade amongst CPTPP Parties. Other provisions also strengthen intellectual property regulations and encourage information-sharing among CPTPP members. In the RCEP, the e-commerce chapter (Chapter 12) contains best endeavour, non-binding digital rules which sets a regional baseline on digital trade engagement. As such, ratifying these trade agreements, particularly the CPTPP, would strengthen Malaysia's digital trade and deepen e-commerce adoption in the region, provide certainty for investors in the digital economy, and grant MSMEs greater access to global markets.

7.4 Consolidating programmes and establishing a one-stop digitalisation platform

Engagement with business owners suggests that MSMEs, particularly smaller enterprises with lower digital literacy, require a more tailored, hand holding or "mentorship" approach to digitalisation assistance. As noted in Section 2.2, many government digitalisation programmes are most useful for mid-size firms and/or firms with some existing level of digital knowledge – while MSMEs of different sizes and digital maturities face different challenges. The lack of digital literacy among smaller enterprises creates large exclusion errors in current programmes, where the smallest, least capable firms are left out. This can be either due to a lack of awareness or a lack of capacity or ability to apply to these programmes.

As such, as firm digitalisation becomes an increasingly top priority for the government, policymakers could consider consolidating the numerous individual digitalisation grants, loan facilities, and initiatives with separate eligibility and application requirements into a single flagship programme. This consolidation would make it easier to implement a single one-stop application platform (like current efforts with MDEC's Digital Enhancement Centre) for firms instead of having separate applications for individual digitalisation

programmes – reducing application and compliance burdens for smaller firms. A centralised platform would enable greater cross-agency sharing of recipient databases.

Coupled with greater outreach to smaller enterprises, this case-by-case approach would facilitate a wider focus on smaller MSMEs and allow flexibility for both policymakers and MSMEs to tailor assistance to individual MSME business plans. Via a consolidated flagship digitalisation programme, policymakers could put greater emphasis on sustainable longer-term change management rather than solely on the disbursement of grants or loans. Engagement with MSME managers suggests that beyond digital adoption, many businesses struggle with how to utilise digital technologies on a day-to-day basis to grow their businesses. For instance, many retail-facing MSMEs have attempted to establish social media presence since the start of the pandemic – but many lack the ability to craft a strategic digital marketing or branding plan, leading to low overall engagement and impacts.

Indeed, numerous government programmes, such as the Malaysia External Trade Development Corporation's (MATRADE) new e-Trade 2.0 for e-commerce onboarding, are moving towards a longer-term approach that focuses not just on digital adoption, but also on helping MSMEs build the skills needed to be self-sustainable digitally. MATRADE is also engaging in public private partnerships to ensure that Malaysian exporters, particularly MSMEs, are able to remain competitive through the pandemic. For example, MATRADE has partnered with Google on a programme to train over 500 MSMEs on Google's My Export Score and Market Finder tools. Similarly, it also works Bank Islam to enhance MSMEs' access to export facilitation via Bank Islam's SMEXpert Ecosystem platform.

7.5 Improving federal-state cooperation and reducing duplication

Overall, stakeholder interviews with state-level digitalisation agencies (see Section 2.4 and Table 7 for an overview) indicate that deeper coordination and collaboration between federal and state ministries and agencies would improve the impacts and reach of digitalisation programmes. MSME digitalisation is a huge agenda, and there are many agencies at the federal and state level doing some form of digitalisation policy. While there have been increasing recent efforts towards federal-state cooperation, there is a perception among state-level stakeholders that federal agencies' digitalisation initiatives have been mostly Klang Valley-centric. For instance, stakeholders report that to participate in certain MDEC workshops or programmes, MSME owners or entrepreneurs in states across Malaysia are required to travel to Kuala Lumpur.

This lack of inter-agency coordination and cooperation leads to duplicative and fragmented initiatives, with state-level digital agencies running their own initiatives concurrently with programmes at the federal-level (by MDEC/Matrade). Instead of complementing each other, there are overlaps in the function and scope of these initiatives – with similar programme designs, and in some cases, they share a similar list of digital service providers (DSP). Nonetheless, they have distinct application criteria and procedures and implementing bodies, leading to more information gaps and compliance barriers among MSMEs. As noted in Recommendation 7.3, different agencies across the federal and state levels use their own recipient/firm databases and as such, have different "reach". Greater collaboration and data-sharing would reduce programme and recipient overlaps and improve identification of target groups.

Federal policymakers could deepen collaboration with state agencies, particularly via working through the latter instead of just alongside them. For example, stakeholders suggest that ministries and agencies could design programmes in consultation with state agencies, disburse federal funds to state agencies for implementation, then allow states to report metrics for monitoring and evaluation purposes. This could enable state agencies a greater role in implementing and managing digitalisation programmes and reduce duplication of resources and programmes.

7.6 Supporting the digital payment ecosystem and encouraging integration

As discussed in Section 3.2, in terms of domestic digital-payment policy, stakeholder engagement suggests that there is a perception among industry players that while the regulatory environment is generally positive, digital-payment regulations tend to lag industry developments and skew towards protecting the interests of legacy banks. While this may reduce risk, stakeholders indicate that it may limit competition, restrain innovation by new potential service providers and delay the speed of adoption of emerging digital technologies. International best practices call for a greater balance between innovation, market competition and system integrity (Goosen, 2017; Benni, 2021). To that end, stakeholders indicate that regulators could increase the speed at which regulatory decisions and guidelines are made, improve regulatory clarity and play a more proactive role in encouraging the adoption of digital finance innovations by allowing more competition in the digital finance and payment sector.

