HORIZON

A PERSPECTIVE OF MALAYSIA'S DIGITAL ECONOMY

DIGITAL ECONOMY PUBLICATION 2022

BUSINESS

Knocking on the Door of the Metaverse

Scaling Up Companies to Become Unicorns

Malaysia as the Preferred Hub for Digital Nomads

INVESTOR

Strengthening Malaysia as Digital Hub of ASEAN

Reframing Tax Incentives to Suit the Digital Era

Growing Trend towards ESG Investments

SOCIETY

Reimagining Malaysia's Workforce of Tomorrow

Digital Proofing the Next Generation

Raising Digital Salaries to Arrest Brain Drain

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FOREWORD

Digital or digitally-transformed enterprises today account for more than half of the global economy. The world crossed this threshold on the back of rapid and widespread digital adoption and transformation in response to curbs on normal activities during the Covid-19 pandemic.

We now live and work in a digital-first world, with prospects in the present and future decisively tied to a digital economy that will create 70% of all new value over the next decade.

For these reasons, the Government has prioritised the growth of Malaysia's digital economy. It is noteworthy that digital has progressively increased its share of the national economy and is now approaching 25% of gross domestic product (GDP).

Beyond the development of the digital industry, the Government also intends to drive economic participation by every segment of the rakyat through digital platforms and digital business models.

In employing such a holistic approach to strengthen the digital ecosystem, we can ensure that Malaysia and Malaysians are agile and remain competitive in order to capitalise on opportunities in a post-pandemic economic and social environment.

The launch of Malaysia Digital under the aegis of the Malaysia Digital Economy Corporation (MDEC) earlier this year represents a significant step towards achieving these goals.

As such, I look forward to the release of Malaysia Digital's Digital Economy Publication 2022, which should be highly useful to decision makers in government, the private sector as well as potential investors in the digital economy, local and global.

Congratulations to MDEC and other parties for producing this publication with the promise of publishing periodic iterations so we can all track the progress of Malaysia's thriving digital economy.

YB FAHMI FADZIL

MINISTER OF COMMUNICATIONS AND DIGITAL

MESSAGE

Emerging and evolving technologies in the digital arena are rapidly transforming our way of life. Today, digital tools and platforms are replacing conventional processes for engagement, interaction and many other activities.

This digitalisation of economic and social activity has created a digital economy anchored on e-commerce, the internet of things (IoT), social media and supported by artificial intelligence (AI), data science, automation, blockchain and many others.

It has disrupted traditional market forces, adding new dimensions to the demand-supply value chain and remodeled consumer as well as other markets. The economic and socioeconomic wellbeing of Malaysia is now tied to the digital economy.

Towards this end, Malaysia Digital has the challenging yet exciting role of growing and developing an inclusive and pervasive national digital economy encompassing all segments of the business and social landscape.

Our approach is based on three pillars: driving digital adoption among businesses and the people; supporting local tech enterprises, talents and technopreneurs to compete globally; and attracting high-value digital investments and global tech giants to Malaysia.

The inaugural Digital Economy Publication 2022 provides insights and information on these efforts. It combines the analyses, reviews and outlook for the digital economy with thought leadership articles on a range of relevant trends and technologies.

I am confident readers will find enlightenment and education in such topics as the metaverse, ESG (environment, social and governance) considerations in digitalisation and investment and talent development, among many others.

Ts. MAHADHIR AZIZ

CHIEF EXECUTIVE OFFICER OF MALAYSIA DIGITAL ECONOMY CORPORATION (MDEC)

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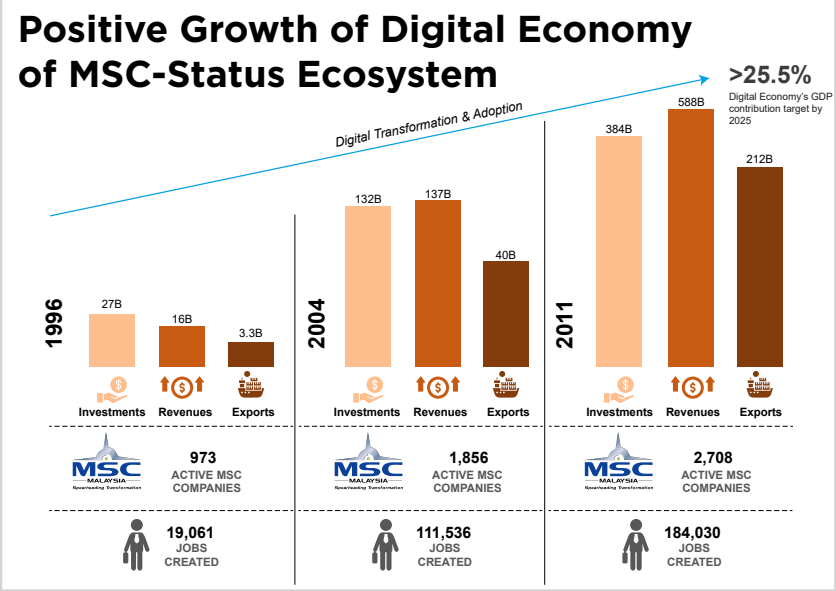
Taking the Multimedia Super Corridor Nationwide **Via Malaysia Digital**

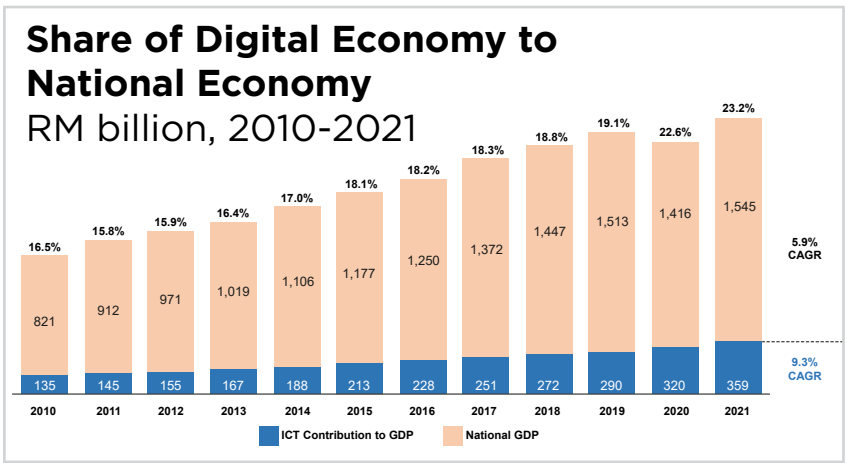
By Dr. Sumitra Nair
Strategy and Policy, MDEC

"The MSC is both a physical area and a new paradigm for creating value in the Information Age. Physically, the MSC will be a 15x50 km square area spreading south of Kuala Lumpur. It begins with the Kuala Lumpur City Centre in the North and runs to Kuala Lumpur International Airport at Sepang in the South." Tun Dr. Mahathir Mohamad (former Prime Minister of Malaysia) at the launch of MSC on 1 August 1996.

The Multimedia Super Corridor (MSC) was launched in 1996 within a limited geographical area, with a vision of multiplying these 'corridors' to strategic locations around the country. The longer-term vision was to make the entire nation a 'multimedia super corridor'.

Fast forward to the year 2022, Malaysia Digital (MD) and it predecessor MSC has 2,708 active companies which have cumulatively invested more than RM430 billion and generated over half a trillion ringgit in revenues, RM220 billion in exports and created close to 200,000 jobs.





Based on the ICT Satellite Account (ICTSA) by the Department of Statistics Malaysia (DOSM), the gross domestic product (GDP) contribution by the ICT and e-commerce sectors rose from 16.5% in 2010 to 23.2% in 2021. These two sectors serve as a proxy for the digital economy.

2021 Highlights from the Malaysia Digital Industry Research (MDIR)

MDIR is a half-yearly survey conducted by MDEC and involves all MD companies. (formerly known as MSC Status companies)

- Over the past five years, total investments by MD companies grew at a compound annual growth rate (CAGR) of 8%. In 2021, the growth more than doubled at 17% to approximately RM46 billion. This is a strong sign of confidence from companies wanting to invest in what Malaysia has to offer post Covid-19.
- 52% of the investments were made by Global Business Services (GBS) companies, although the GBS sector only makes up 21% of the survey population. This underpins Malaysia's attractiveness as a preferred destination for GBS, as well as the evolution of GBS to invest in new emerging digital technologies such as robotic process automation (RPA), artificial intelligence (AI) and data science.
- Sales of MD companies grew 10% to RM64.6 billion. This is very positive considering the CAGR for overall total sales in the past five years was only 6%. The majority (87%) of the total sales contribution came from digital technology and GBS companies.
- Local sales grew by 14% in 2021 compared to the average growth rate of only 4.6% over the past three years. The increase may be attributed to the accelerated adoption of digital technologies in Malaysia as a result of Covid-19. Comparatively, export sales only grew 4.7% in 2021, representing a minor drop from the average growth rate of 5.9% over the past three years. This could be due to the delay in borders re-opening post pandemic.
- 14,656 jobs were created, out of which 87% were filled by Malaysians. This is an increase of 10% from 2020 to 2021, which could be a result of the Government's efforts to spur local hiring.

The digital economy continues to show strong momentum in 2022 with RM42 billion and RM4.76 billion worth of new foreign direct digital investments and domestic direct digital investments approved respectively.

With the proliferation of broadband internet to most primary and secondary cities, and with 88% of the population having access to the internet, it is timely to look beyond a physically-confined zone.

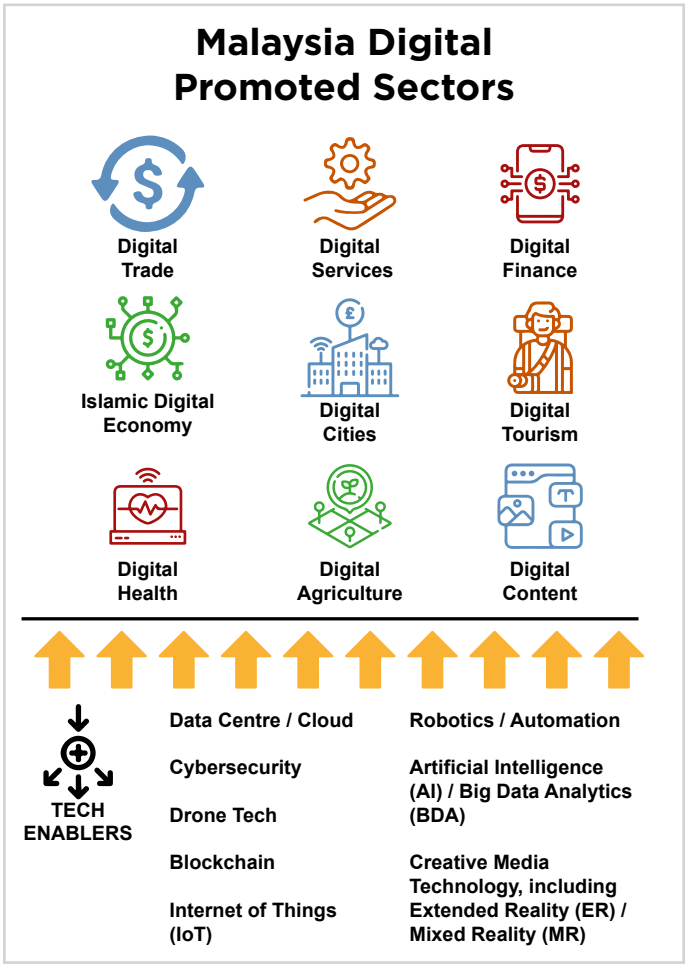
At the same time, the Covid-19 pandemic has accelerated the adoption of digital technologies and has proven that digital solutions are critical for social and economic resilience as well as sustainability across the nation.

With this in mind, the MD initiative was launched in July 2022 by the Malaysian Government via MDEC. Malaysia Digital is the enhanced and expanded version of the MSC initiative.

Through this initiative, Malaysia has reinforced its vision to be the preferred hub for world-class digital businesses and talents while MDEC's mission is to drive the digital economy through high impact catalytic initiatives, strategically-sustainable investments and inclusive policies.

MD Status is designed to be more inclusive, with a lower threshold for securing MD Status and removal of the requirement to be located at designated cybercities or cybercentres.

In addition, the MD initiative also aims to accelerate the growth of the digital economy primarily in nine promoted sectors, powered by digital tech enablers in building a more inclusive digital tech ecosystem.



Via this approach, MDEC intends to expedite the digital transformation of targeted economic sectors. Over the years, MDEC has been working closely with like-minded agencies and corporations to develop a thriving digital trade and digital content ecosystem.

For example, MDEC is the coordinating agency for the National E-Commerce Strategic Roadmap (NESR) Taskforce, which involves more than 12 agencies working together to drive the growth of the e-commerce ecosystem.

This coordinated approach has led to healthy growth of the e-commerce contribution to the GDP, growing from 8% in 2018 to 13% in 2021.

Similarly, the digital content sector has also seen significant growth. For example, the game market size grew from US$ 786 million in 2020 to US$ 968 million in 2021.

The Malaysian digital content industry has also become a significant regional player with more than 80 IPs created by local game and animation companies.

Creative Ecosystem Champions

>100
Malaysian Game Studios

RM1B
Annual Exports

>120
Markets & Territories

>80
Malaysian IPs in International Markets

PEMANGKIN programmes are high impact programmes, powered by digital technologies, and designed to solve national or global level problems.

MDEC now intends to bring the same energy and momentum to other key economic sectors via high impact catalytic programmes, or PEMANGKIN.

MDEC is facilitating these initiatives via capability and capacity development programmes, advocating policies that accelerate digital transformation and facilitating the Bill of Guarantees as offered to MD companies.

Since the launch of the MD initiative, MDEC has announced two PEMANGKIN initiatives. The first is the DE Rantau initiative which aims to establish Malaysia as a preferred hub for digital nomads.

As of December 2022, 506 DE Rantau Hubs have been established in Langkawi, Penang, and Kuala Lumpur and will be expanded to other parts of the country in the coming months.

This initiative will benefit not just digital nomads but also help to spur the growth of services required by digital nomads such as hospitality, F&B, and sharing economy players.

From the tech industry perspective, it will provide access to an additional talent source by tapping on the expertise of digital nomads.

Priced at MYR1,000 per applicant and half this amount for each dependent the DE Rantau nomad pass is one of the most affordable digital nomad visas.

The second PEMANGKIN initiative is Digital Trade, which intends to advocate the harmonisation of standards and regulatory approaches to facilitate trade within and across borders.

The National e-invoicing initiative is one of digital trade's key efforts to improve the efficiency and governance of Malaysian businesses.

In the coming year, more PEMANGKIN programmes will be announced to accelerate the transformation of the rest of the promoted sectors.

With the establishment of the MD initiative, the foundation for the country's digital economy growth has been set. The success of the initiative will be highly dependent on having conducive policies and strategic collaboration with relevant public and private sector organisations.

These will be areas that MDEC will be focusing on in the coming years.

