

Chapter 4

Technology, Innovation and Digitalisation



Chapter 4

Technology, Innovation and Digitalisation

In recent years, MSMEs globally have accelerated their uptake of digital tools and participation in networks supporting innovation spillovers, including through an increased use of digital platforms. Based on OECD Entrepreneurship and SME Outlook Report 2023, the use of social media had become broadly mainstreamed, with an uptake of over 60.0% of the total business population in OECD countries, and the share of SMEs using cloud computing services doubled in less than six years. This acceleration reflects the increasing value of data for business intelligence, with firms moving to the cloud not only to upgrade their technology but also to drive business innovation. This digital trend has further spurred open innovation such as business practice to source ideas and solutions and digital technology adoption which has supported SMEs in navigating the twin transition.

Chart 4.1: Businesses purchasing cloud computing services

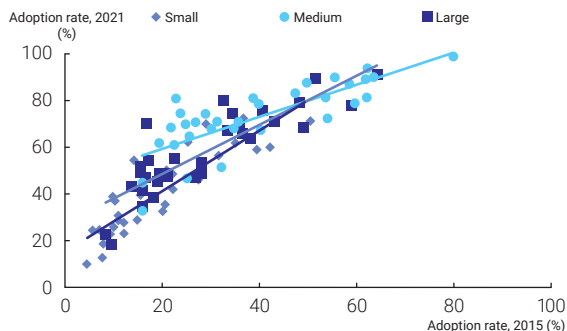
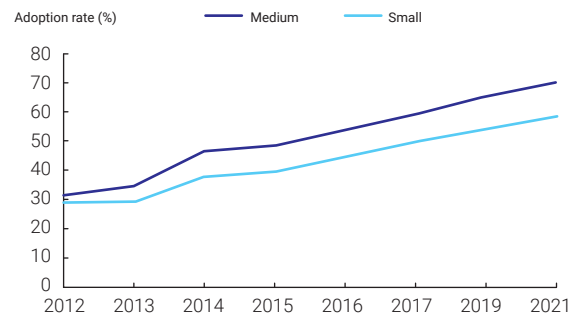


Chart 4.2: Businesses using social media



Source: SME and Entrepreneurship Outlook 2021, OECD

The diagrams above show firms purchasing cloud computing services by firm size from 2015 to 2021 and percentage of firms using social media from 2012 to 2021.

THE EMERGENCE OF AN ERA OF HYBRID RETAIL

The report on “SMEs in the Era of Hybrid Retail: Evidence from an OECD D4SME Survey” presents new evidence on how retail SMEs are adapting their business models to hybrid consumption patterns, based on recent trends and survey among retail SMEs in six OECD countries, namely France, Germany, Italy, Japan, Korea, and Spain. Digitalisation has triggered a profound transformation of the retail sector. Retail businesses now have multiple digital sales channels including online platforms and their own virtual shop. Retail consumers’ demand have also evolved with increasing requests of online alternatives or complements to the offerings of traditional physical shops. The COVID-19 pandemic and the introduction of social distancing measures accelerated the on-going trend for increased online spending across all age groups. Although the lifting of COVID-19 restrictions has seen in-person shopping resume, with a corresponding reduction in the overall share of online shoppers, the impacts of COVID-19 on spending patterns appear to be long-lasting with consumers making the best of both worlds and shopping in an ever more hybrid way.

Retail businesses are adopting more hybrid practices and SMEs are no exception. Operating multiple sales channels, both online and offline presents various opportunities such as increased sales, broadened customer base and improved relationship with customers. Integrating online sales channels leads to enhanced business resilience, especially for small businesses. During the COVID-19 pandemic, many brick-and-mortar retail SMEs also integrated online models, including selling through e-commerce platforms, and offering buy online, pick up in-store option in order to cope with stringent mobility measures and to accommodate the rise in consumers’ demand for online interaction.