Some examples highlighted by industry experts include the acceleration of the planned shift towards digital banking and open banking practices. Stakeholders suggest that it could increase MSME's access to financing (identified as a key challenge to MSME digitalisation in Section 2.2.3) by enabling alternative data sources for loan collateral/credit scoring for MSMEs as well as increasing the amount of service providers available. This is supported by other reports which suggest that moving towards open banking practices can lower the barriers to entry for new service providers and cultivate greater competition among domestic players; encourage domestic growth without requiring enacting digital trade barriers like data localisation; and progress financial inclusion goals for the unbanked (WEF, 2020).

In terms of cross-border digital payments and regional cooperation, initiatives like forming partnerships (see Recommendation 7.2) with financial authorities across the region to enable interoperability of cross-border digital payments could accelerate the adoption of digital payments and promote digital trade. Currently, Malaysia has partnerships with payment entities in Singapore, Thailand, Cambodia to facilitate cross-border real-time payments. Other potential integration options include digital economy agreements (Recommendation 7.2) like the Singapore-Chile-New Zealand Digital Economy Partnership Agreement (DEPA) and the Singapore-Australia Digital Economy Agreement (SADEA) (MTI, 2021). DEPA includes provisions for member countries to promote the interoperability and interlinkages of their digital payments systems – including advancing innovation and competition and the use of open application programming interfaces (APIs) (WEF, 2020). The government could foster links between Malaysia and other countries in a similar manner.

At the Asean-level, Malaysia could push to intensify the implementation of initiatives in the Asean Payments Policy Framework under the ASEAN Working Committee on Payment and Settlement Systems (WC-PSS) to advance interoperable regional systems that strengthen cross-border payments and e-commerce (WEF,

2019). In the future, as regulatory cooperation develops within Asean, intra-Asean payment integration could go beyond information sharing and improving interoperability of existing payment systems, towards the principle of single authorisation used by the European Banking Authority (EBA) in the European Union (EU) (WEF, 2020). The EU is implementing a "single payment area", where digital payment service providers licensed and authorised by any one member state are considered valid throughout the entire EU single market via "passporting" (EBA, n.d.).

7.7 Promoting a gender-inclusive digital economy

As identified in Section 2.5, while the proportion of women owned MSMEs in Malaysia has gradually risen over the last two decades, Malaysia still has among the lowest women business ownership rates in the region. Among the issues identified are the lack of female representation in business leadership and professional/technical positions, relatively low female entrepreneurship rates and labour force participation (Mastercard, 2020). Barriers include socio-cultural norms and societal gender roles on family/care work, coupled with inadequate access to childcare (Cheng, 2020; Musa et al. 2016). As such, without gender-sensitive policy action, digitalisation will only amplify gender inequalities. Policy recommendations in this section can be categorised into digital policy, labour market policy, and capacity building initiatives.

In terms of digital policy, the main guiding document is the MyDigital blueprint, which outlines Malaysia's digital economy policies and priorities up to 2030. In MyDigital, the existence of digital gaps between gender and skill sets in Malaysia are acknowledged under "Thrust 5: Create an inclusive digital society". Despite this, across the 76 policy initiatives in MyDigital, there are no policy initiatives that work to bridge these digital gender gaps. Likewise, across all the key targets set under MyDigital, there are no targets or commitments to improve gender equality in the digital economy. On this, the government should establish gender equality targets for the digital economy – such as targets to raise women MSME ownership rates and the number of women in technical/professional roles in the digital sector (Sibthorpe, Lopez, & Sticco, 2018). Putting a gender-sensitive focus at the forefront of the digital economy and establishing concrete and measurable targets would increase accountability and foster a more gender-inclusive digital future.

On labour market policy, a suite of gender-sensitive policies can work to reduce render inequities. In Malaysia, these include initiatives like investing in publicly funded universal paid family leave policies that encourage more equitable parental sharing of childcare responsibilities and increasing government spending and/or subsidies to ensure universal access to quality childcare (Cheng, 2021; Wajcman et al., 2020). Relatedly, there are opportunities to strengthen legal protections for women workers against systemic discrimination, including workplace sexual harassment. This, along with strengthening collective bargaining mechanisms for women workers will encourage more women to consider careers or entrepreneurship in digitally related sectors that are male-dominated (Cheng, 2021).

Providing more publicly funded capacity building initiatives like digital skills workshops for women can reduce the digital gender gap and empower women entrepreneurs. As identified in Section 2.5, surveys show that the digital skill gaps between men and women start as early as secondary school, and worse for rural pupils (Ahmad et al., 2019). As such, the government could establish life-long digital capacity building programmes, starting at the secondary-school level (with a focus on rural national schools) to give women entrepreneurs access to workshops like SMECorp's Women Netpreneur programme. Training programmes could work

towards tackling deeper socio-cultural constraints like gender roles and societal views of women in leadership positions (Siba, 2019; Apec & The Asia Foundation, 2013).

7.8 Strengthening data protection and privacy

In line with some of the issues listed in Section 4.3 and MyDigital's target to review the PDPA by 2030, there is room to consider updating the PDPA with regard to principles, scope, rules and enforcement of the law.

7.8.1 Principles

In addition to the seven listed in the PDPA, another principle that could be considered is minimal data collection. In current its form and culture, the service is granted in exchange for data. However, under the principle of minimal data collection, users and processors should demonstrate that the information is the absolute minimum necessary for the required transaction/purpose. This would strengthen privacy practices and minimise the harm that could befall an individual in the case a data breach.

7.8.2 Scope

The current scope of the PDPA is limited to the commercial sector, which may leave gaps for the collection of data by non-commercial bodies such as the government or charity organisations (Alibeigi & Munir, 2020). While there may be further considerations on whether the non-applicability of government under the PDPA should be removed, the distinction the law makes between commercial and non-commercial sectors can be thin as data breaches impact on any data subject, regardless of the user's sector. As such, standardising data protection principles between the commercial and public sectors would help to develop and strengthen Malaysia's data-protection and cyber security practices. Standardising data-protection principles and building norms could improve awareness and data management practices among MSMEs.