BUSINESS

METAVERSE

Knocking on the Door **of the Metaverse**

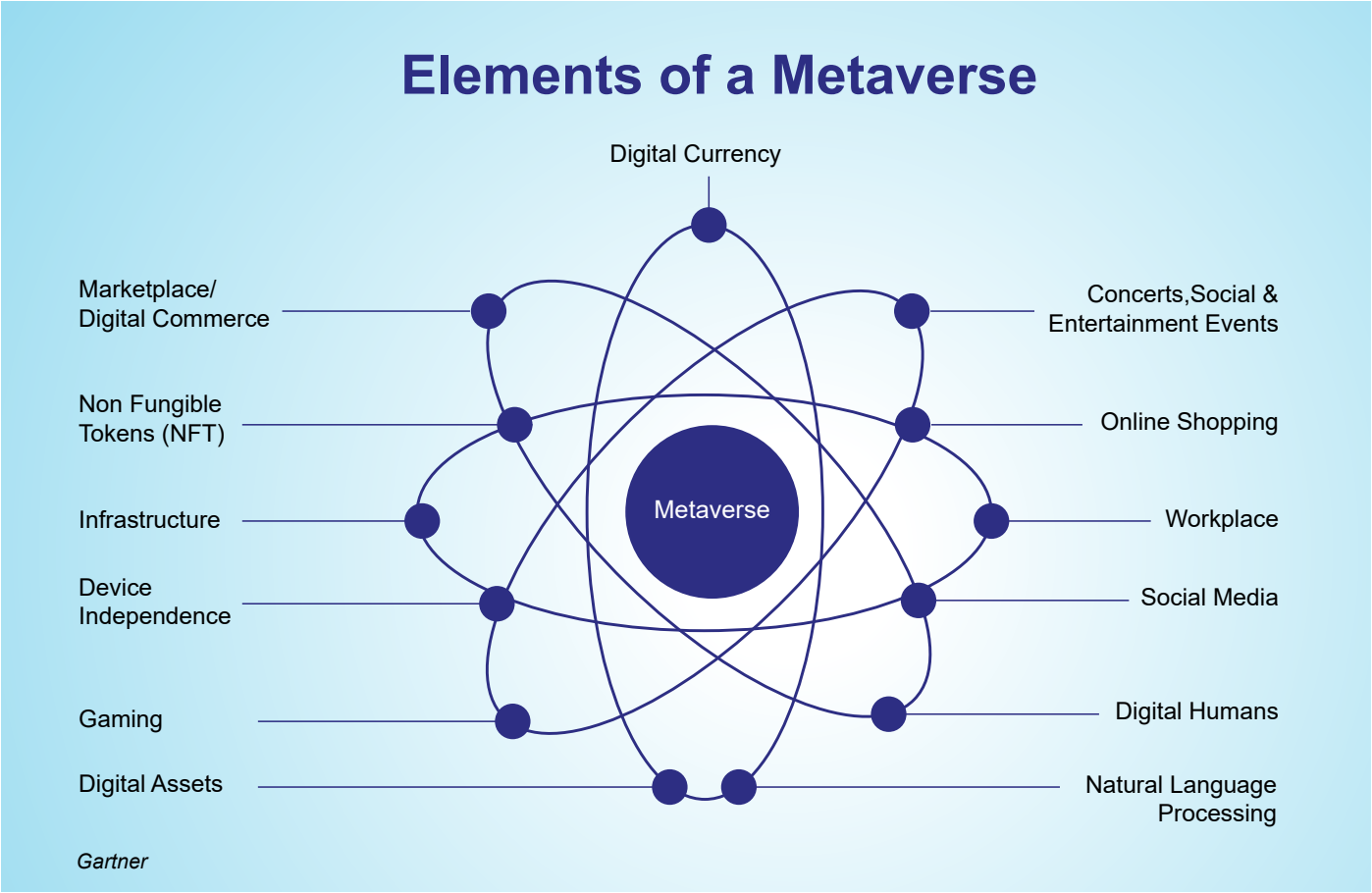
By Radlin Ramsah, Juleza Pulai Poh & Jasni Zain
Digital Content Development, MDEC

The buzzwords trending on the recently have been Web3, metaverse, blockchain, decentralisation and artificial intelligence (AI). It is therefore not surprising that many companies, both tech and non-tech, are now betting big on the metaverse.

A study conducted by Gartner Inc. reported that a quarter of the global population is expected to spend at least an hour per day immersed in a metaverse for work, shopping, education, social media or entertainment by 2026.

This signifies that metaverse-related business models and technologies provide the platforms for the next level of interactions in the virtual and physical worlds. In technical terms, a metaverse is a virtual shared space formed by the convergence of virtually-enhanced physical and digital realities.

In effect, the metaverse will be the next evolution of the internet, which started as individual forums and bulletin boards. These destinations are essentially locations in a virtual shared space and are not device-dependent or owned by a single vendor. Instead, it has the potential to be independent virtual economies enabled by digital currencies and non-fungible tokens (NFTs).



Metaverse in Web3

The term metaverse refers to interconnected virtual worlds that allow for real-time interactions and experiences between people who are physically separated.

The metaverse is the next stage of the development, manifesting itself in a variety of ways such as gaming, online forums and professional settings where participants interact with a digital replica or avatar of themselves.

These avatars are used by people to communicate with one another and to grow the metaverse community. Digital currency, or NFTs, are used in the metaverse to purchase a variety of products, including clothing, shielding and weapons for video games. Users can traverse the metaverse by using a virtual reality headset and controllers.

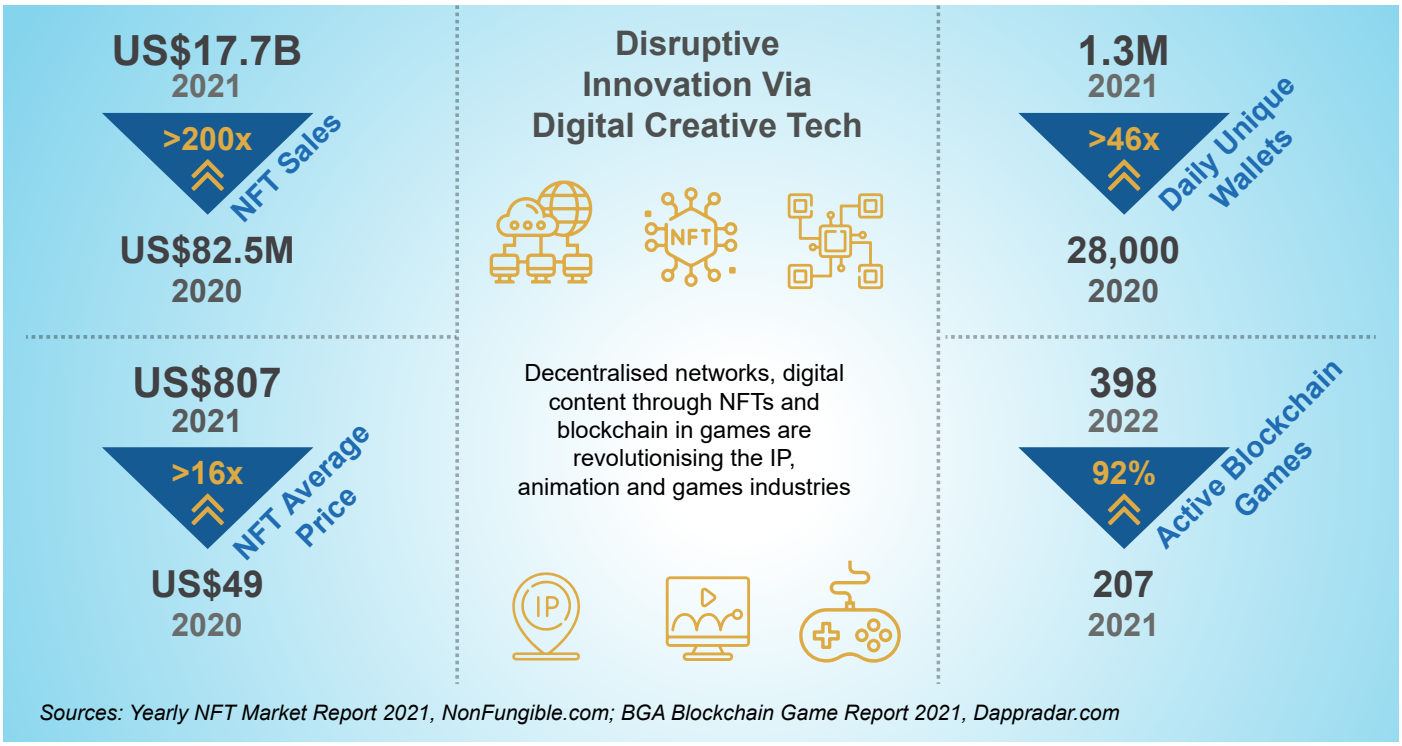
At this point in time, however, the metaverse is a series of disconnected metaverses, similar to the early of *darpa.net, aol.net,* or *bit.net,* which eventually came together to form the as we know it today.

At the moment, each metaverse world has its own access, avatars, interactions, and currency. Fortnite, Roblox, Decentraland and Sandbox are the most well-known metaverses today.

The biggest phenomenon in the metaverse now is driven by the recent ability to fully own virtual objects, experiences or land.

Decentraland and Sandbox, for example, are both metaverse worlds that sell virtual land to businesses that build virtual buildings.

This is not a novel concept. During the dot.com boom of Web 1.0, purchasing domain names enabled people to profit. This concept of ownership is similar in the Web3-powered metaverse.



The Metaverse Impact

As the metaverse broadens its scope beyond entertainment, many other businesses will follow suit. Nike, Gucci, Ralph Lauren, and Givenchy are just a few brands that have already made their virtual worlds accessible on Roblox.

> Audiences in the 15-30 year age group are no longer on social media or the internet because they are in the metaverse - Kristi Woolsey from BCG Platinion.

Nikeland alone has received close to seven million visitors. In 2020, a record 12.3 million viewers tuned in to hip-hop artist Travis Scott's concert on Nikeland, all of whom danced along with him as he performed his classics.

Woolsey also asserted that some activities that are not conceivable on Zoom or in real life are achievable in virtual and augmented realities. Users can travel together, write on paper, point to anything to explain and communicate with hand gestures in the metaverse.

A proper metaverse universe creates possibilities beyond imagination, such as collaborating with a surgeon or creating a clay model of an innovative car design by removing the barrier of distance.

Even Malaysian studios have begun to turn their attention to the metaverse. In Roblox and Sandbox, Monsta recently launched its own Monsta IP world, which would facilitate the expansion of unique animation IPs like BoBoiBoy and Mechamato. Additionally, they are working with PUBG Mobile, a game with metaverse potential.

Magnus Games Studio, another Malaysian business, also debuted their metaverse in 2021, allowing people to tour the globe with a smartphone.

To date, they have been successful in luring a variety of businesses, in particular, educational institutions like SEGI College. SoCrwd enables businesses to create a distinctive online area that customers can visit rather than merely sifting through uninteresting websites.

Apart from that, SoCrwd users can connect with other users online and travel to fascinating places around the world. Disney has made future plans to integrate blockchain technology and the metaverse into its entertainment industry, theme parks and consumer products after realising the significance of the metaverse in advancing its story-telling.

In order to provide customised entertainment experiences, Bob Chapek, CEO of Walt Disney Co., claimed his business would take advantage of metaverse capabilities via park visits and consumer streaming behaviours.

Considerations for Joining the Metaverse

Woolsey advised businesses to carefully consider their motivations before venturing into the metaverse. Companies must develop experiences that are both engaging and consistent with their brand.

Individuals should be cautious when engaging in the metaverse simply for its own sake because thorough research and exploration are imperative for the development of a migration and adoption plan.

McKinsey forecasted that the value of the metaverse would reach US$ 5 trillion by 2030, noting that entertainment will be a major factor in many of these initial and fundamental encounters.

This has sent a signal that capital is now flowing into Web3. Studios ought to lay out that strategy immediately and be prepared. The studios should concentrate their efforts in the metaverse to capitalise on profit-making opportunities.

Malaysia Digital Economy Corporation (MDEC) identifies the metaverse as a realm of opportunities due to the amount of investment and capital that continues to pour into the space. This is a strong indication of the enthusiasm of investors, developers and anticipated market demand.

Leading attributes of the metaverse, such the Web3, have boosted technical development, including the ownership of digital assets, and pushed the boundaries for engagement, entertaintment, and experiences that closely matches MDEC's aspirations.

As the metaverse and its supporting sectors grow, MDEC is partnering with extended reality (XR) communities, game developers, animation services and IP producers to identify potential collaborations that will boost Malaysia's competitiveness in digital content.

Southeast Asia: Frontier of Games in Blockchain

73%
Of SEA are unbanked

Opportunity for greater financial inclusion
Digital adoption for unbanked to enter financial system

4
SEA countries among top 10 using metamask*

Early community adoption shows regional readiness

**Digital currency wallet for tokens and NFTs*

<14%
Only 300 million cryptocurrency users out of 2.2 billion smartphone gamers

Providing a use-case for web3 and blockchain
Games offer platform for mass adoption of blockchain to mass audience

Source:
Digital Growth And Financial Inclusion in Southeast Asia, CSIS Blogpost, 2021;
Metamask Hit 10M Monthly User Mark in July with Asia Leading Growth, Coindesk, 2021;
#TECH: Earn while playing blockchain-based games, NST, 2022

Web3: Enabling Component of the Metaverse

Web3 is the next iteration of the internet with enhanced capabilities that permit users to read-write-own or read-write-execute.

It is at this point where the term 'decentralisation' comes into effect because Web3 is designed to empower all users not just in developing, but also in executing and owning digital assets.

Centralisation has helped to bring on board and attract many people to the World Wide Web, creating a stable and robust infrastructure for this browser-based code editor.

However, it has resulted in monopolisation by many centralised platforms and entities, creating effective walled gardens and reducing competitive business practices which impacts long-term innovation.

Web3 is designed to counter this monopoly via the decentralised model by which it is characterised and built. In other words, Web3 empowers its owners to eradicate the monopolisation by such corporations.

Importance of Web3

Web3 offers various technological advantages, the most significant of which is in providing users with unprecedented control over their digital assets. This implies that users are unlikely to lose their in-game items, music and movie collections and others like before on Web2.0.

In comparison to some Web2.0 platforms that can erase creator and user accounts (resulting in the loss of users' identity, investment and contributions), Web3 offers direct ownership through NFTs, allowing users to maintain ownership and sell on open marketplaces.

Another significant aspect of Web3 is that user data is stored on the blockchain and is essentially immutable. Under circumstances where users decide to leave a platform, they can transfer their ownership to another platform.

Benefits To Users

- Direct ownership through NFTs
- User data is immutable and stored on the blockchain
- Encryption for safer data accessibility

This applies to everything from social media to gaming to video blogs. Previously, databases were managed by a single entity, which had autonomy over the system.

Blockchains, on the other hand, allow anyone to create systems that can be audited by anyone else because they are publicly available and allow others to understand the system they are interfacing with and to develop trust with users who utilise their applications.

Encryption is an additional aspect of Web3. It ensures that only the intended parties can access the data. While the usage of encryption is to safeguard online data, users can also employ it to ensure data can be both publicly-transparent and privately-owned.

Encryption, for instance, will protect personal information while transferring the ownership and assets on the blockchain.

Defining Web3

The Ethereum Foundation [https://ethereum.org/en/web3/] defines Web3 as having the following core principles:

Decentralisation:
Ownership of Web3 gets distributed among its builders and users

Permissionless:
Equal participation for everyone in Web3

Trustless:
Operates using incentives and economic mechanisms

Web3 to Benefit Digital Content Creators

There are three billion gamers who spend US$ 200 billion a year on consoles and in-app purchases. Gen Zs today are spending a lot more time gaming with their friends at an average of eight hours a week.

Due to expensive hardware and accessories, gaming can be a costly hobby. The other drawback of this pastime is that once a game is completed, there is no longer a need to keep any assets or avatars purchased earlier.

Gaming under Web3 enables users to play, earn and fully own all of their in-game assets even if the game platform goes obsolete. The assets are still available for the users to utilise across other games.

Moreover, other creators are also able to participate in games via the metaverse. For example, Fortnite has been inviting other creators to participate in the hugely popular First Person Shooter (FPS) game by way of in-game concerts, character or weapon skins and emotes.

The Web3 ecosystem allows for collaboration, which provides a complete entertainment experience by allowing creators to expand their projects to include other games and music.

In 2019, American DJ Marshmello hosted a virtual concert on Fortnite. The game successfully attracted over 10 million fans who were able to 'dance' next to the deejay and they could also create their own gaming avatars. This demonstrates that creators can generate digital NFTs which their fans can purchase as digital collections.

In the movie ecosystem, Gala, a Web3 entertainment platform, announced that it is trying to create a win-win-win economy that would overcome several challenges in the film and TV industries.

They aim to ensure that creations and works can be discovered easily and provide opportunities for them to monetise their hard work. Furthermore, creators can reward their supporters through content streaming rather than by paying.

Creators can expect their intellectual property (IP) is protected with the highest integrity under a decentralised model. Gala expressed its intention to work in a Web3 ecosystem to provide a comprehensive entertainment experience, implying that Web3 artists can expand their projects to include other games and music.