SMEs are embracing this new era of hybrid retail, where physical and digital channels co-exist, overlap and interact. However, going hybrid or multiplying sales channels also brings challenges, such as increased competition, lower margins and increased operational complexity to manage multiple channels. In addition, there is still room to improve the digital readiness of SME retailers to effectively utilise digital tools and services, particularly in managing digital marketing and raising SME awareness regarding digital risks.

MALAYSIAN DIGITAL ECONOMY LANDSCAPE

The Malaysian digital economy has recorded exponential growth especially over last decade. As of January 2020, there was an estimated 33.0 million internet users and an internet penetration rate of 96.9%. According to reports from the World Bank and other sources, Malaysia’s digital economy has shown remarkable growth and has been estimated to have reached USD11 billion in value in 2019 and projected to grow to USD26 billion by 2025. Growth has been and will continue to be fuelled by increasing internet penetration, e-commerce activities and the adoption of digital technologies by businesses and consumers. E-commerce particularly has been pivotal in the growth of Malaysia’s digital economy, with a contribution of 13.0% to Gross Domestic Product (GDP) and valued at RM201.1 billion in 2021 compared with 11.6% and RM163.3 billion in 2020.

Malaysia has made significant investments in digital infrastructure, including the rollout of high-speed broadband networks and the development of 5G technology, thus driving digital adoption and creating fertile grounds for digital businesses. The Government’s commitment to develop a robust digital economy can be seen in its digitisation of public services, of which 90.0% are now available online and while e-payment facilities are available in 78.8% of public agencies.

Post-pandemic, there is a sense of urgency among local businesses to adopt digital solutions. This is aligned with a World Bank study published in October 2022 which found that 15.0% of new digital consumers in Malaysia entered the market during the pandemic and accelerated demand for digital platforms. The same report also mentioned that 25 Government agencies and at least 10 state and municipal agencies were implementing approximately 101 MSME digitalisation programmes. The World Bank findings are supported by CPA Australia’s Business Technology Survey 2022 which reported that 94.0% of companies in Malaysia plan to accelerate technology adoption over the next 12 months.



Businesses and consumers have shifted to online platforms for various activities, including remote work, online shopping and virtual socialising, thus bringing about greater data generation and data analytics activities as well as reliance on artificial intelligence for predictive measures.

The pandemic has further accelerated the adoption of digital technologies as businesses and individuals switched to online daily transactions. Businesses and consumers have shifted to online platforms for various activities, including remote work, online shopping and virtual socialising, thus bringing about greater data generation and data analytics activities as well as reliance on artificial intelligence for predictive measures.

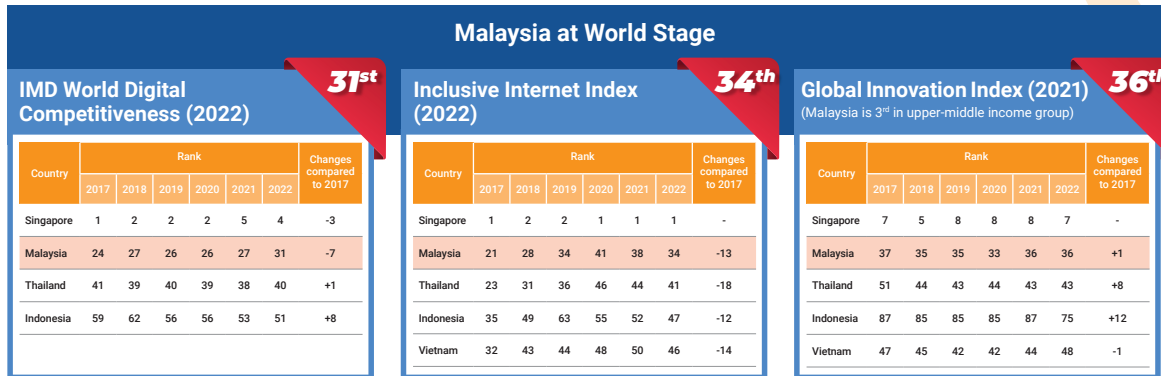
The Information and Communication Technology Satellite Account (ICTSA) 2022 published by the Department of Statistics, Malaysia reported that the contribution of information and communication technology (ICT) and e-commerce to GDP was recorded at 23.0% with a value of RM412.3 billion in 2022. The performance was contributed by the Gross Value Added of the ICT industry (GVAICT) at 13.6% (2021: 14.0%) and e-commerce of other industries at 9.4% (2021: 9.2%). GVAICT recorded RM243.7 billion with a growth of 12.4% in 2022 compared to 7.8% in the previous year. This growth was supported by the ICT manufacturing industry with a better growth of 21.3% compared to 11.0% in 2021. Meanwhile, exports of ICT products increased to RM444.5 billion with a growth of 24.9% in 2022 compared to 13.1% in the previous year. Exports of ICT products constituted 32.2% of total national exports. Employment in the ICT industry has increased 1.0% to 1.22 million persons in 2022 (2021: 1.21 million persons), with a contribution of 7.9% to total employment (2021: 8.0%). Majority of the employees hired by ICT manufacturing at 36.1%, followed by ICT services (29.3%) and ICT trade (21.7%).