Further, as artificial intelligence and open data initiatives become increasingly common, data processors – who are currently not subject to direct obligations under the PDPA – will play an increasingly larger role in a subject's life. As such, applying the law to data processors would require a PDPA that accommodates classifications beyond just personal and sensitive data to include obligations over anonymised data. Notably, the imposition of direct obligations on data processors and the processing of personal data in cloud computing are among the 22 issues highlighted in its 2020 public consultation paper (DPDP, 2020b).

7.8.3 Rules

As noted in Section 4.3, the DPDP could consider additional rules in the PDPA, including data-breach notifications, privacy by design obligations and civil recourse for breaches by processors or users. These additional rules would allow greater demonstrations of enforcement of the PDPA, which would illustrate the law in practice and strengthen the data-protection ecosystem. While the 2020 public consultation document stated that data breaches should be reported to the commissioner, there is a need to build an ecosystem of trust where the law is seen to be enforced. Likewise, allowing data subjects to pursue civil claims on

users/processors when there are data breaches will reduce enforcement burdens on DPDP and bolster protection norms.

Comprehensive legislation needs to be accompanied by sufficient awareness campaigns to educate consumers and businesses on their rights; a specifically mandated and resource-backed body to enforce rules within and across jurisdictions; and greater education on the principle-based approach as opposed to the prescription-based approach to data governance. This could include efforts to increase awareness among MSMEs about domestic data-protection principles, but also regional efforts like the Asean Data Management Framework and Model Contractual Clauses for Cross Border Data Flows (MCCs). As data protection is interlinked with cybersecurity practices, the obligations imposed on data processors and users would be useful to increase the standards of protection. This was demonstrated in the year following the implementation of the highly comprehensive GDPR where the European Commission reported an increase in awareness of data protection rules and their rights and higher compliance among businesses (European Commission, 2019).

7.8.4 Enforcement

On enforcement, the PDPA aims to take a principle-based approach with the PDPA presenting seven principles to be interpreted and self-regulated by the commercial sector in Malaysia. However, due to the DPDP's inadequate resources and funding, there is a lack of publicised enforcement actions. This may play a role in impacting on compliance, awareness of the law, and deterrence – ultimately weakening the data protection ecosystem.

If enforcements are a part of compliance and deterrence in law-making, the absence of publicised enforcements would not create awareness for general compliance. To this end, funding for the DPDP could be increased or coordination with an agency could be considered to increase the enforcement apparatus.

Concurrently, the government should provide greater clarity on data management. As mentioned, government data management is not governed by the PDPA but guided in legislation, such as the Official Secrets Act and the Penal Code. In addition, there can be circumstances where the government and agencies do comply with the principles of the PDPA, as the 2020 consultation paper state that the DPDP commissioner is considering issuing guidelines to clarify the agency's compliance with PDPA (DPDP, 2020b). However, the OSA, in addition to a lack of a freedom of information, means that data breaches or mismanagement in the government sector may not be publicised. As government operations are increasingly digitalised, laws that guide and increase the transparency of government management of data will become necessary.

7.8.5 Cross-border data flows

As a small and open trading economy, Malaysia could do more to uphold the free flow of data internationally and refrain from localised data practices. While the transfer of data outside of Malaysia is regulated by the commissioner, with the idea of a "whitelist" floated in 2017, the 2020 public-consultation document proposed a restructure to this provision with a removal of the whitelist completely (DPDP, 2020b). The consultation document also recognises that exchanges of personal data with entities outside of Malaysia are inevitable.

Thus, while a localisation requirement is not expected to be implemented, guidelines on the mechanisms and implementation of cross-border data transfer are expected with an updated PDPA. Malaysia's approach to the free flow of data and data localisation practices should be reinforced in bilateral and regional trade agreements (also see Recommendation 7.2). Similarly, future efforts to standardise and harmonise domestic data protection laws with partners in the region – including the lexicon and obligations of data users/controllers/processors – could boost intra-regional trade and strengthen regional integration.

References

1. Abdul Aziz, O. S., Samuel, D. R., & Azami, N. A. (2021, June 17). *Privacy law in Malaysia*. Azmi & Associates. https://www.azmilaw.com/insights/privacy-law-in-malaysia/

2. Ahmad, N. 'A., Ayub, A. F., & Khambari, M. N. (2019). Gender digital divide: Digital skills among Malaysian secondary school. *International Journal of Academic Research in Progressive Education and Development*, 8(4). https://doi.org/10.6007/ijarped/v8-i4/6692

3. Alibeigi, A., & Munir, A. B. (2020, November). Malaysian Personal Data Protection Act, a mysterious application. *University of Bologna Law Review*, 5(2), 362-374. https://bolognalawreview.unibo.it/article/view/12441

4. Allianz. (2017, August 1). *6 programmes that Malaysian female entrepreneurs should know*. https://www.allianz.com.my/6-programmes-that-malaysian-female-entrepreneurs-should-know

5. AlphaBeta. (2019). *The data revolution: How Malaysia can capture the digital trade opportunity at home and abroad*. https://alphabeta.com/wp-content/uploads/2019/03/digital-revolution_malaysia_1-pg-hi-res.pdf

6. Aprameya, A. (2021, May 24). *eCommerce in Malaysia: Growth, trends & opportunities*. Capillary Blog. https://www.capillarytech.com/blog/capillary/ecommerce/ecommerce-in-malaysia-growth/