3 Benefits to Digital Content Creators

Creators can jointly participate in games via the metaverse

Creators can expand their projects through collaboration

Creators' IP is protected with highest integrity


SICK
Drinks in Queue
2 minutes
Current Waiting Time
Drinks

DIGITAL TALENT

Reskilling Talents for 4IR

By Dayana Safian,
Digital Workforce, MDEC

The boundaries between the physical, digital, and biological domains are becoming hazier because of the Fourth Industrial Revolution (4IR) and this may result in increased inequality due to its disruptive effects on labour markets.

Automation's replacement of labour across the entire economy could widen the gap between returns on capital and returns on labour. According to McKinsey & Company, automation in Malaysia might replace up to 25% of hours worked or 4.5 million comparable workers by 2030.

To mitigate the impact of automation on the labour market, the Government needs to prepare measures to ensure the public's well-being. At the same time, Malaysians must be prepared for this scenario as 4IR jobs are becoming essential in the digital age.

Furthermore, the World Economic Forum (WEF) anticipates that by 2025, 97 million jobs will be created globally that are better adapted to the new division of labour between humans, robots and algorithms.

At the global level, in-demand positions include data analysts, scientists, software application developers and digital transformation specialists.

Process automation specialists, information security analysts and internet of things (IoT) specialists are also examples of occupations whose demand is expanding across companies in tandem with the infusion of automation coupled with heightening concerns over cybersecurity.

Unique positions are starting to emerge inside industries. These include e-commerce and social media experts in the consumer sector, fintech engineers in financial services as well as remote sensing scientists and technicians in the mining and metals industries who require an understanding of data science.

These newfangled professions amid the adoption of new technologies and rising consumer demand reflect the increased need for positions at the forefront of the data and artificial intelligence (AI) economies as well as cloud computing.

Digital Positions in Demand

300%

Surge in demand for digital jobs since 2021

Hot Jobs

- Data Science
- Software Development
- Digital Transformation
- Process Automation
- Information Security
- Internet of Things

Unique Jobs

- E-commerce & Social Media
- Fintech
- Remote Sensing

Source: MDEC research on digital job vacancies from 5 online job portals; June 2020 - April 2021.

Digitalisation Accelerated by the Pandemic

The nation's digital economy is expected to contribute between 25–30% of gross domestic product (GDP) by 2025, according to the National Tech Association of Malaysia (PIKOM).

Against this backdrop, the Ministry of Science, Technology and Innovation reportedly predicted the creation of more than 500,000 jobs within the same period.

This development is likely to have been hastened by the Covid-19 pandemic, which accelerated digitalisation of internal processes including customer interaction and supply chain management for businesses by three to four years according to some estimates.

In the wake of the pandemic, employment agency JobStreet by SEEK recorded almost the same number of job postings (99,583) in the first half of 2022 against the whole of 2021 (106,275), as reported in PIKOM's Digital Job Market Outlook 2022.

An earlier study carried out by MDEC, which tracked vacancies on five popular recruitment platforms, showed that digital job vacancies in Malaysia almost tripled from June 2020 to April 2021.

Given this situation, it is imperative for companies to subscribe to digital solutions to make remote or flexible working arrangements possible to ensure business sustainability and continuity.

Besides working remotely, another recruitment strategy being adopted is contingent workforce, in which companies outsource their surplus employees to agencies to be temporarily hired by other companies in need of manpower.

Continuing Gaps in Digital Skills

A shortage of skills among talents makes it difficult for multinational corporations, start-ups and other companies to capitalise on the growth potential of new technology adoption. According to the Future of Jobs Survey 2020 report conducted by WEF, employers typically provide 62% of their workers with access to retraining and upskilling to address for the lack of qualified candidates.

It was also noted in the survey that, due to a lack of interest among employees, only 42% have seized employer-sponsored reskilling and upskilling opportunities.

Business executives frequently cite problems with finding data scientists, AI and machine learning experts as well as software and application developers. While an exact fit is not necessary to change jobs, an individual's long-term productivity is ultimately based on a mastery of core competencies.

Learning digital skills such as data analysis, computer science and information technology are essential to future employment in engineering, cloud computing, analytics and AI. It is also crucial for the current workforce to diversify their skills to remain relevant in their respective industries.

Some areas that Malaysia could focus on include:

- Increasing the use of digital consumer tools (such as e-commerce and digital payments);
- Attracting, training and retaining talent in the field;
- Fostering digital start-ups;
- Offering high-speed fixed and mobile broadband access; and
- Coordinating innovation between academic institutions, private sector companies and digital authorities.

Addressing and Remedying Shortfalls

To develop agile and skilled digital talents, the Ministry of Economy (formerly EPU) of the Prime Minister's Department developed a Malaysia Digital Economy Blueprint that outlined a host of strategies.

The blueprint incorporated digital skills into primary and secondary education, changing the emphasis of vocational and tertiary education from job-specific skills to competencies and adaptability, reskilling the current workforce with the digital skills required to stay relevant and ensuring gig workers are protected and have access to the necessary training.

The Government has been steadfast in ensuring that people are upskilled, and most crucially, reskilled for new job scopes, especially among those retrenched during the pandemic. The Ministry of Human Resources (MoHR) for one, has been particularly active in this regard. Numerous agencies under MoHR have short to long-term initiatives catered across the entire talent spectrum to address digital talent shortfall issues in Malaysia.

For example, HRD Corporation (HRDC) established Upskill Malaysia in December 2021 as a single-window digital platform offering complete information on all training and skills development programmes provided by the Government through its ministries and agencies. The platform aims to help Malaysians find relevant training programmes to advance their knowledge and skills while increasing their marketability.

In order to ensure that retrenched talents remain relevant in the workforce, the Social Security Organisation (SOCSO) provides funding for courses pursued by Employment Insurance Scheme (EIS) members who are receiving unemployment benefits.

Talentcorp is another agency under MoHR that offers a wide range of initiatives tailored for professionals, students, employers, industry and academia partners to drive Malaysia's talent strategy towards becoming a dynamic talent hub. Some of the more notable programmes currently offered include the following:

Career Comeback Programme

A programme that provides an attractive income tax exemption of up to 12 months to eligible women to encourage women to return to the workforce.

Residence Pass-Talent (RP-T)

A 10-year renewable visa offered to high-skilled expatriate talents seeking to contribute to Malaysia's economy on a longer-term basis.

National Structured Internship Programme (MySIP)

A structured internship experience with MySIP-endorsed companies where the intern will receive a minimum allowance of RM500 in addition to upskilling training opportunities during the internship.

Young Employable Students (YES)

A framework of action designed to increase graduate employability skills in collaboration with strategic industry and academic collaborators.

Flexible Work Arrangements (FWA) Income Tax Deduction

A scheme for companies to claim tax deduction twice up to a maximum of RM500,000 each year, up to three consecutive years of assessment for the implementation of flexible work arrangements in their business operations.

Talent Procertification

A double tax incentive scheme to enable employees to obtain various industry-recognised professional certifications including ACCA, CFA, Oracle, SAP, MIHIM and more.

In addition to the above, TalentCorp continues to develop the Critical Occupations List (COL) annually that essentially highlights the set of occupations that are in demand across 18 economic sectors in Malaysia. This provides key information to all stakeholders and policy makers, especially in the aspects of immigration, education and upskilling opportunities.

Talent Development by MDEC

In the same vein, MDEC has programmes to sustain career growth and at the same time drive industry development. The #MyDigitalWorkforce Movement is an initiative to rally action to reskill the workforce for the digital economy.

The first programme, which is a Digital Skills Training Directory, is a catalogue of courses that have been reviewed and endorsed by a panel of digital industry experts to guide Malaysians in selecting courses that meet their career needs for digital economy jobs.

Another programme is MyDigitalWorkforce Work in Tech (MYWiT), which incentivises employers to hire Malaysians for digital tech and services jobs through salary and training subsidies.

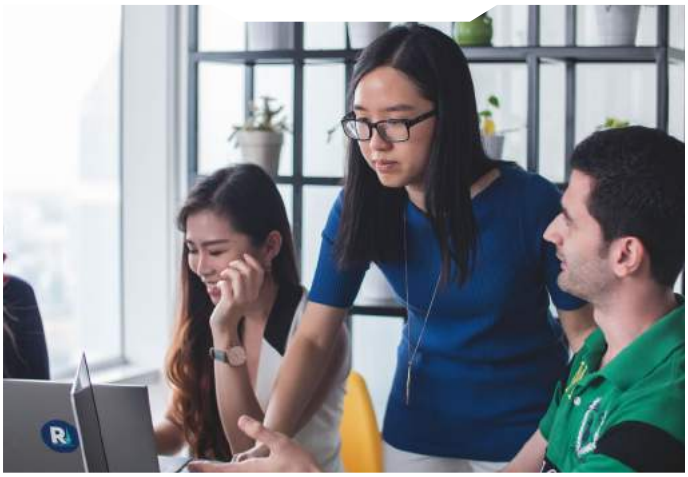
The third programme is Digital Up, which grants training incentives of up to RM1,000 per person to eligible workers to reskill or upskill in digital tech courses listed in the Digital Skills Training Directory.

Lastly, Let's Learn Digital is a campaign to encourage Malaysians to upgrade their digital skills via free training in collaboration with industry partners such as Microsoft, Oracle, Meta, SAS and training providers under the Digital Skills Training Directory. It is envisaged that all these programmes can future-proof Malaysia's tech talent.

An old adage states that it takes a village to raise a child. Likewise, it would definitely take more than one agency to develop and nurture future-ready digital talents for Malaysia. All government agencies must work in synergy to align their initiatives and resources with effective support from the industry players as well as academia to actualise the effort.

MDEC's Programmes for Digital Careers

#MyDigital Workforce	MYWiT MyDigitalWorkforce Work in Tech	Digital Up	Let's Learn Digital
Digital Skills Training Directory: Guide on ideal courses for digital economy jobs	Salary and training subsidies for employers to hire talents for digital jobs	Training incentive of up to RM1,000 per worker to reskill / upskill via digital technology courses	Campaign to encourage Malaysians to upskill and reskill via training with industry partners



DRONETECH

Flying High Through The **Digital Economy Airways With DroneTech**

By Navin Sinnathamby,
Digital Agriculture and Drone Technology Ecosystem, MDEC

Once known to the world as a captivating 'Tech Toy' mostly for hobbyists, drones have since evolved to deliver more significant roles – from search and rescue, and traffic monitoring, to delivering crucial supplies to underserved communities, especially across the remote areas that are difficult to access.

Being 'drone-ready' has been more of a paradigm shift as the industry now across various sectors are more receptive to adopt or utilise DroneTech in their operations towards positive outcomes, i.e. improving productivity or revenue, and reducing operational costs.

DroneTech is able to streamline operations across various sectors in diversified ways. Working with drones allows for minimal to zero monitoring or control within a specified period of time. More importantly, we are also able to ensure data driven operations can be carried out accurately all year long without requiring any shifts.

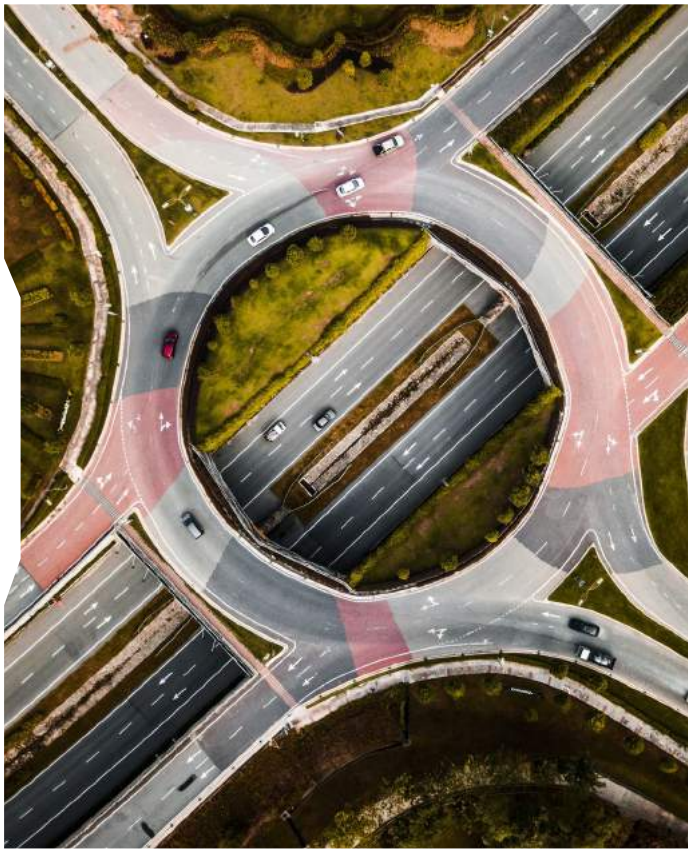
In 2021, the Malaysia Aerospace Industry Association ranked Malaysia as number 3 in the Drone Readiness Index. In addition, Malaysia is also proudly the number 1 ranked country in potential market size in DroneTech, forecasted at US$ 12.1 billion by 2030. The timing is certainly right for us to harness the impact of DroneTech in our country. The progressive integration of drones with emerging technologies such as Internet of Things (IoT), Big Data Analytics (BDA) and Artificial Intelligence (AI) has also created new avenues of applications and opportunities across various key economic sectors, i.e. agriculture, healthcare, transportation, manufacturing, etc.

Examples of Drone Applications

Infrastructure	Investment Monitoring	Maintenance	Asset Inventory
Transport	Parcel Delivery	Marine Spare Parts	Medical Logistics
Agriculture	Crop Supervision	Soil & Field Analysis	Health Assesment

Harvesting Higher Returns in Agriculture

MDEC and the Ministry of Agriculture and Food Security (KPKM) conducted a Digital AgTech pilot project in the Selangor Fruit Valley (SFV) in Sep 2020 where drones were deployed to produce increased crop yields for farmers and plantation operators. The project leveraged on 3D geomapping and data imaging to perform real-time soil and field analyses that is required for better control of irrigation and fertigation. Drones equipped with infrared lights were also deployed for pest or disease detection in plantations.



Malaysia has been sowing the seeds for DroneTech in recent years and is making steady progress. In 2021, a Drone Industry Insights (DII) report highlighted that Malaysia-based company Aerodyne emerged as the top remote-sensing company in the world.

DroneTech has enabled standard operations of various sectors to function with greater efficiencies and opportunities, aligned to the 12th Malaysia Plan deliverables and Sustainable Development Goals (SDG) goals under the 'Accelerating Technology Adoption and Innovation' strategy.

The utilisation of drones in our country has significantly expanded from mapping, imaging, spraying, etc. to incorporating AI, data processing and analyzing, IoT sensors and even drone-to-drone networking capabilities.

A good example would be the 3D geomapping and data imaging function of drones across the agriculture sub-sectors effectively performing real-time soil and field analysis. This actually helped farmers to identify the optimised plantation productivity based on key parameters, including soil condition monitoring, control of irrigation and fertigation. Other than that, drones today are also equipped with near-infrared light which is effective in detecting pests and diseases in plantations. Without leveraging on drones, the traditional way of assessing plant health can be very time consuming.