Malaysia's performance in key global indices reflects the effectiveness of national policies in developing the country's digital economy. As shown in in the Chart 4.3, Malaysia is positioned in the top 50 in these indices. Malaysia's positioning in these indices:


- 31st in the IMD World Digital Competitiveness (2022) rankings
- 34th in the Inclusive Internet Index (2022)
- 36th in the Global Innovation Index (2021)
- 53rd in the UN e-Government Development Index (2022)

For trade facilitation, the country scored 85.2% for paperless trade and 61.1% for cross-border paperless trade.


Chart 4.3: Malaysia's Digital Economy Landscape



Where are we today?




Government




UN e-Government Development Index (2022)


Country	2022 Rank
Singapore	12 th
Malaysia	53 rd
Thailand	55 th
Indonesia	77 th
Vietnam	86 th
Philippines	89 th




90.0% of Government services are available online, but systems are not all linked¹




78.8% of Government agencies provide e-payment facilities to customers²



87th of 94 - Malaysia in Global Open Data Index 2017, indicating limited datasets, not easily found and publicly available




Businesses




Malaysia's score in Trade Facilitation and Paperless Trade (2021)³


Paperless trade	85.2%
Cross-border paperless trade	61.1%




17 Data Centers in Malaysia (2022)⁴



RM163 billion e-commerce gross value added to the economy in 2020⁵




46.8% of businesses in Malaysia has adopted cloud computing in 2019⁶




26.0%* MSMEs picked digital adoption as the preferred strategy for post-pandemic survival⁵


*1,713 participants were surveyed in the Study



Society




92.0% Malaysian are active on social media (2022)⁷




Household access to broadband (2021)⁸:


Type	Mobile	Fixed
Urban	95.3%	46.5%
Rural	88.1%	18.1%




873 Pusat Internet Komuniti across Malaysia, targeting underserved areas and groups (2020)²




3.5 billion online banking **1.1 billion** e-wallet transactions (2021)²



71.0% of employees fear that their jobs may be at risk due to automation (2021)¹⁰



57.0% of workers say they improved their digital skills since the pandemic began¹⁰



10,016 cyber incidents reported in Malaysia (2021)¹¹

Source: ¹MyGov, ²Bank Negara Malaysia (2021/2021), Annual Report 2021, ³UN Global Survey on Digital and Sustainable Trade Facilitation, ⁴MDEC, ⁵Institute of Strategic & International Studies (ISIS) Malaysia, Strengthening Digital Trade and Digitalisation in Malaysia, ⁶Usage of ICT & e-commerce by Establishment, DOSM, 2020, ⁷Data Reportal Digital 2022 Malaysia, ⁸ICT Use and Access by Individuals and Households, DOSM, 2021, ⁹MCMC Annual Report 2020, ¹⁰PwC's Hopes and Fears Survey 2021 Malaysia Report, ¹¹Cybersecurity Malaysia

MSME DIGITALISATION AND TECHNOLOGY ADOPTION

One of the key pillars of the Government's digital transformation agenda is to provide robust support for digital adoption by MSMEs. It was reported that 26.0% of Malaysian MSMEs have chosen digitalisation as the preferred strategy for post-pandemic survival, a stark reminder of the importance of digital technologies in maintaining business continuity as well as connectivity.