7. Asean e-Payments Coalition. (2019, September). *Asean e-payments coalition: e-payments recommendation paper*. World Economic Forum. https://weforum.ent.box.com/v/epaymentsrecommendationpaper

8. Asean Statistics Division. (2018, October 8). *Asean statistical highlights 2018*. https://www.aseanstats.org/wp-content/uploads/2018/10/ASEAN-Statistical-Highlights-2018.pdf

9. Asia-Pacific Economic Cooperation, & The Asia Foundation. (2013, February). *Access to trade and growth of women's SMEs in APEC developing economies: Evaluating business environments in Malaysia – Philippines – Thailand*. https://www.apec.org/Publications/2013/02/Access-to-Trade-and-Growth-of-Womens-SMEs-in-APEC-Developing-Economies

10. AT Kearney. (2015). *Lifting the barriers to e-commerce in Asean*. Retail News Trends. https://retailnewstrends.files.wordpress.com/2015/07/asia-at-kearney-lifting-the-barriers-to-e-commerce-in-asean.pdf

11. Auer, R., & Böhme, R. (2021, June). *Central bank digital currency: The quest for minimally invasive technology*. Bank of International Settlements. https://www.bis.org/publ/work948.pdf

12. Australian APEC Study Centre (AASC). (2018, October 19). *APEC fintech e-payment readiness index 2016*. https://www.apec.org.au/apec-fintech-e-payment

13. Avalara. (n.d.). *Singapore GST on digital and e-services*. https://www.avalara.com/vatlive/en/country-guides/asia/singapore/singapore-gst-on-digital-and-electronic-services.html

14. Awad-Warrad, T., Boughanmi, H., & Hwang, Y. (2021). Assessing trade facilitation implementation in the era of e-commerce: a comparative analysis of Jordan, Oman and Hong Kong, China. In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 194-209). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

15. Baghdadi, L., & Guedidi, I. (2021). Global value chains in the age of internet: what opportunities for Africa? In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 54-65). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

16. Bank Negara Malaysia. (2011, December 21). *Financial sector blueprint 2011-2020*. https://www.bnm.gov.my/documents/20124/828520/BNM_FSBP_FULL_en.pdf/dc02e341-99c4-2907-7a67-b33914a5bf8a?t=1585101941414

17. Bank Negara Malaysia. (2019, December 23). *Interoperable credit transfer framework*. https://www.bnm.gov.my/documents/20124/761679/PD+ICTF.pdf/65a10c57-4905-9681-4f86-cf049acc72a8?t=1578649871519

18. Bank Negara Malaysia. (2021, March 31). *BNM annual report 2020*. https://www.bnm.gov.my/o/ar2020/index.html

19. Bank Negara Malaysia. (n.d.). *Financial Services Act 2013 and Islamic Financial Services Act 2013*. https://www.bnm.gov.my/financial-services-act-2013-and-islamic-financial-services-act-2013

20. Bekkers, E., Sabbadini, G., Koopman, R., & Teh, R. (2018, August 17). *Long run trends in international trade: The impact of new technologies*. European Trade Study Group. https://www.etsg.org/ETSG2018/papers/349.pdf

21. Bekkers, E., Teh, R., Sabbadini, G., & Koopman, R. (2021). The impact of digital technologies on developing countries' trade. In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 36-51). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

22. Benni, N. (2021). *Digital finance and inclusion in the time of Covid-19: Lessons, experiences and proposals*. Food and Agriculture Organisation. http://www.fao.org/3/cb2109en/CB2109EN.pdf

23. Bernama. (2020, December 5). *Digital economy and 4IR council shows govt's seriousness on inclusive growth – MCMC*. Malaysian Investment Development Authority. https://www.mida.gov.my/mida-news/digital-economy-and-4ir-council-shows-govts-seriousness-on-inclusive-growth-mcmc/

24. Bernama. (2020, November 6). *Logistics players' business model need digitalisation to survive Covid-19*. http://budget.bernama.com/2020/news.php?id=1897867

25. Borenstein, S., & Saloner, G. (2001). Economics and electronic commerce. *Journal of Economic Perspectives*. https://www.aeaweb.org/articles?id=10.1257%2Fjep.15.1.3

26. BSA. (2018). *2018 BSA global cloud computing scorecard – country: Malaysia*. https://cloudscorecard.bsa.org/2018/pdf/country_reports/2018_Country_Report_Malaysia.pdf

27. Chen, L. (2020). Improving digital connectivity for e-commerce: A policy framework and empirical note. In Chen, L. & F. Kimura (Eds.), *E-commerce connectivity in Asean* (pp. 7-30). Economic Research Institute for Asean and East Asia. https://www.eria.org/uploads/media/Books/2020-E-commerce-Connectivity-in-ASEAN/06_Chapter-2-Improving-Digital-Connectivity-for-E-commerce.pdf

28. Cheng, C. (2021, April 6). *Pushed to the margins: The unequal impacts of the Covid-19 crisis on Malaysian workers*. Institute of Strategic & International Studies (ISIS) Malaysia. https://www.isis.org.my/2021/04/01/pushed-to-the-margins-the-unequal-impacts-of-the-covid-19-crisis-on-malaysian-workers/

29. Cheng, C. (2021, January 20). *Fiscal size matters: The Permai assistance package and Malaysia's economic response to Covid-19*. Institute of Strategic & International Studies (ISIS) Malaysia. https://www.isis.org.my/2021/01/20/fiscal-size-matters-the-permai-assistance-package-and-malaysias-economic-response-to-covid-19/

30. Cheng, C. (2021, June 26). *Policies for the future of Malaysia's youth*. Institute of Strategic & International Studies (ISIS) Malaysia. https://www.isis.org.my/2021/06/25/policies-for-the-future-of-malaysias-youth/