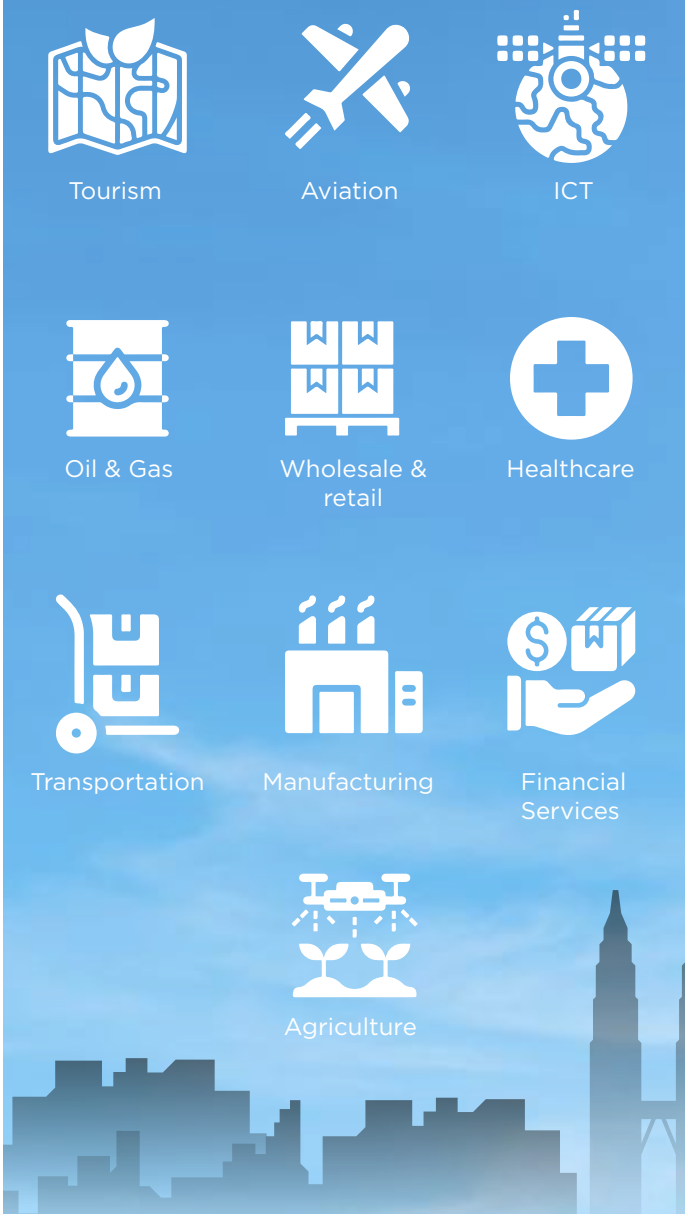
Farmers would actually need to perform manual inspections on the health of their plants stalk by stalk. This inefficient process with high dependency on labour will eventually affect the quality, productivity and even more critically, the income of the farmers.

The increasing number of DroneTech projects deployed across Malaysia are testament to effective public-private partnerships which resulted in encouraging outcomes including improvement in productivity, income, and reduction in operational costs.

Now, more than ever, DroneTech is becoming essential in addressing the food security agenda. This is done through improving overall food productivity and improving the livelihood of farmers across the nation through sector digitalisation focused on inclusivity, sustainability and scalability.

Driving Adoption Across Economic Sectors

Cross collaboration between MDEC, SME Corp and key ecosystem partners on DroneTech Digitalisation Initiative (DDI) to drive drone technology adoption across 10 key economic sectors, in alignment to the aspirations of Majlis Ekonomi Digital dan Revolusi Perindustrian Keempat Negara (MED4IRN)



With drones being key enablers of change and the emergence of DroneTech rising across diversified economic sectors, various Government agencies, key stakeholders and ecosystem partners are collaborating with one another to drive the country's drone industry forward.

Use Cases

Flying to the Aid of Disaster Victims

Drones have been extremely useful during disasters especially for the delivery of emergency supplies to remote areas that are rendered inaccessible by floods or natural disasters. In December 2021, when massive floods hit parts of the country, the Ministry of Science, Technology and Innovation (MOSTI), Malaysian Civil Aviation Authority (CAAM), National Security Council (MKN) and the National Disaster Relief Management Agency (NADMA) collaborated to utillise drones to deliver medicine and food supplies to flood victims in areas like Kuala Langat, Selangor.

As the floods displaced thousands from their homes and disrupted access to medical facilities, drones effectively came to the aid of many affected communities by delivering the resources required during those challenging times.

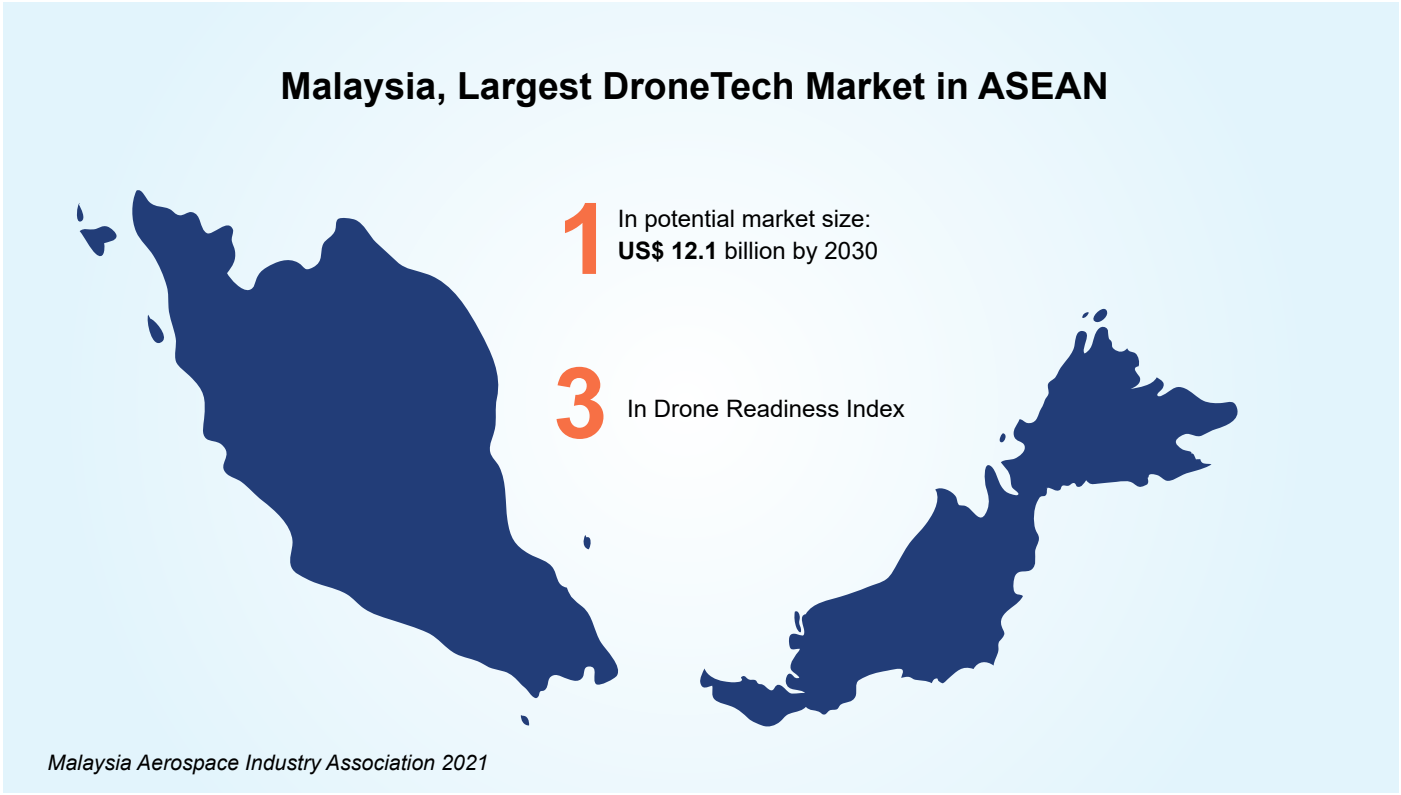
Joining the Battle Against Covid-19

Over the past two years, drones have been playing a crucial role in mitigating the pandemic situation in Malaysia. Movement control and sanitisation were among the most prominent features of the Covid-19 pandemic. The Ministry of Health (MOH) used drones in collaboration with local pharmaceutical company Pharmaniaga to spray large areas with disinfectants and also to transport Covid-19 vaccines as well as other vaccines and medical supplies to remote areas that are difficult to access to ensure that all the civilians are adequately protected.

Drones were also deployed by the National Security Council and Royal Malaysia Police (PDRM) to regulate citizen movement for public safety and security surveillance. The drones would perform aerial mapping and tracking of populous areas with large concentrations of people towards enforcing social distancing policies during the lockdown period.

Monitoring Trains for Maintenance

Drones have also been supporting the transportation sector. Under the Drone-as-a-Service (DaaS) model, the national railway operator Keretapi Tanah Melayu Berhad (KTMB) flew drones to assess maintenance requirements of its freight cars, particularly when movement was restricted during the Covid-19 pandemic. This significantly reduced the company's manpower requirements by 50% as well as the overall operational costs.



For example, MDEC's MyDroneTech initiative aims to increase the adoption of DroneTech across Malaysia. It catalyses the development of a vibrant ecosystem for sustainability and scalability, collaboratively focusing on the growth of Malaysia's DroneTech industry and high potential drone companies.

This is done by reviewing, validating and scaling its 4IR implementations towards developing more global champions and improving Malaysia's ranking in the Drone Readiness Index on the global stage. Last but not least, the initiative also looks forward to advocate for supportive policies, and upskilling and reskilling digital talents in the space of DT3 (drone technology, data technology and digital transformation).

Since 2022, a DroneTech Digitalisation Initiative (DDI) called PRESTIGE was jointly formed by SME Corp, MDEC, ecosystem partners and agencies (MRANTI, National Technology and Innovation Sandbox (NTIS), Futurise, private sectors (eg. Iskandar), regulators (eg. CAAM) and industry partners to validate, sustain and scale DroneTech adoption across key economic sectors.

At present, over 10 impactful DroneTech projects across key economic sectors such as agriculture, healthcare and transportation are being piloted.

Progressive efforts are concertedly moved by key stakeholders and ecosystem partners to reduce barriers and restrictions as well as related policy interventions required for DroneTech deployment and adoption.

To reaffirm an inspirational quote "To go fast, go alone but to go far, go together", active collaborations across the DroneTech ecosystem are extremely crucial to deliver potential impact at scale towards boosting the national Digital Economy growth and reaffirming our pledge of being truly 'Malaysia Digital'.

Cybersecurity, Catalyst for a **Competitive Digital Economy**

By Victor Lo,
Digital Tech, MDEC

Cybersecurity has arguably been the most critical sector of the digital economy. As failure in cybersecurity can derail the objectives of the national digital economy blueprint, it is imperative for this issue to be addressed in a holistic manner via the Malaysia Cybersecurity strategy.

As the cyber threat landscape continues to evolve at breakneck speed, the rapid digitalisation of regional and global economies has compounded the situation. According to the WEF Global Risks Report 2022, cyber threats markedly increased during the Covid-19 pandemic. Cybersecurity failures are now the top technology risk, followed by digital inequality.

Business Critical Sector for Digital Economy

According to Bank Negara Malaysia's (BNM) Financial Sector Blueprint 2022-2026, advancement of technologies has raised expectations among consumers. For instance, financial customers not only expect services to be faster, simpler and frictionless, but also to come with better data privacy and security protection.

Digital business transformation enables more ecosystem-driven products, whether through a platform or a network of partnerships. This contributes to technology risks. Ecosystem boundaries are blurring, with new and more complex dependency on digital services in the financial sector and beyond.

The financial sector must embrace the transformation and manage the associated risks –especially those that may threaten system-wide stability, consumer outcomes and confidence in the financial sector. Strengthening cybersecurity readiness and responsiveness is one of the strategies to address these challenges.

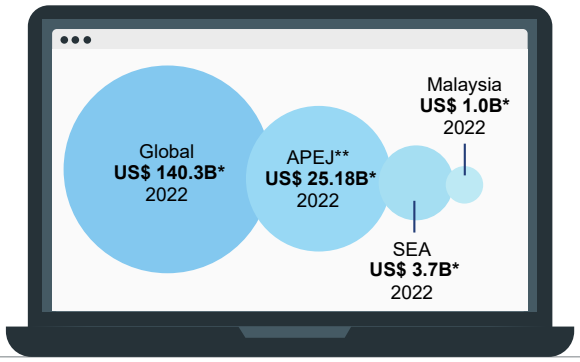
Market Opportunities

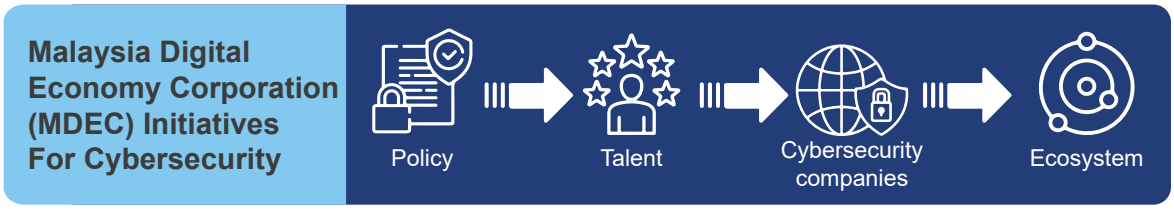
Globally, cybersecurity spending is expanding rapidly every year across all three segments: hardware, software, and services. Having already reached US$ 111.1 billion in 2019, spending will grow at a compound annual growth rate (CAGR) of 8.1% in the following five years, reaching an estimated US$ 140.3 billion in 2022 and US$ 164.0 billion in 2024.

Regionally, the Asia Pacific excluding Japan (APEJ) market is estimated to be worth US$ 25.1 billion and is on course to grow at a CAGR (2019 – 2024) of 15.0%. The Southeast Asia market, which is a significant growth area within the region, spent an estimated US$ 3.7 billion in 2022 and is growing at a projected CAGR (2019 – 2024) of 13.8%.

Pivotal to cybersecurity growth in Southeast Asia is Malaysia. The country's cybersecurity market, which has been experiencing steady growth within the last decade, is estimated to be worth US$ 1.0 billion.

Opportunities and Initiatives in Cybersecurity





** Extrapolated estimates, **APEJ – Asia Pacific excluding Japan*

Source: IDC Whitepaper on Digital Transformation: Cybersecurity enabling the Malaysia Digital Economy, 2022

Strategies to Develop the Cybersecurity Industry

Malaysia's spending growth on cybersecurity indicates it is a critical growth segment within the ICT sector. As such, MDEC has identified cybersecurity as a catalyst and a vital enabler of the country's overall digital economy.

MDEC is fully focused on championing Malaysia's digital economy by accelerating critical initiatives needed to develop the cybersecurity industry, via:

- Formulating relevant policies and leading coordination exercises
- Nurturing home-based players capable of increasing the digital economy's GDP contribution
- Creating a future-proof workforce to grow the digital economy ecosystems
- Enabling Malaysia to effectively develop its local cybersecurity ecosystem to unleash its full economic potential in the digital era

UNICORNS

Scaling Up Companies **to Become Unicorns**

By Jesse Chooi Tze Kheong,
Scaleup Development, MDEC

The ecosystem for tech startups in Malaysia has come a long way since the advent of the Multimedia Super Corridor (MSC) in 1996. Buoyed by early, but forward-looking flagship programmes such as Technopreneur Development and R&D Cluster, many tech entrepreneurs have come of age.

A few have grown beyond their wildest dreams via the support of venture capitalists (VC), with two of the most prominent examples being Grab and Carsome. In the case of the VCs, many have also matured and are already eyeing new opportunities as their risk appetites expand.

So, what have we learnt about tech investment and funding, and what is next?

Overview of Tech Investment and Funding

According to the Global Startup Ecosystem Report (GSER) 2022, early-stage funding in Asia increased by 69% and investment exit amounts by 312% (over US$ 50 million) in 2021 against the previous year.

In terms of ranking, Malaysia was among the top 15 economies for funding, with our ecosystem comparable to a fruit close to ripening.

Total ecosystem value from the second half of 2019 until 2021 was estimated at US$ 72 billion, which is much higher than the global average of US$ 28.6 billion during this period.

However, investment exit from Malaysia amounting to US$ 4.5 billion was much lower than the global average of US$ 11.3 billion. In addition, median seed funding rounds of US$ 215,000 for local startups also fell short of the global average (US$ 671,000).

Nevertheless, the startup ecosystem here appears to be maturing as the median series A rounds (second round of venture capital) of US$ 3.3 million was only US$ 1.4 million shy of the global average of US$ 4.7 million. Taken as a whole, total VC funding between 2017-2021 was US$ 6.6 billion, which was considerably higher than the global average of US$ 4.5 billion.