MSMEs, which make up 97.4% of total business establishments, form the backbone of Malaysia's economy and are significant contributors to GDP, employment and exports as well as drivers of job creation and entrepreneurship, especially for women, youth and marginalised groups. However, due to their size, MSMEs face challenges in digitalisation, financing, regulatory compliance, technology, and business strategy.

Over the last decade, MSME digitalisation has been a focal point in various public strategies, including the Malaysia Digital Economy Blueprint, the country's flagship long-term digital strategy. The blueprint launched in February 2021, intends to create greater opportunities for MSMEs in building and expanding locally, regionally and globally through digitalisation.

The blueprint targets to help 800,000 MSMEs digitalise and 875,000 MSMEs to adopt e-commerce by 2025. Of the six thrusts, 22 strategies and 48 national initiatives in the blueprint, several directly address the needs of MSMEs.

The following are the initiatives under the blueprint to support MSME digitalisation.

Policy Thrust	Strategy	Initiative	Target	Lead Agency / Agencies	Status
Boost economic competitiveness through digitalisation	Facilitating digital adoption, access and effective use of digital technology across all firm sizes and digital maturity level	Provide a tailored Digital Compass for businesses to foster digital usage	More than 800,000 MSMEs adopt digitalisation (2025)	Ministry of Entrepreneur and Cooperatives Development and Ministry of Communications	In-progress
	Developing digital industry clusters and driving entrepreneurial activities	Incorporate comprehensive digital economy elements in international trade arrangements and cooperation	Key and strategic digital economy elements incorporated in all international trade arrangements and cooperation pursued by Malaysia (2030)	Ministry of Investment, Trade and Industry	Almost completed

Policy Thrust	Strategy	Initiative	Target	Lead Agency / Agencies	Status
Build agile and competent digital talent	Reskilling current workforce with the digital skills needed to stay relevant	Introduce a training programme for senior managers to improve digital skills	50.0% of senior management in Government-linked companies, MNCs and MSMEs to participate in the programme by 2025	Ministry of Human Resources	In-progress
		Streamline reskilling initiatives by various Government agencies onto a centralised portal for ease of access	MYFutureJobs as a single platform for upskilling and reskilling programmes for all employers and employees in Malaysia by 2030		In-progress
	Ensuring that gig workers are protected and equipped with the right skills	Introduce long-term social protection for gig workers	All gig workers to have social protection	Ministry of Human Resources and Ministry of Finance	In-progress
Create an inclusive digital society	Increasing inclusivity of all Malaysians in digital activities	Promote electronic payment onboarding programmes for both merchants and consumers towards a cashless society	400 electronic payment transactions made per capita by 2022, 36 EFTPOS terminals per 1,000 inhabitants by 2022	Bank Negara Malaysia	In-progress
	Empowering special target groups in society to participate in the digital economy through entrepreneurship activities	Providing an online platform to facilitate better access for vulnerable groups	875,000 MSMEs onboard e-commerce by 2025	Ministry of Entrepreneur and Cooperatives Development	In-progress

In the area of technology adoption, report on Industry 4.0 Technology Adoption in Malaysian Manufacturing: Strategies for Enhancing Competitiveness by Asia School of Business (ASB) indicated that talent and skills gap seem to be the barrier for technology adoption. Firms face major barriers to IR4.0 deployment due to lack of talent and skills familiar to IR4.0 to operate the new machines and effectively analyse the data collected by the machines. In certain cases, adoption of new technology has resulted in labour-augmentation rather than labour replacement. Government incentive is seen to be the key driver that supported firms in adopting emerging technologies including provision of specific to grants for acquisition of technologies as well as collaboration with various training institutes for training and upskilling to address the talent shortage.