31. Chew, K. Y., & Ong, S. (2021, January 28). *Malaysia: The Regional Comprehensive Economic Partnership (RCEP) – a special focus on e-commerce*. Global Compliance News. https://www.globalcompliancenews.com/2021/01/28/malaysia-the-regional-comprehensive-economic-partnership-rcep-a-special-focus-on-e-commerce-17122020/

32. Colvin, J., & Gayle, J. (2020, May 14). *A small business surge in digital trade. Hinrich Foundation*. https://www.hinrichfoundation.com/research/tradevistas/digital/digital-trade-benefits-small-business/

33. Darsinouei, A. E., & Kaukab, R. S. (2017). *Understanding e-commerce issues in trade agreements: A development perspective towards MC11 and beyond*. CUTS International, Geneva. http://www.cuts-geneva.org/pdf/STUDY%20-%20E-Commerce%20Towards%20MC11.pdf

34. Daza Jaller, L., Gaillard, S., & Molinuevo, M. 2020. *The regulation of digital trade: Key policies and international trends*. World Bank. https://openknowledge.worldbank.org/handle/10986/33164

35. Demirguc-Kent et al. (2018). *Account ownership at a financial institution or with a mobile-money-service provider, older adults (% of population ages 25+) – Malaysia*. Global Financial Inclusion Database, World Bank. https://data.worldbank.org/indicator/FX.OWN.TOTL.OL.ZS?locations=MY

36. Department of Personal Data Protection. (2020, February 14). *Public consultation paper No. 01/2020*. https://www.pdp.gov.my/jpdpv2/assets/2020/02/Public-Consultation-Paper-on-Review-of-Act-709_V4.pdf

37. Department of Personal Data Protection. (n.d.). *Personal Data Protection Act 2010*. https://www.pdp.gov.my/jpdpv2/laws-of-malaysia-pdpa/personal-data-protection-act-2010/?lang=en

38. Department of Personal Data Protection. (n.d.). *Principles of data protection*. https://www.pdp.gov.my/jpdpv2/public/principles-of-data-protection/?lang=en

39. Department of Statistics Malaysia. (2017, September 29). *Output of Malaysia's SMEs surged to RM1.0 trillion for the first time since 2003*. https://www.dosm.gov.my/v1/index.php?r=column%2FcthemeByCat&cat=426&bul_id=T20rcEJyQmFENUpRYThOSGRmdFlIZz09&menu_id=WjJGK0Z5bTk1ZElVT09yUW1tRG41Zz09

40. Department of Statistics Malaysia. (2020). *Study on the impact of movement control order (MCO) to household (HH) expenditure*. https://dosm.gov.my/v1/uploads/files/6_Newsletter/Newsletter%202020/DOSM_BPHPP_1-2020_Series_9.pdf

41. Digital News Asia. (2013, June 19). *Electronic payments stimulate economic growth in Malaysia: Visa*. https://www.digitalnewsasia.com/digital-economy/electronic-payments-stimulate-economic-growth-in-malaysia-visa

42. Dimitropoulou, A. (2019, January 21). Countries with the most women business owners as a percentage of total business owners, 2018. *CEOWorld magazine*. https://ceoworld.biz/2019/01/21/countries-with-the-most-women-business-owners-as-a-percentage-of-total-business-owners-2018/

43. DLA Piper. (2020, December 21). *Data protection laws of the world – Malaysia*. https://www.dlapiperdataprotection.com/index.html?t=authority&c=MY

44. Economic Planning Unit. (2014). *Unleashing growth of logistics and enhancing trade facilitation*. https://www.epu.gov.my/sites/default/files/2021-05/Strategy%20Paper%2014.pdf

45. Elderson, F. (2020, October 1). *Covid-19 – a digitalisation boost and the supervisory response*. Bank for International Settlements. https://www.bis.org/review/r201001d.htm

46. Elms, D. (2021, April 18). *Managing digital trade in Asia*. East Asia Forum. https://www.eastasiaforum.org/2021/04/20/managing-digital-trade-in-asia/

47. European Banking Authority. (2009, February 7). *Passporting and supervision of branches*. https://www.eba.europa.eu/regulation-and-policy/passporting-and-supervision-branches

48. European Commission. (2019, July 24). *General data protection regulation shows results, but work needs to continue*. https://ec.europa.eu/commission/presscorner/detail/en/IP_19_4449

49. Fefer, R. F. (2020, December 3). *Digital trade*. Congressional Research Service. https://crsreports.congress.gov/product/pdf/IF/IF10770

50. Ferracane, M. F., Lee-Makiyama, H., & van der Marel, E. (2019, September). *Digital trade restrictiveness index*. EUI Global Governance Programme. https://globalgovernanceprogramme.eui.eu/wp-content/uploads/2019/09/Digital-Trade-Restrictiveness-Index.pdf

51. Ferrantino, M. J., & Koten, E. E. (2019, December 1). *The measurement and analysis of e-commerce*. World Bank Open Knowledge Repository. https://openknowledge.worldbank.org/handle/10986/33175?show=full&locale-attribute=es

52. Focus Malaysia. (2020, July 30). *Restaurant commission fees necessary to pay delivery riders, says Grab*. https://focusmalaysia.my/restaurant-commission-fees-necessary-to-pay-delivery-riders-says-grab/.