Benchmarking of Malaysia's Startup Ecosystem

15

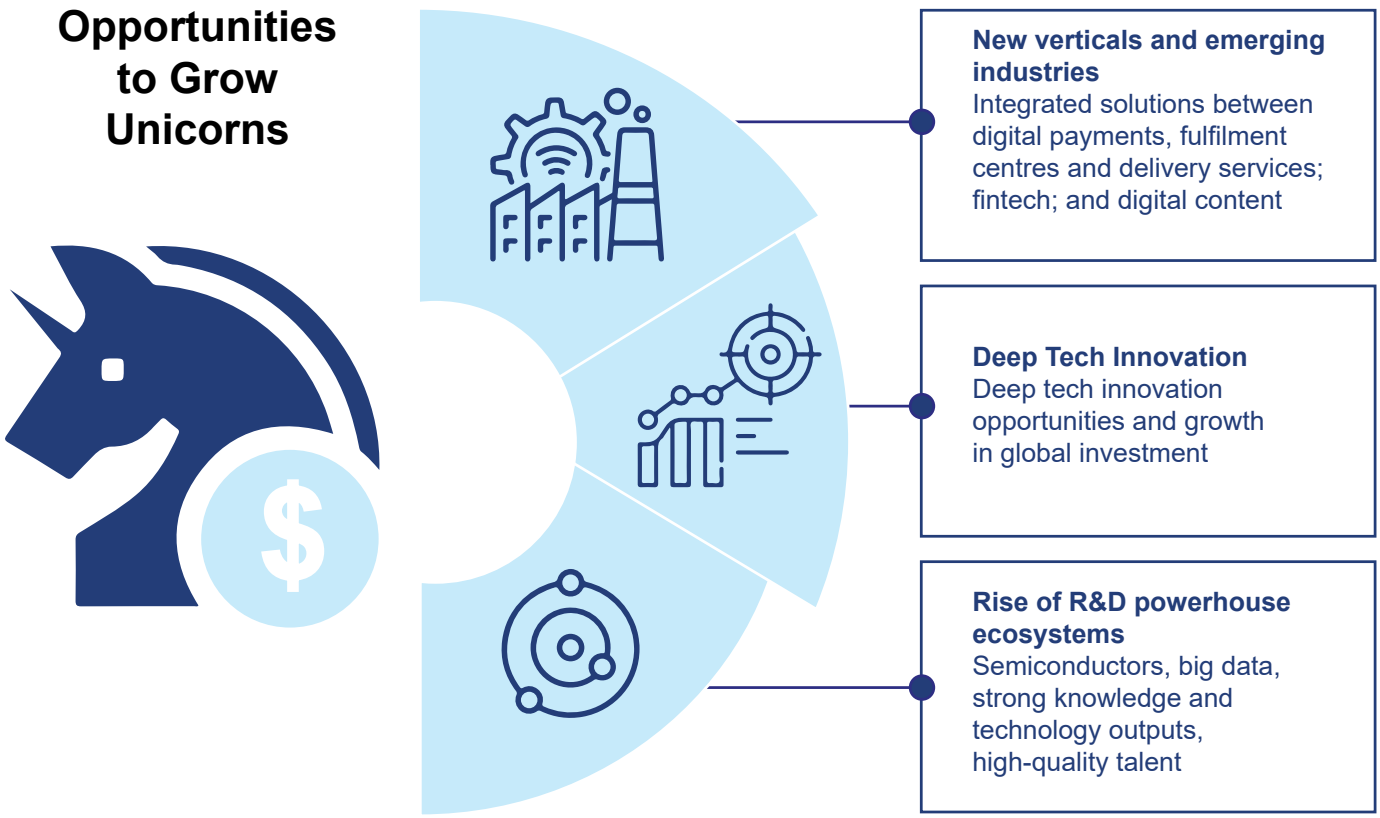
Ranking for funding in Asia

US$ 72.0b

Total ecosystem value: mid-2019–2021
Global average: US$ 28.6 billion

US$ 6.6b

VC funding 2017–2021
Global average: US$ 4.5 billion



Roadmap to Growing Unicorns

The Malaysia Startup Ecosystem Roadmap (MSER) 2021-2030 Report highlights three key trends that bring opportunities for the startup ecosystem to capitalise and capture future value pools towards growing unicorns.

They are new verticals and emerging industries in the region; opportunities for deep tech innovation and growth in global investment; and rise of R&D powerhouse ecosystems among leading ecosystems.

With these trends as a backdrop, more focus will be placed on providing greater access to early stage, pre-series funding in order to support the emergence of more startups since the odds of becoming a unicorn is less than 1%, even in the United States.

Furthermore, apart from natural attrition, there are also investment exits along the way. While the Government continues to strengthen the startup funding ecosystem via generous allocations for startups, venture funding from private sources continues to lag behind other economies.

Penjana Kapital was established by the Government in 2020 with a RM600 million investment fund to match venture capital from foreign investment institutions to support start-ups.

The fund, known as Dana Penjana Nasional, is now working with 16 entities across the funding continuum, according to its website. Notable Malaysian startups benefitting from this fund include Carsome, Food Market Hub and Naluri.

The startup ecosystem also stands to benefit from Dana Impak, a five-year RM6 billion fund by Khazanah Nasional to invest in catalytic sectors that can strengthen the country's resilience and tap new growth opportunities.

The focus areas include: a digital society and technology hub; quality health and education for all; decent work and social mobility; food and energy security; building climate resilience; and competing in global markets.

Table 1: Funding Programmes and Achievements

2021: **46** companies facilitated, **US$ 87.3** million raised

Alternative Funding	Partnership with 14 ECF/P2P to assist MSMEs for sustainability and growth
VC/Investor Matching	Investor matching initiatives via curation-based funding by MDEC with 50 VC partners
Venture Debt	Collaboration between Venture Debt Agency and funding companies to provide a revolving cash line for startups
M&A Programme	Knowledge sharing workshops on market scenarios, opportunities and processes
Competition/ Grant Programme	Pitching competition and grant programme for local startups
Founder's Grindstone	To enhance founders' capabilities and eligibility to investors and VCs via industry engagement

Funding Facilitation and Investor Relations

At the beginning of the Covid-19 outbreak, MDEC established a full-stack fundraising facilitation programme to enable businesses of all sizes to raise capital from local and regional ecosystems, as shown in Table 1.

By 2021, a total of 46 companies had successfully raised US$ 87.3 million through the six channels presented in the infographic. The amount represents a 10% increase over 2020.

Of this total, 16 companies had raised an average of US$ 4.8 million in Series A funding, which compares favourably to the global average of US$ 4.7 million. The other 30 companies concluded their seed rounds at an average of US$ 350,000 per company.

Fintech startups represented 70% of the companies, followed by proptech startups at 20% with the remainder in healthtech, agritech and edutech.

Progress in 2022 indicates a growing appetite for early stage as well as post-series A funding. Funds raised until the first half of 2022 have already surpassed the total for the whole of 2021. Fintech startups continue to be the favourite picks of investors.

Apart from this programme, MDEC is also working closely with stakeholders such as the Securities Commission and Bursa Malaysia to engage tech companies in addressing their concerns and challenges with respect to IPO (Initial Public Offering) opportunities in Malaysia.

In 2022, the main stakeholders together with EY held three roundtable discussions with more than 30 companies. Among the key challenges raised by the startups include valuation and access to funding and the balance between profitability and growth.


Transparent Bidding


I Got It From Carsome
Check Out My New Ride From Carsome!
CARSOME

Trend Setters

Carsome

Carsome became Malaysia's first unicorn when it raised US$ 290 million in a Series E funding round, increasing the company's valuation to US$ 1.7 billion in January 2022. Carsome intends to use the funds to expand its offerings and services in Malaysia, Indonesia and Thailand.

The following month, Carsome opened Southeast Asia's largest car refurbishment centre in Klang. Dubbed Carsome Certified Lab, the 185,000 square feet facility has the capacity to refurbish 2,000 cars per month.

Carsome is also the first in Malaysia to introduce Carsome Certified, a programme offering consumers a one-year warranty and five-day money-back guarantee on certified vehicles.

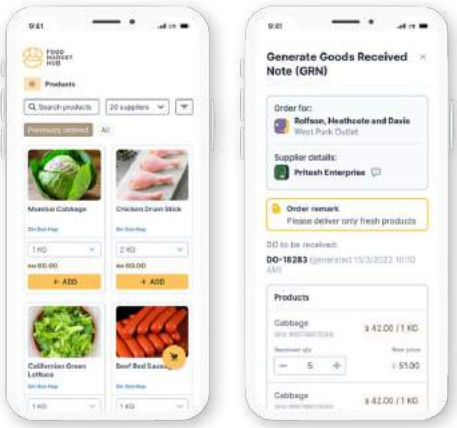
In line with this, it established the Carsome Academy to raise the level of professionalism among vehicle inspectors via 12-month training and certification programmes for vehicle inspection, automotive technician and automotive management.

The academy is a National Dual Training System (SLDN) training centre recognised by the Department of Skills Development Malaysia under the Ministry of Human Resources.

Food Market Hub

Food Market Hub offers a procurement management system and a B2B marketplace for the F&B industry, in particular for chain or franchise restaurants. Founded in 2017, the company's software-as-a-service (SaaS) solutions cover five core functionalities of ordering and receiving, digitalising documents, inventory management, business intelligence and open loop messaging.

Its services enable users to manage all their supply-related communication in a single app and vice versa. The goal is to help users streamline operations and reduce wastage, leading to better margins. Food Market Hub has established a market presence in Malaysia, Singapore, Thailand, Hong Kong and Taiwan.



RPG Commerce

Founded in 2017, RPG Commerce is a leading direct-to-consumer (DTC) social e-commerce company dedicated to building cutting-edge everyday essentials. RPG Commerce started out in Australia with a dropshipping model, and that led to subsequently building brands across different niches in e-commerce. When building a business on the, there is really no geographical limit on where RPG chooses to target, hence we focused on being global from the start.

RPG Commerce creates, launches and scales direct-to-consumer brands from the ground up, with all the brands in RPG wholly built and owned by the company. Through internet and supply chain innovations, it leverages on technology advancements to build and improve partner brands with its shared end infrastructure.

RPG constantly interacts with its customers via social media for reviews and feedback on what they're looking for and use those vital data for product improvements.

The RPG product team works tremendously hard in making iterations to each product item, over and over to make sure the company stays relevant. The process of launching new products have also evolved over time.

For example, RPG would simply launch 10 products in 10 colours at one time back then. Today, the company had adopted a more thoughtful approach to ensure that products are created with the consumer in mind.

RPG's vision is to build a new generation of consumer brands and be the world's most consumer-centric products company through internet and supply chain innovation. By doing so, every single household in the world to know and love our brands.

Having said that, RPG is constantly discovering brands to be acquired, to be a part of its growing portfolio. With an in-house portfolio ranging from innovative active wear to home and living products, RPG currently carries an in-house brand portfolio of 10+ brands, including Thousand Miles, Bottom Labs, Eubi, Montigo and Cosmic Cookware.

Agmo Studio

Agmo Studio's journey began in 2012 after securing a seed investment of RM300,000 through winning a start-up investment programme, namely 'Make the Pitch'. In the same year, the company launched its maiden consumer mobile application namely 'Masatu', a social networking and photo-sharing application based on a time capsule concept.

Since then, the company has built a solid reputation in assisting a wide range of customers in their digital transformation journey, having developed more than 100 mobile and web applications to date. The customers include large public-listed companies, multinational companies and SMEs across various industries and sectors, including healthcare, logistics, oil and gas, automotive, financial services and government agencies.

Agmo Studio is a strong advocate for emerging technologies such as blockchain for tamper-proof storage of data, data analytics to analyse users' behavioural data while using the mobile and web applications or extended reality to provide users with experience in real/physical and virtual combined environment etc, which are incorporated in the development of mobile and web applications when required.

Notable applications developed include DOC2US, a platform that connects its users with a variety of certified medical practitioners to obtain medical consultations and prescriptions and VOTE2U, a blockchain-based remote participation and voting application that enables public-listed companies in Malaysia to conduct general meetings virtually.

In 2017, Agmo Studio became part of the larger Agmo Group which was successfully listed on the ACE Market of Bursa Malaysia Securities Berhad in 2022, a mere decade after the journey started.

DE Rantau: Making Malaysia **as the Preferred Digital Nomad Destination**

By Arifah Sharifuddin,
Digital Industry Development Division, MDEC

The shift from traditional employment to remote work and digital nomadism has been driven by advances in technology and changes in the global economy. Remote work has been made possible by the widespread availability of high-speed and the development of cloud-based software and tools that allow for collaboration and communication from anywhere in the world.

Additionally, the rise of the gig economy and the flexibility it offers has also contributed to the growth of remote work and digital nomadism. Digital nomads are individuals who leverage technology to work remotely while also traveling and living in different locations.

Although digital nomadism began over 20 years ago, this lifestyle has grown in popularity in recent years. More people are seeking ways to combine work with their desire to travel and reduce their cost of living. Digital nomads typically work in fields such as technology, freelance writing, consulting and online marketing whilst having the freedom to work from anywhere with connection.

Globally, there are about 35 million digital nomads and this population is expected to grow 30-fold, to be 1 billion by 2023 *(source: Peter Lievels, DNXGlobal, 2015)*. This means that approximately a quarter of the global workforce in 2035 will be self-employed and providing services remotely from anywhere they choose to be.

Furthermore, a study in 2021 by MBO Partners, which is a platform for independent workforce management, has found that the remote workforce in America is increasing by over 200% between 2005 and 2019. This growth is accelerated by the Covid-19 pandemic, as traditional businesses struggled and movement restrictions encouraged a work-from-home and remote working culture.

Destination wise, Southeast Asia has been recognised as the most popular destination for digital nomads, aside from selected cities in the Latin Americas and Europe. Diving deeper into survey findings on popular digital nomad locations, Malaysia or rather Kuala Lumpur is ranked at best in the top 20 globally.

Malaysia has a lot to offer such as a cost-effective yet high-quality of life, a rich cultural heritage and a strong digital ecosystem and community which MDEC has been developing since 1996.

Malaysia has the potential to be the preferred digital nomad destination in this region and this could help the country and the Tourism Industry to accelerate its recovery from the Covid-19 pandemic.

DE Rantau: Malaysia's Digital Nomad Programme

In 2022, Malaysia launched its digital nomad programme, DE Rantau. This Malaysia Digital (MD) catalytic initiative aims to make the country the preferred digital nomad hub in the region by promoting and enabling professional mobility, boosting digital adoption, and enabling new digital economy models. The initiative is driven by MDEC in collaboration with various industry players, government ministries and agencies.

The DE Rantau Programme is expected to rejuvenate local businesses in various sectors, including tourism, transportation, retail, food, and beverages, and service sectors. DE Rantau is a supply and demand driven programme, therefore its targeted communities are both foreign and local digital nomads, owners/operators of accommodations, and industry players and local businesses.

Additionally, DE Rantau is projected to contribute RM4.8 billion in spending to the local economy by 2025. Studies have shown that digital nomads spend two or third of their income locally, mostly on lodging, food, and transportation. Therefore, it is clear that if a country is able to attract a significant number of digital nomads, it can greatly benefit its economy.

DE Rantau's Comprehensive Offerings

In September 2022, MDEC launched the DE Rantau Nomad Pass, which is a Professional Visit Pass created especially for digital nomads whom are digital and IT professionals.

To qualify, digital nomads must prove that they are freelancers or remote workers, and that they have projects or are employed for a period of more than three months. Their annual income must be a minimum of US$ 24,000 per annum.

The DE Rantau Nomad Pass also allows the main applicant to bring in their dependents i.e. spouse/common law partner and children. All applications must be made online and the processing time is at a minimum of six weeks.

With a processing fee of RM1,060 per main applicant, Malaysia's DE Rantau Nomad Pass is currently the cheapest in this region. MDEC has also identified eight DE Rantau locations in Malaysia, which are cities that digital nomads tend to frequent.

Langkawi, Pulau Pinang and Kuala Lumpur are the first DE Rantau locations launched in 2022 and MDEC will launch DE Rantau in Melaka, Ipoh, Johor Bahru, Kuching and Kota Kinabalu in 2023. At each of these locations, MDEC has created a comprehensive ecosystem that meets the needs of digital nomads.

This includes certified accommodations (DE Rantau Hubs) and various digital services which are accessible via DE Rantau mobile application, a digital nomad lifestyle app exclusively for nomads whom are members of DE Rantau.

To date, there are 509 DE Rantau Hubs in Langkawi, Pulau Pinang and Kuala Lumpur. These hubs are homestays, chalets, resorts, hotels and service apartments which have been assessed and certified to be digital nomad friendly. These hubs have met the DE Rantau Hubs LIVE Criteria, defined as follows:

- **L** Lodging: Shared or self-contained facility, bed, washroom, desk & chair for workspace, kitchen/pantry, listed on the accommodation hosting platform, cashless facility and security.
- **I** Internet: Min. 30mbps for fixed broadband, free WiFi & 4G/LTE.
- **V** Vibrancy of Livelihood: Available cafes, stores, entertainment, recreation facilities; access to public transport & sharing economy and digital platform services.
- **E** Engagement: Induction programme, hosting of gatherings of nomad communities.