Proposed policy recommendations for short, medium and long terms:

Short-term

Strengthen technical and vocational education system as one of the issues cited by majority of the firms due to lack of skilled workers and talent to operate adopted technology.

Medium-term

Develop incentives that match the entrepreneurial discovery of new activities. Incentives include skills training, technical support from training and technical centres, grants to allow customisation and mix-match of machines customised to the manufacturing process and forward-looking innovation programmes.

Long-term

Build the ecosystem of entrepreneurship in new areas of growth by supporting innovative activities instead of sectors. Institutional architecture is important to establish the ecosystem which includes political leadership to drive the agenda, coordination and mechanism for transparency.

Box Article

Digitalising MSMEs to Boost Competitiveness

The COVID-19 pandemic exposed the vulnerability of MSMEs to disruptive trends that arises. Amid the economic recovery post-pandemic, valuable lessons were learned, not least of which was digital transformation is a pivotal pathway to business resilience and sustainability.

Feedback received from the SME Digital Summit (August 2020) and the IDC Digital SMB Pulse 2022 had revealed that the business priorities of MSMEs improving revenue growth, efficiency, cashflow, workflow management and enhancing business agility were sidelined amid the disruptions of the pandemic as survival took precedence over all else. The pandemic did, however, make MSMEs more aware of the importance of digital resilience for survival.

Majority of the MSMEs surveyed have indicated intention to digitise their business, with 57.0% of the respondents indicating they will invest in digital technologies such as e-commerce and e-payment options, to enable online selling or improve online sales. Another 51.0% reported they intend to formulate a digital strategy to help in navigating a crisis with clear goals; 49.0% will focus on having a digital culture that embrace risks and innovation; 47.0% will invest in automation of processes as well as digitalisation to be less dependent on human intervention; and 39.0% will invest in solutions to enable employees to work remotely or in automation of core processes like finance and human resource management.

The 100 Go Digital initiative was launched by the Malaysia Digital Economy Corporation (MDEC) in 2022 to address the challenges faced by MSMEs post-pandemic, help in meeting their priorities as well as in digital transformation to boost competitiveness. The programme offered a series of digital coaching workshops to help MSMEs improve their business via adoption of digital technologies. This was complemented by 40 speaking engagements via digital platforms to create digital adoption awareness and a nationwide Malaysia Digital Dialogue, a special one-day physical that engaged with businesses of all sizes via knowledge sharing activities, advisories and strategic collaborations to facilitate digital adoption. More than 45,000 businesses benefitted from the programme, the final outcome of which was the adoption of digitalisation by 25,000 MSMEs.

MDEC also held the 2023 edition of 100 Go Digital in collaboration with industry players, Government agencies and digitalisation partners. The 2023 edition comprised of a flagship coaching programme, 10 nationwide business digitalisation workshops and an onboarding programme to accelerate digital adoption. MDEC's digitalisation partners were brought in to support MSMEs in the digitisation process. The programme focused on three sectors, namely food & beverage retailers (retail owners, hawkers and small traders), professionals (consultants, accountants, auditors, health practitioners, real estate agents) and logistics (logistics supply chain that need automation solutions). It focused on seven areas for digitalisation, which are digital marketing, commerce, remote working, Enterprise Resource Planning (ERP) / accounting & tax, procurement, Human Resource (HR) payroll system / Customer Relationship Management (CRM) and electronic point of sale system.

Majority of the MSMEs surveyed have indicated intention to digitise their business, with 57.0% of the respondents indicating they will invest in digital technologies such as e-commerce and e-payment options, to enable online selling or improve online sales.

Box Article

Championing Innovation via the National Technology and Innovation Sandbox

The National Technology and Innovation Sandbox (NTIS) was launched in June 2020 as part of the National Economic Recovery Plan (PENJANA). The programme is in line with the objectives of the National Science, Technology and Innovation Policy 2021 - 2030 to strengthen the development and use of advanced technology to transform industry and society by empowering local talent in science, technology and innovation as well as in upgrading the country's technology infrastructure, including digital technology.