53. Freund, C. L., & Weinhold, D. (2004). The effect of the internet on international trade. *Journal of International Economics*, 62(1), 171-189. https://doi.org/10.1016/s0022-1996(03)00059-x

54. Ganne, E., & Lundquist, K. (2019). *The digital economy, GVCs and SMEs*. World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/gvc_dev_report_2019_e_ch6.pdf

55. Global Affairs Canada. (2018, September 12). *What does the CPTPP mean for electronic commerce?* https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/cptpp-ptpgp/sectors-secteurs/electronic_commerce-commerce_electronique.aspx?lang=eng

56. Global Compliance News. (n.d.). *Data protection enforcement in Malaysia*. https://www.globalcompliancenews.com/data-privacy/data-protection-enforcement-in-malaysia/

57. GlobalData. (2020, September 8). *Covid-19 accelerates e-commerce growth in Malaysia, says GlobalData*. https://www.globaldata.com/covid-19-accelerates-e-commerce-growth-malaysia-says-globaldata/

58. González, J. L., Munro, L., Gourdon, J., Mazzini, E., & Andrenelli, A. (2019, September 11). *Participation and benefits of SMEs in GVCs in Southeast Asia*. OECD iLibrary. https://doi.org/10.1787/3f5f2618-en

59. Google, Temasek, & Bain & Company. (2021) *e-Conomy SEA 2021. Roaring 20s: The SEA Digital Trade – Malaysia*. https://services.google.com/fh/files/misc/malaysia_e_conomy_sea_2021_report.pdf

60. Goosen, R. (2017, May). *Building inclusive digital payments ecosystems: Guidance note for governments*. Global Partnership for Financial Inclusion. https://www.gpfi.org/sites/gpfi/files/documents/GPFI%20Guidance%20Note%20Building%20Inclusive%20Dig%20Payments%20Ecosystems%20final_0.pdf

61. Hoekman, B., & Nicita, A. (2008, December 1). *Trade policy, trade costs, and developing country trade*. World Bank. http://hdl.handle.net/10986/6341

62. Igue, C., Alinsato A., & Agadjihouédé, T. (2021). E-commerce in Africa: issues and challenges. In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 116-131). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

63. Ikigai Law. (2020, June 12). *Data protection in Malaysia*. https://www.ikigailaw.com/data-protection-in-malaysia/#acceptLicense

64. Inland Revenue Board of Malaysia. (2019, May 13). *Guidelines on the taxation of electronic commerce*. http://phl.hasil.gov.my/pdf/pdfam/guidelines_e_commerce_13052019.pdf

65. International Trade Administration, US Department of Commerce. (2020, August 19). *Malaysia – eCommerce*. https://www.trade.gov/country-commercial-guides/malaysia-ecommerce

66. Ipsos. (2019, February 20). *Global citizens & data privacy: A Malaysian perspective*. https://www.ipsos.com/en-my/global-citizens-data-privacy-malaysian-perspective

67. Jensen, H. H. (2020, February 17). *5 ways to digitalize logistics and boost trade*. World Economic Forum. https://www.weforum.org/agenda/2020/02/how-the-global-logistics-industry-can-collaborate-to-increase-trade-and-reduce-poverty/

68. JP Morgan. (2020, December 31). *2020 e-commerce payments trends report: Malaysia country insights*. https://www.jpmorgan.com/merchant-services/insights/reports/malaysia-2020

69. Karr, J., Loh, K., & Wirjo, A. (2020, July). *Supporting MSMEs' digitalization amid Covid-19*. Asia-Pacific Economic Cooperation. https://www.apec.org/Publications/2020/07/Supporting-MSMEs-Digitalization-Amid-COVID-19

70. Kawa, A. (2020). *Improving logistics connectivity of e-commerce in the Asean region. In E-commerce connectivity in Asean* (pp. 51-77) [Essay]. Economic Research Institute for Asean and East Asia.

71. Kemp, S., & Moey, S. (2019, September 18). *eCommerce in Malaysia in 2019*. DataReportal. https://datareportal.com/reports/digital-2019-ecommerce-in-malaysia

72. Khatibi, A., Thyagarajan, V., & Seetharaman, A. (2003). E-commerce in Malaysia: perceived benefits and barriers. *Vikalpa: The Journal for Decision Makers*, 28(3), 77-82. https://doi.org/10.1177/0256090920030307

73. Klapper, L. (2017, November 2). *How digital payments can benefit entrepreneurs*. IZA World of Labor. https://wol.iza.org/articles/how-digital-payments-can-benefit-entrepreneurs/long

74. Lanz, R., Lundquist, K., Mansio, G., Maurer, A., & Teh, R. (2018, November 13). *E-commerce and developing country-SME participation in global value chains*. WTO iLibrary. http://dx.doi.org/10.30875/ec5f0f21-en

75. Latiff, R. (2021, March 31). BNM to release five-year plan for financial sector in 2022. *The Edge Markets*. https://www.theedgemarkets.com/article/bnm-release-fiveyear-plan-financial-sector-2022

76. Lee Hishammuddin Allen & Gledhill. (2020, March). *Data protected – Malaysia*. Linklaters. https://www.linklaters.com/en/insights/data-protected/data-protected---malaysia

77. Liu, L., & Nath, H. K. (2012, August 9). *Information and communications technology (ICT) and trade in emerging market economies*. SSRN. https://dx.doi.org/10.2139/ssrn.2127368

78. López González, J., & Ferencz, J. (2018, October 8). *Digital trade and market openness*. OECD iLibrary. https://doi.org/10.1787/1bd89c9a-en

79. López, D., Condon, B., & Muñoz, F. (2021). The new rules on digital trade in Latin America: regional trade agreements. In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 214-227). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

80. López-González, J. (2021, April 21). *The changing nature of digital trade, current and future barriers and ideas to overcome them*. Wilson Center. https://www.wilsoncenter.org/article/changing-nature-digital-trade-current-and-future-barriers-and-ideas-overcome-them