Aside from DE Rantau Hubs, MDEC also puts together various products and services by various digital platforms for travel and tourism activities, long-stay accommodations, retail and F&B services, e-hailing, co-working spaces and various other support services to complement the nomadic lifestyle.

Current MDEC partners are Tourplus, HostAStay, AirAsia Super App, Grab, Easybook.com, Lokalocal, Tapawfood, Jetpack, PayNet, SenangPay, Airbnb, The Settlements, The Ship Campus, Ren Innovation and Mesinkira to provide special discounts and vouchers for digital nomads whom are members of DE Rantau programme.

The creation of DE Rantau Hubs and its ecosystem is expected to help address some of the challenges of being digital nomads such as finding a reliable connection, staying productive in unfamiliar environments and dealing with the isolation that could come with working remotely.

The global digital nomad community and industry players have responded positively to the DE Rantau programme and nomad pass. Holders of the DE Rantau Nomad Pass have also begun to arrive in Malaysia.

Furthermore, businesses in the tourism and hospitality sectors are also showing keen interest to be part of DE Rantau programme. These encouraging feedback and responses further fuel MDEC's effort to roll out DE Rantau nationwide.

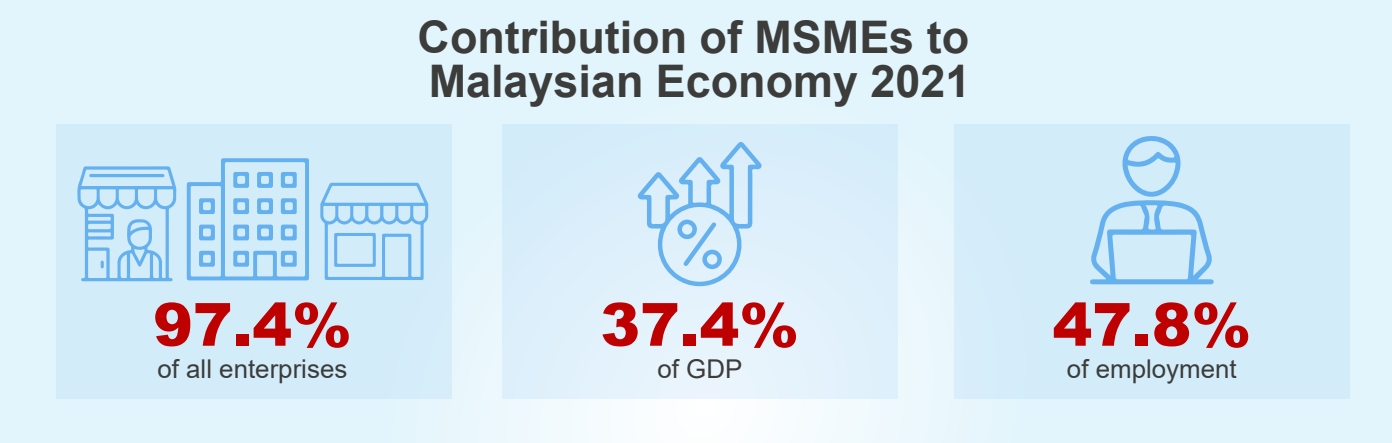
The trend towards remote work and the lifestyle of digital nomads is rapidly increasing. With advancements in technology, it is expected that more individuals will embrace this way of working and living. As a nation that aims to be a leader in digital economy, Malaysia is seizing this opportunity and supporting the growth of digital nomadism, potentially making it a mainstream lifestyle in the future.

Further information is available at:
www.mdec.my/derantau

MSME

Are Malaysian MSMEs **Ready for Digitalisation?**

By Sivarao Aparahu,
Digital Adoption, MDEC



Digital infrastructures are becoming more prevalent among businesses with their wide range of applications and functions transforming their operations and improving their competitive positions. Effective adoption of digital technologies can create numerous opportunities by improving the business environment, raising productivity and driving growth, enabling new market exploration and accelerating innovation.

These processes are described as either computerisation or digitalisation; the former referring to the deployment and use of digital devices for basic processes; and the latter on the adoption of digital solutions and potentially migration of business processes such as customer management, transactions, services and feedback into a fully digital environment.

However, the rate of digitalisation is not uniform across Malaysia. According to the World Bank's 'Digitalising SMEs to Boost Competitiveness' report, there remains a sizeable digital gap between micro, small and medium enterprises (MSME) and large firms.

This suggests the majority of MSMEs in the country are largely confined at the basic digitalisation stage and have yet to fully reap the real potential of digital technologies. It is a cause for concern given that MSMEs account for 97.4% of the total businesses, contribute 37.4% of the nation's gross domestic product (GDP) and 47.8% of total employment in 2021.

In many of their cases, going digital for MSMEs extends only to reaching customers via digital front-end platforms such as websites, Facebook and other forms of social media instead of adding real value to the business. Although the stages of business digitalisation are still being defined, effective adoption of digital technologies and solutions should ideally facilitate businesses to continuously innovate and achieve comprehensive digital transformation.

This may involve the development of new business strategies, business models, processes and infrastructure, with these being the requisite components for their digital migration. In this regard, the Government's digital agenda includes numerous initiatives to digitalise MSMEs. The following are several areas in which MSMEs need to address before they can unlock the potential catalysed by digitalisation.

Challenges to Digitalisation of MSMEs

As to be expected, MSMEs are facing a host of challenges in harnessing digital technologies for tasks such as capturing consumers, streamlining business processes and securing data.

One likely issue is the lack of awareness about the advantages of social media marketing and e-commerce to drive sales as well as potential benefits of cloud, the internet of things (IoT) and data analytics to manage operations and develop greater insights into customer behaviour.

This clearly demonstrates the necessity for MSMEs to receive training and coaching on how to proceed beyond computerisation and capitalise on the benefits of digitalisation. Training will serve to change their mindset from viewing technologies as mere tools for administration to guiding their strategy on what digital can enable.

It is also advisable for MSMEs to seek the guidance of external consultants or transformation professionals, or even establish their own internal digital transformation units.

Another area affecting adoption rates among MSMEs is the lack of reliable broadband connectivity. Most of these companies, particularly micro enterprises, cite the relatively high cost for connectivity as a deterrent factor.

In addition, many MSMEs face issues in developing a business plan with the right strategies to develop and deploy 4th Industrial Revolution (4IR) technologies. This could be due to their limited knowledge and lack of awareness in innovating and transforming their businesses in the areas of cloud, analytics and software.

Challenges of MSMEs for Digital Adoption

Lack of Awareness
On the potential of social media marketing, e-commerce, cloud, IoT, data analytics and other digital platforms and applications

Lack of Digital Skills
Among human talents at MSMEs, which limit the adoption of new technologies

Lack of Reliable and Affordable Broadband Connection
Slow connections and high cost hamper the digitalisation drive among MSMEs

Lack of Appropriate Business Plan
Difficulty in developing digital business strategy that incorporates technologies as platform for doing business

Digital Talent an Urgent Requirement for Digitalisation

Naturally, human capital is an essential element to a business' journey towards digitalisation. It is critical that enterprises invest in their employees to ensure they have the necessary knowledge, skills and digital acumen to succeed.

The lack of digital skills among the MSME workforce is one of the factors that has delayed the adoption of new technologies across all industries.

Future trends suggest that demand from employers will increase due to their inevitable participation in the digital economy.

Further, having only technical or business skills is no longer enough. Today's industry requires employees to combine technical and business expertise with digital skills.

Therefore, MSMEs require assistance to develop skillsets among their employees that cover the use of digital technologies for business across sales, marketing, production, planning, finance, operations and IT.

Supporting MSME Digitalisation

MSMEs may be ill-equipped to undertake the necessary steps towards digital transformation on account of the additional costs and lack of understanding of the digitalisation process.

Compared to large firms, MSMEs tend to struggle in this endeavour if they are not given sufficient support and assistance.

It is critical that external assistance is rendered to address the needs faced by MSMEs in order to facilitate their participation in the digital economy, particularly in the area of regulatory compliance of processes, know-how and costs.

For example, institutional support should target initiatives that provide funding for technology adoption as well as training on how to use these tools to facilitate greater e-commerce and other digital related activities.

The Role of MDEC

The persistence of Covid-19 coupled with the volatile conditions in both the local and global economies have severely shackled the ability of MSMEs to sustain their businesses.

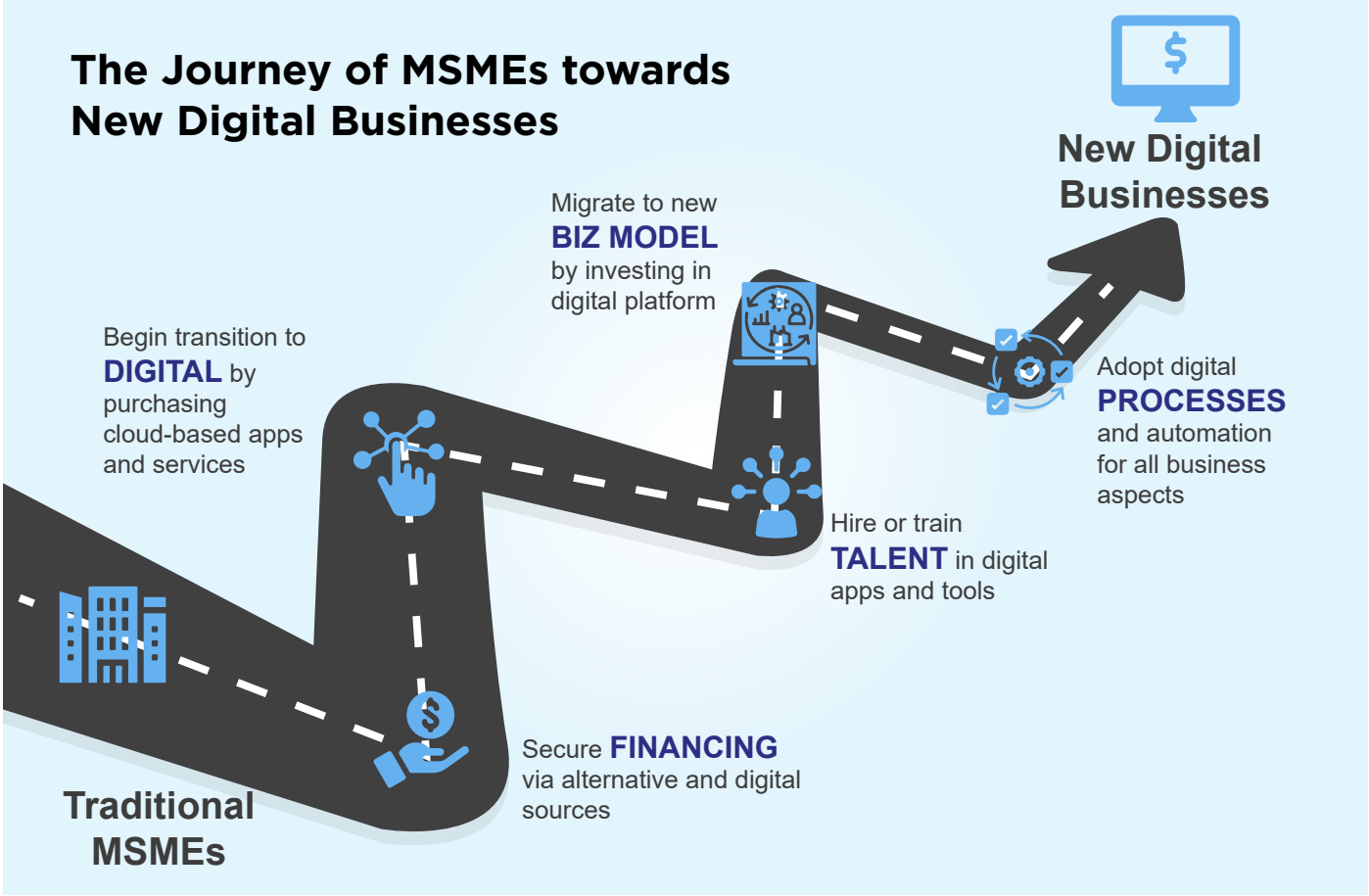
In response, the Government via MDEC has taken a proactive approach to integrate MSMEs into the digital economy. This includes awareness and outreach activities as well as implementation of on-boarding programmes to assist the MSMEs in identifying the most suitable digital solutions for their businesses.

MDEC is also collaborating with various stakeholders and supporting third party initiatives in driving digital adoption.

As at 2022, MDEC has assisted 24,994 MSMEs via two initiatives, i.e. SME Business Digitalisation Grant and 100 Go Digital programme. Both of these are also implemented in partnership with public and private sector stakeholders.

Among the digital areas for adoption are digital marketing, e-commerce, e-point of sale, enterprise resource planning and many more.

For most MSMEs, the journey is poised to be a long one. Nevertheless, the Government stands ready to educate and guide them through the many challenges ahead.



Digital ASEAN
The Emergence of Digital Innovation

By Dr. Giulia Ajmone Marsan
Director of Strategy and Partnerships, ERIA

The latest estimates of economic growth for ASEAN provide a positive picture: according to the latest projections from the World Bank and the Asian Development Bank (ADB), the region is expected to grow by more than 5% in 2022. (World Bank: East Asia and Pacific Economic Update and ADB: Asian Development Outlook, September 2022: Economic Forecasts). The outlook remains positive despite increasing global tensions.

The vigorous economic growth goes hand in hand with a fast ASEAN digital transformation. Even before the Covid-19 pandemic, ASEAN was one of the fastest growing digital economies in the world. During 2020-2022 as the pandemic was causing disruption globally, ASEAN digital transformation accelerated, with the economy on track to account for US$ 360 billion by 2025 and 60 million new digital consumers, according to some estimates (https://www.bain.com/insights/e-conomy-sea-2021/).

ASEAN provides a powerful reminder about the fact that the geography of digital innovation is increasingly diverse, with new hot spots constantly emerging. In today's world, it is necessary to look beyond the United States, Europe or China to have a sense of global digital innovation trends (Addressing the digital divide in ASEAN | East Asia Forum).

In 2021, ASEAN was home to more than 30 unicorns (non-listed startups with a valuation of more than US$ 1 billion), with Singapore (the main financial regional hub) and Indonesia (the largest ASEAN market with a population representing roughly half of ASEAN) hosting the largest numbers, followed by Malaysia, the Philippines, Thailand and Vietnam.

Some of these companies have now become providers of services used by millions every day and are not only emblematic of the ASEAN digital success story but also brands well-known by anyone living and travelling across the region.

Domestic digital giants like Grab (born in Malaysia and subsequently moved to Singapore), Go Jek or Tokopedia (both Indonesian) represent this phenomenon. And while venture capital investments are slowing due to global economic uncertainty, ASEAN is increasingly on the radar of leading global and regional VC funds in search of opportunities.

When looking at promising sectors, the region has also witnessed interesting developments where digital technologies have been combined with traditional industries such as agriculture (which still represents an important source of employment in many ASEAN countries) and healthcare delivery (a sector still under-developed in some areas).

Therefore, it is not surprising that fostering developments in agri-tech (Building Prolific Entrepreneurship Ecosystems-Episode 3 - Publications: ERIA) and health-tech (Building Prolific Entrepreneurship Ecosystems-Episode 2 - Publications :ERIA), which are the combination of digital technology with agriculture and health care delivery services, is high on the agenda of many ASEAN governments.

Digital technologies have the potential to make these sectors more productive, user-friendly, efficient and environment-friendly. Food delivery and healthcare provision during the pandemic lockdowns have made clear the benefits of such approaches.

To sum up, ASEAN is no longer just a region of manufacturing nodes tapped into international production networks. ASEAN has also quickly become an emerging hub for domestic high-growth digital innovations. This positive trend has benefitted from the many strengths of the region.