The NTIS is under the purview of the Ministry of Science, Technology and Innovation (MOSTI) and supported by Mimos Bhd, Malaysia Technology Development Corporation (MTDC) and Futurise Sdn Bhd. The Malaysian Research Accelerator for Technology and Innovation (MRANTI) serves as the main NTIS secretariat.

The NTIS was conceived with two goals, namely (i) to champion local innovation and to create a smoother and faster pathway for the commercialisation of Malaysian technology, and (ii) to use the programme as a testbed for disruptive technologies with potential to solve some the challenges that have been exacerbated by the pandemic. NTIS aims to create high-skilled job opportunities to increase GDP, gross national income and social inclusion. NTIS also targets to increase private sector participation, investment and collaboration in research, improve the rate of product commercialisation as well as to drastically reduce dependence on foreign labour.

Achievements

11 NTIS sandboxes have been launched as at March 2023. These included agriculture, robotics and automation, logistics, drone technology, high-tech education, sports technology, smart highways, digital IoT, sustainable smart cities, health tech hub and construction.

MDTC, the main funding partner for NTIS, has approved financing totalling RM79.2 million to 98 MSMEs as well tech start-ups to develop innovation. Another 176 MSMEs and tech start-ups received technical, regulatory facilitation and test site support. Some applications for funding have also been referred to other suitable grant organisations that are in strategic partnership with NTIS.

24 recipients of NTIS funding have successfully commercialised their products & solutions and generated revenue of nearly RM51.8 million. Aonic (formerly known as Poladrone Solutions Sdn. Bhd.) is one of the success stories of the programme. The company is a drone solutions provider to agricultural enterprises and aerial mapping of plantations and industrial and construction sites. MySpatial Sdn Bhd is another success story. The company is a geospatial mapping specialist that provides services to the public and private sector. Its services include agriculture drone mapping, aerial mapping & survey, drone assistance in heavy infrastructure inspections & maintenance and geospatial support services.

Box Article

Enhancing Access to Open Data via OpenDOSM NextGen

Open data matters for Malaysia because it has a significant impact on the country's development and progress. Open data enables greater transparency and innovation as well as facilitating greater collaboration and discovery or value creation among researchers and evidence-based decision-making.

The Government has been working on making data more open and accessible to the public by implementing several initiatives to promote the use of open data, including the creation of the Open Data Portal which allow users access to a variety of Government datasets. Additionally, the Public Sector Open Data Platform has created an open data ecosystem that connects open data owners i.e. Government agencies, academics, industries, NGOs and the public with users to develop innovations from the data obtained.

Enhancing Access to Open Data

The Department of Statistics, Malaysia (DOSM) launched its OpenDOSM NextGen platform on 12 January 2023 to support the Government's efforts in promoting open data. The platform enables greater access to open data related to official statistics produced by DOSM as well as those of other Government agencies.

OpenDOSM NextGen is designed to cater to the needs of a wide range of users, including policymakers, industry experts, researchers, journalists, data scientists, youths and students as well as the general public. The platform is equipped with additional new features for greater efficiency in delivering statistical information, with smooth access, minimum downtime and negligible lag, allowing simultaneous data access. The data is organised in a catalogue and displayed on a dashboard for better understanding by users. It also complements the Government's efforts to establish a data infrastructure to enhance data-driven decision-making in creating a responsive service delivery ecosystem as well as faster response in meeting public needs. The platform will not only empower citizen engagement in the development of a culture of innovation but also facilitates public contribution to effective policymaking.

Besides the statistics issued by DOSM, the platform also contains administrative data from various Government agencies, including more than 35 million high-frequency raw data records from PriceCatcher, a mobile application developed by the Ministry of Domestic Trade and Cost of Living. The data captured by the app will assist users in conducting in-depth analysis for price behaviour studies. Data on healthcare, finance, social including on GDP, consumer prices and demographics are also available in the app. The scope of the OpenDOSM NextGen dataset will be expanded from time to time to cover other datasets from Ministries and agencies.