81. Malaysia Digital Economy Corporation. (2021, April 27). *Malaysia placed among the top eCommerce markets in Asean*. https://mdec.my/wp-content/uploads/Malaysia-Placed-Among-The-Top-eCommerce-Markets-in-ASEAN_27-April-2021.pdf

82. Malaysian Communications and Multimedia Commission. (2018). *e-Commerce consumers survey 2018*. https://www.mcmc.gov.my/skmmgovmy/files/2c/2c7d733b-e086-43f1-9254-97cf0740c733/files/assets/basic-html/page-15.html

83. Malaysian Communications and Multimedia Commission. (2020, June). *Broadband demand survey 2019*. http://wtochairs.org/tunisia/research/global-value-chains-age-internet-what-opportunities-africa

84. Mastercard. (2020, April 20). *The Mastercard index of women entrepreneurs 2020*. https://www.mahttps://www.mastercard.com/news/media/1ulpy5at/ma_miwe-report-2020.pdfstercard.com/news/media/1ulpy5at/ma_miwe-report-2020.pdf

85. McKinsey & Company. (2021, February 18). *How Covid-19 has pushed companies over the technology tipping point – and transformed business forever*. https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever

86. Ministry of Finance Malaysia (MOF). (2021). *Budget 2021 – eBelia programme*. https://belanjawan2021.treasury.gov.my/manfaat/index.php/en/ebelia-en

87. Ministry of Trade and Industry Singapore. (n.d.). *Digital economy agreements*. https://www.mti.gov.sg/Improving-Trade/Digital-Economy-Agreements

88. Ministry of Transportation. (2015). *Logistics and trade facilitation masterplan*. https://www.mot.gov.my/en/Penerbitan%20Rasmi/Executive%20Summary%20Logistics%20and%20Trade%20Facilitation%20Masterplan.pdf

89. Mohamed, M. (2020). *Personal data protection law in Malaysia*. Department of Personal Data Protection. https://www.pdp.gov.my/jpdpv2/assets/2020/01/Introduction-to-Personal-Data-Protection-in-Malaysia.pdf

90. Müller, J. (2021, April 7). *Main reasons for decreasing online purchases among consumers during Covid-19 pandemic in Malaysia as of May 2020*. Statista. https://www.statista.com/statistics/1128977/malaysia-reasons-for-decreasing-online-purchases-during-covid-19/

91. Musa, M., Shuib, R., Selamat, N. H., Mohd Isa, S., Osman, I., & Abu Bakar, S. (2016, November 16). *A study of women micro entrepreneurs in Malaysia: Livelihood strategies and challenges*. Core. https://core.ac.uk/download/pdf/78389779.pdf

92. Musgrove, A. (2020, July 1). *Digital taxes around the world*. Quaderno. https://www.quaderno.io/blog/digital-taxes-around-world-know-new-tax-rules

93. Nawang, O. (n.d.). *Regulatory framework and governance on e-commerce*. Ministry of International Trade and Industry. https://www.miti.gov.my/miti/resources/4._Regulatory_Framework_Governance_on_E-Commerce_.pdf

94. OECD. (2018, November). *Bridging the digital gender divide*. https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf

95. OECD. (2021, February 3). *The digital transformation of SMEs*. OECD iLibrary. https://doi.org/10.1787/bdb9256a-en

96. OECD. (n.d.). *Small and medium-sized enterprises and trade*. https://www.oecd.org/trade/topics/small-and-medium-enterprises-and-trade/

97. Othman, M. R., Jeevan, J., & Rizal, S. (2016). The Malaysian intermodal terminal system: the implication on the Malaysian maritime cluster. *International Journal of e-Navigation and Maritime Economy*, 4, 46-61. https://doi.org/10.1016/j.enavi.2016.06.005

98. Pasadilla, G. O., Duval, Y., & Anukoonwattaka, W. (1970, January 1). *Next generation non-tariff measures: Emerging data policies and barriers to digital trade*. EconStor. http://hdl.handle.net/10419/213424

99. Phillips, C. (2021, March 24). *Malaysia's internet speeds improve even before 5G is launched*. Speedtest. https://www.speedtest.net/insights/blog/malaysia-internet-speeds-march-2020/

100. Pratamasari, A. (2020). Cybersecurity and custom regulations as trade barriers in Asean e-commerce: case of Indonesian e-commerce. *Jurnal Global & Strategis*, 14(1), 1. https://doi.org/10.20473/jgs.14.1.2020.1-16

101. Pymnts.com. (2017, May). *Global cash index*. https://securecdn.pymnts.com/wp-content/uploads/2019/07/The-PYMNTS.com-Global-Cash-Index-Asia-Pacific-Analysis-min.pdf

102. Radhi, N. A. M. (2021, April 4). Women entrepreneurs crucial to economic recovery. *NST Online*. https://www.nst.com.my/news/nation/2021/04/679490/women-entrepreneurs-crucial-economic-recovery

103. Record, R., Larson, B. R., Teh Sharifuddin, S., & Chong, Y. K. (2018, September 1). *Malaysia's digital economy: A new driver of development*. http://hdl.handle.net/10986/30383

104. Rodriguez, L. (2018, March 27). The role of transport and logistics in promoting e-commerce in developing countries. *UNCTAD Transport and Trade Facilitation Newsletter No. 77*. https://unctad.org/news/role-transport-and-logistics-promoting-e-commerce-developing-countries

105. Royal Customs Department Malaysia. (n.d.). *About Malaysia National Trade Repository*. http://mytraderepository.customs.gov.my/en/Pages/an_pg.aspx

106. Saberi, S., Mohamed Sopiee, M. A., & Abd Hapiz, S. (2020, September 1). *Legal aspects of e-commerce in Malaysia*. Azmi & Associates. https://www.azmilaw.com/insights/legal-aspects-of-e-commerce-in-malaysia/