Commitment towards open economic integration

ASEAN is progressing and advancing its economic integration agenda. This is not only evident through the ASEAN process of multilateral socio-economic integration, but also through ASEAN commitment to participate and be at the centre of an intricate web of economic fora and platforms, such as APEC, the CPTPP and more recently, RCEP. Its geographical position also makes it possible to develop and strengthen economic ties with countries on both shores of the Pacific (Northeast, but also North America and Latin America) and India.

Young tech-savvy population

ASEAN tech-savvy millennials and gen-Z cohorts are projected to make up 75% of ASEAN consumers by 2030 (WEF: Demographics: How many millennials are there in the world?) Millennials and gen-Z consumers across both ASEAN and globally are typically keen in using and adopting digital technologies and paying attention to sustainability and inclusion. They will continue to be an important driver of digital innovations in ASEAN during the next decade. More digital innovations related to e-commerce, e-marketing, fintech/e-wallets and e-payments are to be expected. Moreover, millennials and Gen-Z consumers have the potential to foster demand-driven digital innovations which adopt ethical business models for a more sustainable and inclusive digital economy.

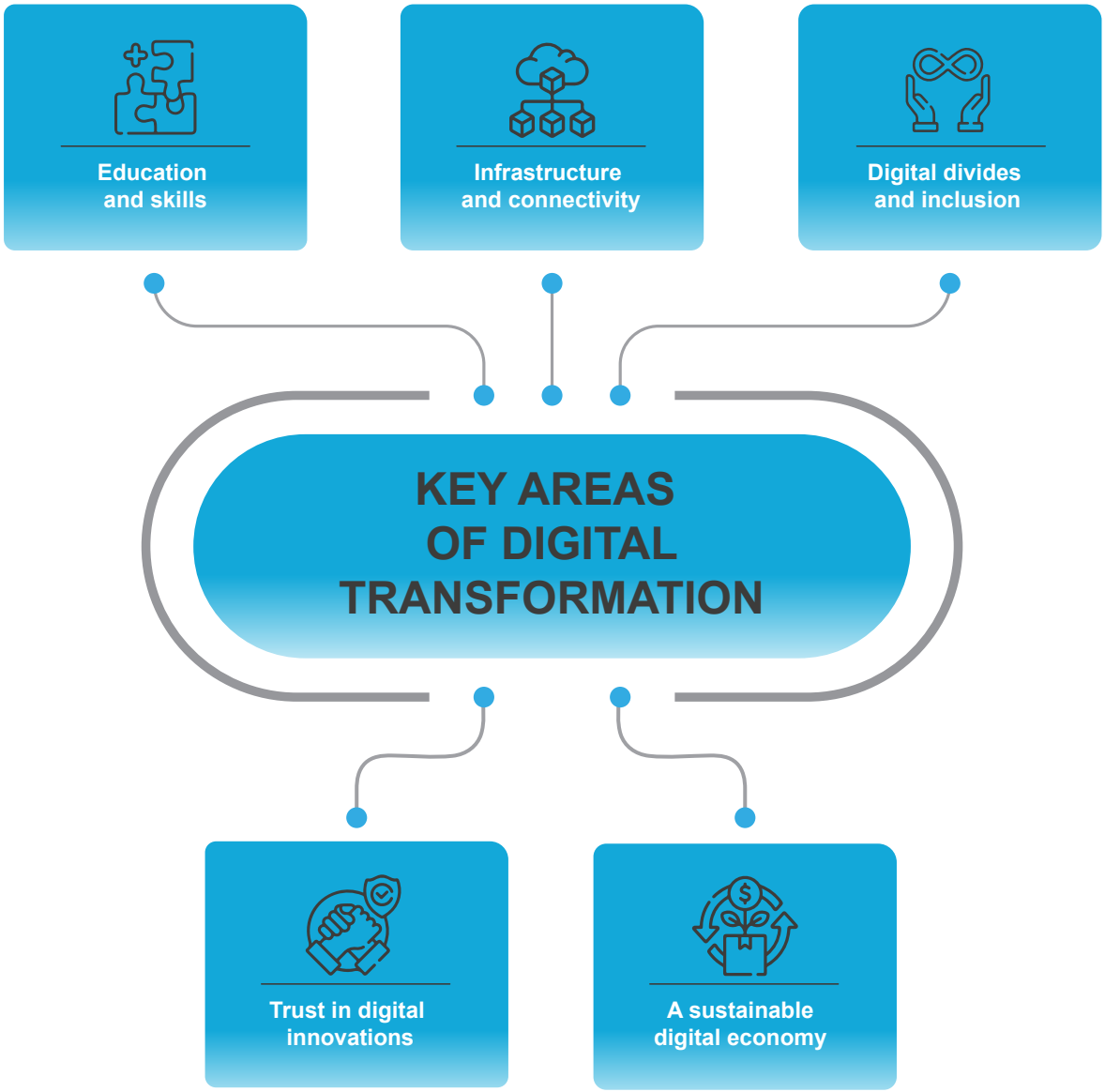
Digital enabled entrepreneurship

Younger generations are also an important resource of digital-enabled entrepreneurship. Fostering entrepreneurship through ecosystem development but also entrepreneurship education and mindset is increasingly high on the agenda of a number of governments in the region (Building Prolific Entrepreneurship Ecosystems-Episode 1 - Publications: ERIA). Many initiatives have enabled incubators, accelerators or innovation centres to scale up new businesses and foster collaboration with the private sector. In some cases, ASEAN digital unicorns are playing the role of anchor institutions at the centre of local innovation ecosystems. Some of these digital giants have launched their own startup incubators and venture capitalist teams, becoming key players in the ASEAN digital innovation landscape.

Diversity as a driver of innovation

ASEAN is a very diverse region in terms of geography (mainland vs archipelagic), size of individual member states (from Brunei and Singapore to Indonesia), languages, religions and institutional settings. A growing body of research shows that diversity is good for innovation (Forbes: Diversity Confirmed To Boost Innovation And Financial Results), ASEAN should capitalise on its diversity to test, develop, adopt and scale up innovations. Examples include leading in Islamic finance (an area high on the agenda of Malaysian institutions - World Bank: Malaysia - Islamic Finance and Financial Inclusion), food innovation (with Singapore increasingly a regional and global hub- FoodInnovate | Food Manufacturing | Enterprise Singapore - enterprisesg.gov.sg) or fostering the creative economy (Microsoft Office 2000 - asean.org).

However, to continue to scale up digital innovations and grow its digital economy, ASEAN as a whole needs to prioritise, strengthen and devote attention to a number of areas to overcome existing obstacles that can potentially slow down digital transformation:



- **Education and skills**

  ASEAN needs to continue to upgrade and invest in its education institutions. In most ASEAN Member States (Singapore apart), the quality of higher education is not yet at the level of the best universities in Northeast Asia or the Pacific. It is no secret that many of the most successful ASEAN digital entrepreneurs are returnees after completing studies abroad. While upgrading its domestic education system, ASEAN also needs to promote talent attraction, retention and circulation by making it easier for digital innovators to come to work in the region, whether in individual member states or cross-border. The post-pandemic reopening has led some ASEAN countries to develop new talent attraction and retention policies and governments should think creatively to adapt highly-skilled immigration policies and ad-hoc visa schemes for entrepreneurs and innovators to fit ASEAN's digital future.

- **Infrastructure and connectivity**

  While ASEAN mega cities are generally very well digitally connected, the same is not true for large parts of rural ASEAN, where even and data connectivity remain a problem. The region should continue to invest in digital infrastructure to bring opportunities offered by the digital economy to all, especially in remote areas.

- **Digital divides and inclusion**

  The uneven level of access to digital connectivity and infrastructure leads to growing digital divides across different segments of the population. In addition to people leaving under-served locations, other categories also deserve attention: there is a gap in digital technology adoption between larger and/or dynamic startups and traditional micro, small and medium enterprises (MSME), the latter using only a fraction of the myriad of digital tools available, if any (ASEAN MSMEs in a COVID-19 World: Lessons from ERIA MSMEs Talks 1-5 - Publications: ERIA and ASEAN MSMEs in a COVID-19 World: Lessons from ERIA MSMEs Talks 6-10 - Publications: ERIA). There are also many indications that groups of individuals like women, minorities and people with disabilities are not benefitting as they should from the digital transformation (Women's Participation in the Digital Economy: Improving Access to Skills, Entrepreneurship and Leadership Across ASEAN - Publications: ERIA and Social Enterprises and Disability: Promoting Inclusion, Innovation and Entrepreneurship in ASEAN - Publications: ERIA and Building Prolific Entrepreneurship Ecosystems-Episode 4 - Publications: ERIA).

- **Trust in digital innovations**

  With such fast digital developments, it becomes necessary to adopt high standards in relation to privacy and usage and transfer of personal data. Several countries are updating regulations, most recently Indonesia (Indonesia passes much-anticipated data privacy law to put bad actors behind bars - TechCrunch), and others must follow to put ASEAN on par with more advanced regions and ensure that the digital economy becomes a safe environment.

- **A sustainable digital economy**

  ASEAN needs to combine digital innovation with a push towards sustainability. Digital tools and innovations can and should be deployed to monitor environmental developments, biodiversity (given the region's natural richness), plastic reduction, just to mention a few. The current debate around smart cities should also provide an opportunity to discuss the development of more liveable urban areas in ASEAN with the support of digital technology.

In conclusion, ASEAN is definitely a region that needs to be monitored as new trends continue to emerge and the region is well positioned to continue to do well. Innovation players in ASEAN need to be aware that multi-stakeholder approaches are a necessity to growth and innovation ecosystems. Governments need to work with larger corporations, small and medium enterprises, startups and scaleups as well as funders, education and training institutions and incubators, accelerators and other ecosystem builders to seize and grow innovation opportunities offered by the digital economy.

SUSTAINABILITY

ESG and **the Digital Economy**

By Dr. Sumitra Nair & Ts. Dr. Shalini Kandasamy
Strategy & Policy, MDEC

Covid-19 has undoubtedly accelerated the digitalisation of the economy not only in Malaysia but across the world. While this trend has benefitted a large number of people and businesses, it has resulted in a socio-economic chasm for less developed nations and communities and surfaced new challenges to global climate ambitions. For example, the United Nations (UN) estimates that "COVID-19 has wiped out 20 years of education gains" and increased inequality especially for those who do not have access to digital technologies, skills and opportunities. In short, digitalisation or the lack off has a significant impact on broader environmental, social and governance (ESG) goals.

What is ESG?

ESG is the new buzzword. Yet, ESG is not a new concept, as the term's predecessors have been around for some years now – commonly referred to as Corporate Responsibility, Responsible Business, Triple Bottom-line or Sustainability. ESG stands for Environment, Social and Governance (ESG) and countries are often guided by the UN Sustainable Goals, of which there are 17 that provide 169 targets spanning each of the E, S and G.

Experts agree that Covid-19 has accelerated the appreciation of ESG among businesses and nations as countries race to make up for socio-economic losses caused by the pandemic, as well as to leverage new emerging opportunities. At the same time, rising consumer and investor awareness about ESG issues also demand that corporations carry out responsible business practices not only to shareholders via higher profits, but also to employees, suppliers, customers, local communities and the natural environment. Increasingly, ESG commitments can be found on the websites of large corporations and many are extending these commitments across their supply chains.

Closer to home, the Employees Provident Fund (EPF) and Bursa Malaysia have incorporated ESG considerations into investment and listing requirements. Banks have followed suit for debt financing, hence, digital companies looking at capital expansion will need to consider and optimise their ESG impact.

With the acceleration of digital adoption and disruption taking place globally and here in Malaysia, it would be pertinent to reflect on the impact the digital economy has on ESG and vice versa.

The Global e-Sustainability Initiative (GeSI)'s Digital with a Purpose: Delivering a SMARTer 2030 report estimates that digital tech can directly influence 103 out of 169 SDG targets. The same report has identified seven key technologies that have the highest potential influence on the world and more specifically on the UNSDGs i.e. digital access, fast, cloud, IoT, cognitive technologies (e.g. machine learning, AI, advanced analytics), digital reality and blockchain.

> "Digital tech can directly influence 103 out of 169 SDG targets"

In relation to the Environment, GeSI estimates that the rapidly increasing energy consumption due to the widespread use of communications and digital tech solutions are expected to cause a 11% increase in CO_2 by 2030. For example, data centres and mining of cryptocurrencies consume large amounts of electricity. However, the deployment of digital technology to reduce emissions from other sectors e.g. manufacturing, transportation, etc. is expected to generate emission savings by seven times the growth of the digital tech sector, thereby supporting targets of SDG#13 on Climate Action.

> "For every ton of CO_2 produced by the digital tech sector, it has the potential to reduce seven tons of CO_2 in other sectors"

This means, for every 1 ton of CO_2 emitted by the digital tech sector, it has the potential to reduce seven tons of CO_2 in other sectors, if deployed in ways that reduce a sector's carbon footprint.

To illustrate a simple example, smartphones allow users to pay bills, shop and carry out a wide range of financial services from anywhere, thereby reducing the emissions that would have been generated by physically travelling to various locations to complete the exact same transactions.

However, smartphones consume electricity not only for charging, but the online data transmitted needs to be stored on the cloud, supported by physical data centres, which increases electricity consumption and generates higher emissions.

In addition, the frequent online purchases one makes also results in greenhouse gas (GHG) emissions by logistics companies as well as significant amount of packaging that ends up as trash. Therefore, digital tech companies as well as consumers that wish to embrace responsible and sustainable business practices will need to assess and manage their respective ESG footprints.

Other than helping to manage GHG, cognitive technologies such as machine learning, AI and big data analytics can help predict and mitigate, or better prepare for natural disasters such as floods which affect the natural environment as well as affects lives and livelihoods of citizens. Such technologies could help to address SDGs 7, 11, 13, 14 and 15 and are already generating new business opportunities for solution providers.

From a social perspective, digital technologies can make a significant contribution to SDGs 1, 2, 3, 4, 8 and 10. The Covid-19 pandemic demonstrated the power of access, especially high-speed connectivity and digital tools to continue socio economic activities, be it for learning, working or lifestyle activities.

While it helped a large number of people to continue their daily activities, the opportunity gap widened among vulnerable groups who do not have access to high-speed or digital tools, etc.

For example, the use of IoT sensors via MDEC e-ladang (e-farming) initiative improved yield by 20% in chilli farms, thus improving the livelihoods of the farming community.

However, this solution has yet to go mainstream, due to lack of awareness tools or connectivity. Digital technologies can play a key role in closing such opportunity gaps.

At the same time, digital tools can also cause adverse effects, such as cyber-bullying, social media addiction and other similar social risks.

> "BNPL is a double-edged sword. It reduces barriers to micro-credit and on the other hand, it can worsen consumer debt"

A 2021 Digital Payments study by MDEC found that the BNPL, i.e. Buy Now Pay Later trend is on the rise. From an ESG perspective, BNPL is a double-edged sword.

It reduces barriers to micro-credit and on the other hand it can worsen consumer debt. Hence e-commerce companies therefore have a responsibility to educate consumers on the risks of BNPL. From a governance perspective, digital technologies can help organisations and countries to achieve targets in SDG 16 and 17, primarily to increase the transparency of industrial value chains, protection of consumer and investor interests.

At the same time, data-driven policy making helps to improve the outcomes of government interventions, public policies and regulations.

For example, blockchain is able to strengthen the integrity and security of critical information and transactions, while digital identification can help the government to channel aid in a more timely and effective manner to targeted beneficiaries.

Key Takeaways: What Does This Mean for Malaysia's Digital Economy?

Society

Malaysian consumers should be more aware of their ESG impact, starting with their environmental footprint. There are online personal environmental footprint calculators that are able to do this within minutes.

Once consumers understand their own footprint, they can start making lifestyle changes, e.g. findings ways to reduce packaging generated via online purchases, avoiding over-charging of devices and reducing consumption of non-essential goods.

Apart from this, there is also a need to build awareness and action around data privacy, ethical production and consumption across the online and offline consumption value chain.

Civil society organisations can also play a key role in partnering with public and private organisations to close the digital opportunity gaps.

Investors

Institutional investors such as the Employees Provident Fund (EPF) and Khazanah Nasional have announced the integration of ESG considerations, while Bursa Malaysia has taken bold steps to steer public-listed companies to adopt ESG and disclose triple-bottom-line performance.