107. Santander. (2021, July). *Import customs procedures in Malaysia*. https://santandertrade.com/en/portal/international-shipments/malaysia/customs-procedures

108. Schiesser, P. (2017, December 8). *Real-time retail payments in Malaysia: Building the payments systems of tomorrow*. Bank Negara Malaysia. https://www.bnm.gov.my/documents/20124/812851/PayNet+Real-time+Retail+Payments+Platform.pdf/7951e763-3cce-d139-47e1-81ecd01a6c6c?t=1584086731650

109. Seetanah, B., Padachi, K., Fauzel, S., Sannassee, V., & Boodoo, S. (2021). Opportunities and challenges of e-commerce in Mauritius. In Smeets, M. (Ed.), *Adapting to the digital trade era: Challenges and opportunities* (pp. 70-87). Geneva: World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf

110. Selangor Information Technology & Digital Economy Corporation (SIDEC) (2021). *SMEs eligibility*. https://www.sidec.com.my/selangorgrant2021/

111. Siba, E. (2019, February). *Empowering women entrepreneurs in developing countries: Why current programs fall short*. Brookings Institution. https://www.brookings.edu/wp-content/uploads/2019/02/Empowering-women-entreprenuers-in-developing-countries-190215.pdf

112. Sibthorpe, C., Lopez, M., & Sticco, G. (2018). *Recommendations for action: Bridging the digital gender gap*. GSMA. https://www.gsma.com/latinamerica/wp-content/uploads/2018/07/Policy_Brief_W20_DigitalInclusion_2018.pdf

113. SME Corporation Malaysia, & Huawei. (2018, December 30). *Accelerating Malaysian digital SMEs: Escaping the computerisation trap – overcoming the digitalisation chasm of Malaysian SMEs*. Huawei. https://www.huawei.com/minisite/accelerating-malaysia-digital-smes/img/sme-corp-malaysia-huawei.pdf

114. Sothirachagan, S. (2020, December). *Protecting Malaysian e-commerce consumers*. UNCTAD. https://unctad.org/system/files/non-official-document/ccpb_RPP_2020_02_Present_Sivani_Sothrachagan.pdf

115. Speedtest. (2021, July). *Thailand's mobile and broadband internet speeds*. https://www.speedtest.net/global-index/thailand

116. UNCTAD. (2013, June 26). *Developing countries challenged by proposed trade agreements*. https://unctad.org/en/Pages/newsdetails.aspx?OriginalVersionID=581

117. UNCTAD. (2019, September 4). *Digital economy report 2019. Value creation and capture: Implications for developing countries*. https://unctad.org/system/files/official-document/der2019_en.pdf

118. UOW Malaysia KDU. (2020, June 9). *Online shopping is the "new normal" in Malaysia*. https://www.uowmkdu.edu.my/news/online-shopping-is-the-new-normal-in-malaysia/

119. Van Overstraeten, T. (2021, June 18). *EU/US: Cross-border data flows – a necessary part of global trade*. Linklaters. https://www.linklaters.com/en/insights/blogs/digilinks/2021/june/eu---cross-border-data-flows---a-necessary-part-of-global-trade

120. Vase.ai. (2020, April 6). *Consumer purchase behaviour changes amidst Covid-19*. https://vase.ai/data-trust/projects/covid19-purchase-behaviours/summary?cues=1

121. Vemuri, V. K., & Siddiqi, S. (2009). Impact of commercialization of the internet on international trade: a panel study using the extended gravity model. *The International Trade Journal*, 23(4), 458-484. https://doi.org/10.1080/08853900903223792

122. Visa. (2020). *The road to digital government payments*. https://www.visa.com.bs/dam/VCOM/regional/lac/ENG/Default/Documents/PDFs/G2C-01.pdf

123. Vodus Insights. (2020). *Impact of Covid-19 on Malaysian e-commerce consumers*. https://vodus.com/article/covid-19-mco-impact-on-malaysia-e-commerce

124. Wajcman, J., Young, E., & Fitzmaurice, A. (2020, August). *The digital revolution: Implications for gender equality and women's rights 25 years after Beijing*. UN Women. https://www.unwomen.org/-/media/headquarters/attachments/sections/library/publications/2020/the-digital-revolution-implications-for-gender-equality-and-womens-rights-25-years-after-beijing-en.pdf?la=en&vs=1837

125. Wanyoike, D. M., Mukulu, E., & Waititu, A. G. (2012, December). ICT attributes as determinants of e-commerce adoption by formal small enterprises in urban Kenya. *International Journal of Business and Social Science*, 3(23), 65-74. https://ijbssnet.com/journal/index/1710

126. World Bank. (2016). *Digital adoption index*. https://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index

127. World Bank. (2016, May). *World development report 2016: Digital dividends*. https://www.worldbank.org/en/publication/wdr2016

128. World Bank. (2018, September 1). *Malaysia's digital economy: A new driver of development*. http://hdl.handle.net/10986/30383

129. World Bank. (2020, April 20). *Doing business in Malaysia 2020*. https://www.doingbusiness.org/en/reports/subnational-reports/malaysia

130. World Economic Forum. (2020, June). *Connecting digital economies: Policy recommendations for cross-border payments*. http://www3.weforum.org/docs/WEF_Connecting_Digital_Economies_2020.pdf

131. World Trade Organisation. (1996, April 24). *Negotiating group on basic telecommunications* [Reference paper]. https://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm

132. World Trade Organisation. (2018). *The economics of how digital technologies impact trade*. https://www.wto.org/english/res_e/publications_e/wtr18_3_e.pdf

133. Zonos. (n.d.). *De minimis values*. https://docs.zonos.com/guides/de-minimis-values