To illustrate their commitment to ESG, Khazanah Nasional has set aside RM6 billion to its *Dana Impak* (Impact Fund) which focuses on six investment themes, five of which are pegged to the UNSDGs, as shown in the infographic on this page.

Business

From a business perspective, digital technology companies would do well to pursue opportunities for digital innovations that can help to address ESG impacts across all sectors of the economy.

> 71% of CEOs in Asia Pacific view their organisation's digital and ESG investments as being inextricably linked.

In the past, digital transformation was seen as a means of increasing productivity and profit margins. More recently, it is being acknowledged and adopted for its ability to bolster corporate ESG performance.

Indeed, the KPMG 2022 CEO Outlook found that 71% of CEOs in Asia Pacific view their organisation's digital and ESG investments as being inextricably linked.

At the same time, digital companies must also manage their own ESG risks. To this end, MDEC has introduced the Malaysia Digital Climate Action Pledge (MDCAP) that aims to galvanise and guide climate action by digital companies.

Government

Advancing Sustainability is one of the three themes in the 12th Malaysia Plan, highlighting the Government's commitment to the ESG agenda in policy-making.

In order to steer corporate Malaysia towards a more sustainable future, there is a need for the government to balance the carrot and stick approach, i.e. encouraging ESG innovation and adoption while diligently enforcing ESG regulations.

In addition, collaborating with the private sector and non-governmental organisations will also accelerate the nation's readiness to mitigate ESG risks, while optimising the power of digital technologies to narrow ESG gaps and achieve a more holistic and sustainable future for Malaysia.

Conclusion

ESG is no longer a nice-to-have, but an essential-to-survive part of the business. While the ESG agenda is often argued from a risk-mitigation perspective, the digital ecosystem has a unique opportunity to harness significant value through ESG-relevant digital solutions. In Malaysia, the digital economy has already made significant gains in the social dimension. It is now time to up our game and extend digital tech for greater good.

INVESTOR


CONCORDE

INVESTMENT

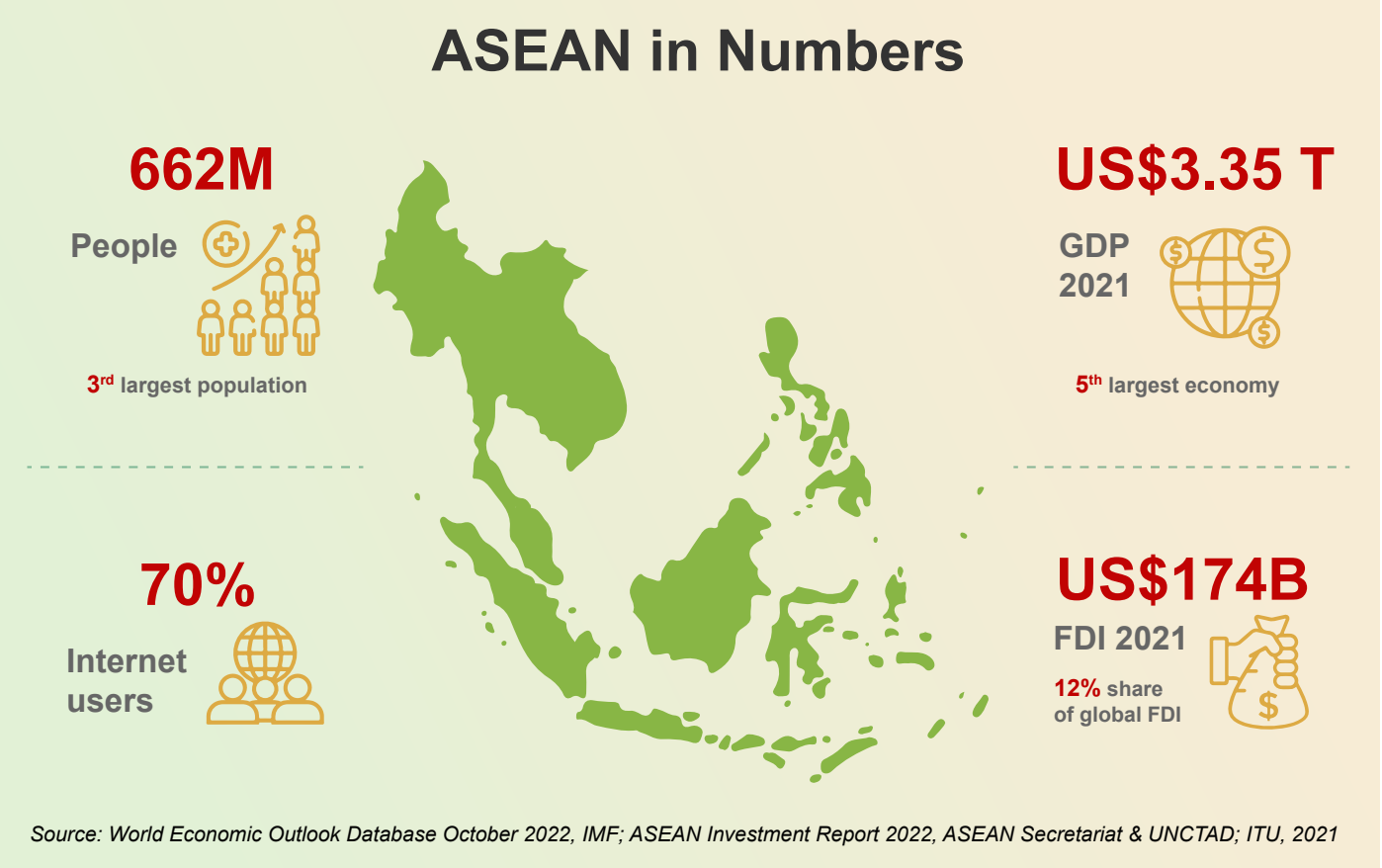
Strengthening Malaysia as **Digital Hub of ASEAN**

By Alia Nadiah Sutarji,
Investment Solutions, MDEC

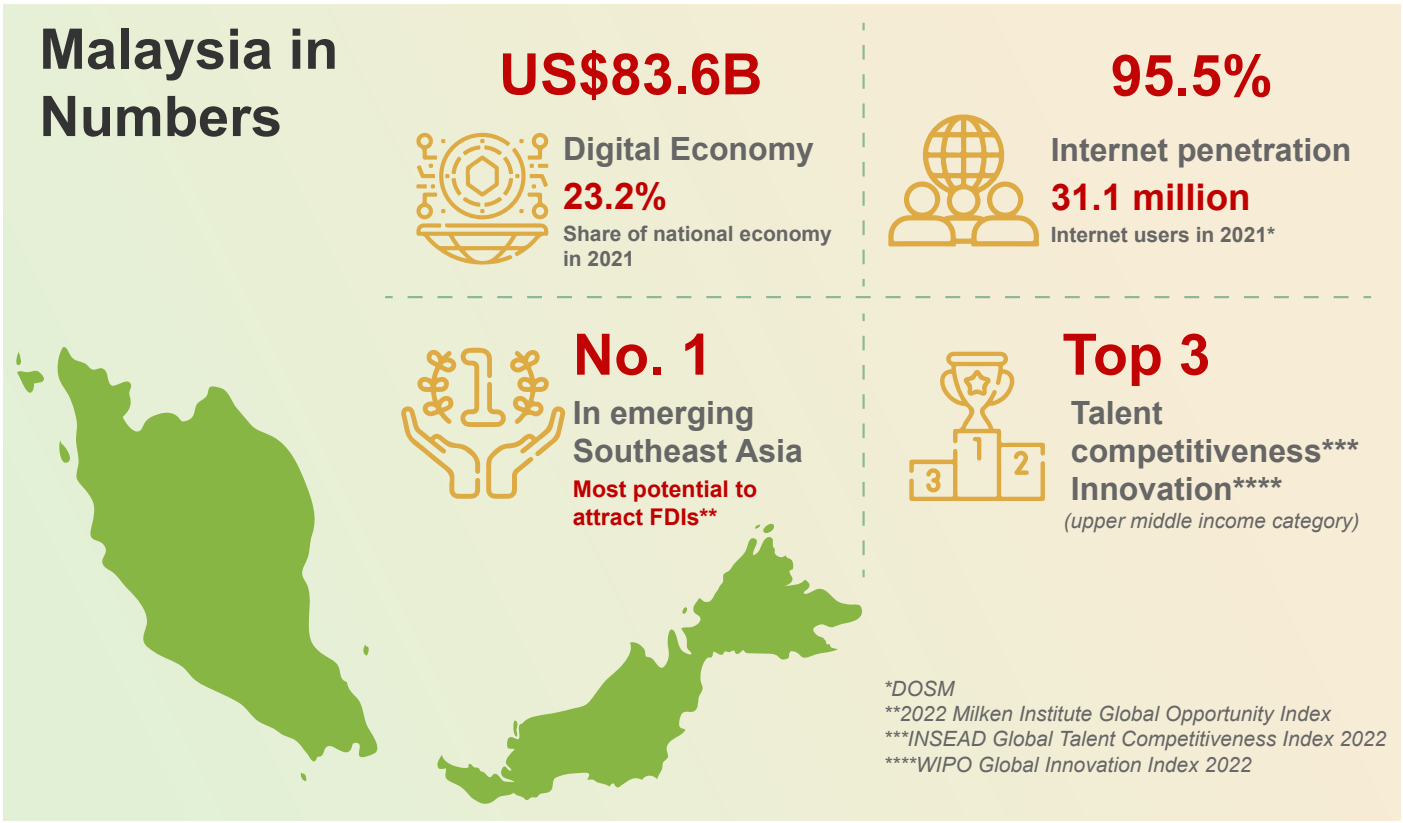
ASEAN, the association of 10 Southeast Asian nations, is a key market for investors looking for growth and expansion. With a combined gross domestic product (GDP) of US$ 3.35 trillion in 2021, ASEAN is currently the world's 5th largest economy and on track to become the 4th by 2030.

Despite the impact of the Covid-19 pandemic, the region remains an attractive investment destination where foreign direct investment (FDI) inflow in 2021 of US$ 174 billion accounted for 12% of global FDI.

Among the many factors in ASEAN that appeal to investors is the high proportion of users (almost 70%) among its 662 million population, the third largest in the world. In this regard, Malaysia, which sits at the heart of the region, is well-positioned to play a leading role as the digital economy powerhouse of ASEAN.



Source: World Economic Outlook Database October 2022, IMF; ASEAN Investment Report 2022, ASEAN Secretariat & UNCTAD; ITU, 2021



Malaysia as a Regional Digital Hub

Malaysia ranks at the top of emerging Southeast Asia as the economy with the most potential to attract FDIs, according to the 2022 Milken Institute Global Opportunity Index. In 2021, our digital economy contributed 23.2% or US$ 83.6 billion to national GDP, as highlighted by the ICT Satellite Account (ICTSA) released by the Department of Statistics Malaysia (DOSM).

The healthy growth of the digital economy is supported by a penetration rate of 95.5% (31.1 million users) in 2021, one of several plus points that make Malaysia a preferred location for multinational corporations (MNCs) and technology companies.

Invariably, tech investors are drawn to the pervasive digital transformation across the country spearheaded and accelerated by the Multimedia Super Corridor (MSC Malaysia) since it was established more than 25 years ago (now known as Malaysia Digital-MD).

During this period, Malaysia developed a robust and substantial talent pool consisting of multilingual and digitally-savvy human capital, a strong value proposition resulting in Malaysia's top three rankings in the INSEAD Global Talent Competitiveness Index 2022 and WIPO Global Innovation Index 2022 for the upper-middle income category.

In addition, the nation boasts value-driven cost-competitiveness; a mature and innovative digital infrastructure and ecosystem; investor-friendly policies; as well as numerous blueprints and strategies to address the growing needs of the digital ecosystem.

Existing national blueprints and strategies

Malaysia Digital Economy Blueprint (MyDIGITAL) to successfully transform Malaysia into a digitally-driven, high income nation.

National Digital Network (JENDELA) plan to enhance digital connectivity with wider broadband coverage and 5G rollout.

Malaysia Digital (MD), a national effort driven by Malaysia Digital Economy Corporation (MDEC) as the successor to the MSC Malaysia initiative.

Unlocking Value Amid Global Headwinds

Malaysia's plans to attract investors for its digital economy take into consideration global headwinds caused by such events as the conflict in Ukraine, sanctions against Russia, and China's clampdown on tech companies and its protracted zero Covid-19 policy.

Over and above these situations, the global economy is under pressure from monetary tightening by central banks to fight inflation and market volatility. In turn, such measures are impacting negatively on the global supply chain, energy and food security, mental and health well-being, and a growing digital divide.

Despite the looming risks of global stagflation, nevertheless, ASEAN is poised for further stability and growth. The ASEAN-5 block of Malaysia, Indonesia, the Philippines, Thailand, and Singapore is expected to outperform advanced economies and China with projected GDP growth of 5.3% in 2022.

Even as global growth continues to decline, Malaysia's economy is projected by Bank Negara Malaysia (BNM) to expand by 6.3-7.3% in 2022, supported by favourable polices for trade and investment, robust digital economy frameworks, a mature and skilled workforce, reliable digital infrastructure, and strength as an offshoring location.

> In 2022, Malaysia attracted more than RM 40 billion digital investments and is projected to surpass the MyDigital Blueprint target of RM 70 billion by 2025

In the face of these global headwinds, MDEC is doubling down on its efforts to attract digital technology companies to land in Malaysia and expand their operations across ASEAN.

The target companies include developers and providers of solutions in Digital Agriculture, Digital Health, Digital Finance, Digital Cities, Digital Services and Islamic Digital Economy.

Through its Malaysia Digital Investment Strategy (MDIS), MDEC has set lofty ambitions to capture RM50 billion in investment and create 50,000 jobs from both foreign and domestic digital investments by 2025.

In 2022, Malaysia managed to attract more than RM40 billion worth of digital investments, particularly underpinned by a surge in datacentre investment. These new investments in the digital economy is projected to surpass the MyDigital Blueprint target of RM70 billion by 2025.

These MD companies produce and/or utilise technologies and services in 10 specific technology areas:

MD Technology Enablers

1	Data Centre and Cloud
2	Cybersecurity
3	Dronetech
4	Blockchain
5	Internet of Things (IoT)
6	Robotics and Automation
7	Artificial Intelligence (AI) and Big Data Analytics (BDA)
8	Creative Media Technologies
9	Advanced Network Connectivity and Telecommunication Technology
10	Integrated Circuit Design and Embedded Software

Driving Investments with Malaysia Digital

Many opportunities are emerging, particularly in the wake of the ASEAN-led Regional Comprehensive Economic Partnership (RCEP) Agreement, which is the world's largest regional trade agreement covering 30% of global GDP and world population.

The adoption of the ASEAN Digital Masterplan 2025 also paves the way for the region to be a leading digital community and economic bloc, further improving its regional integration and competitiveness in the global economy.

Together with Malaysia's ratification of the Comprehensive and Progressive Agreement for the Transpacific Partnership (CPTPP), businesses and investors stand to benefit from these free trade agreements by locating and operating in ASEAN via Malaysia as a launchpad into the region.

The MD initiative is also set to bolster Malaysia's attractiveness as the preferred investment location to accelerate the growth of the country's digital economy. Eligible MD companies now have the flexibility and opportunity to operate, grow, expand or invest anywhere in the country.

The Malaysian government via MDEC provides both fiscal and non-fiscal incentives to MD companies. Among the many benefits include foreign knowledge worker quota and passes, the flexibility to source capital and funds globally, tax incentives, and access to local and international markets and ecosystems.

Facilitating Digital Investments in Malaysia

MDEC and the Malaysian Investment Development Authority (MIDA) have established the Digital Investment Office (DIO), a collaborative one-stop centre to coordinate and facilitate high-impact digital investments into the country.

Aimed at strengthening coordination among all investment promotion agencies, the DIO is a one-nation approach that offers an agile incentive regime with solutions to meet investor needs via MD initiative, Digital Ecosystem Acceleration Scheme (DESAC) and bespoke solutions based on location.

DESAC is a scheme that provides incentives to support the comprehensive development of the national digital ecosystem, given to digital technology and digital infrastructure providers.

MDEC is well-versed in facilitating and easing the entry of companies into Malaysia, supporting growth and expansion at all stages and as a springboard into ASEAN.

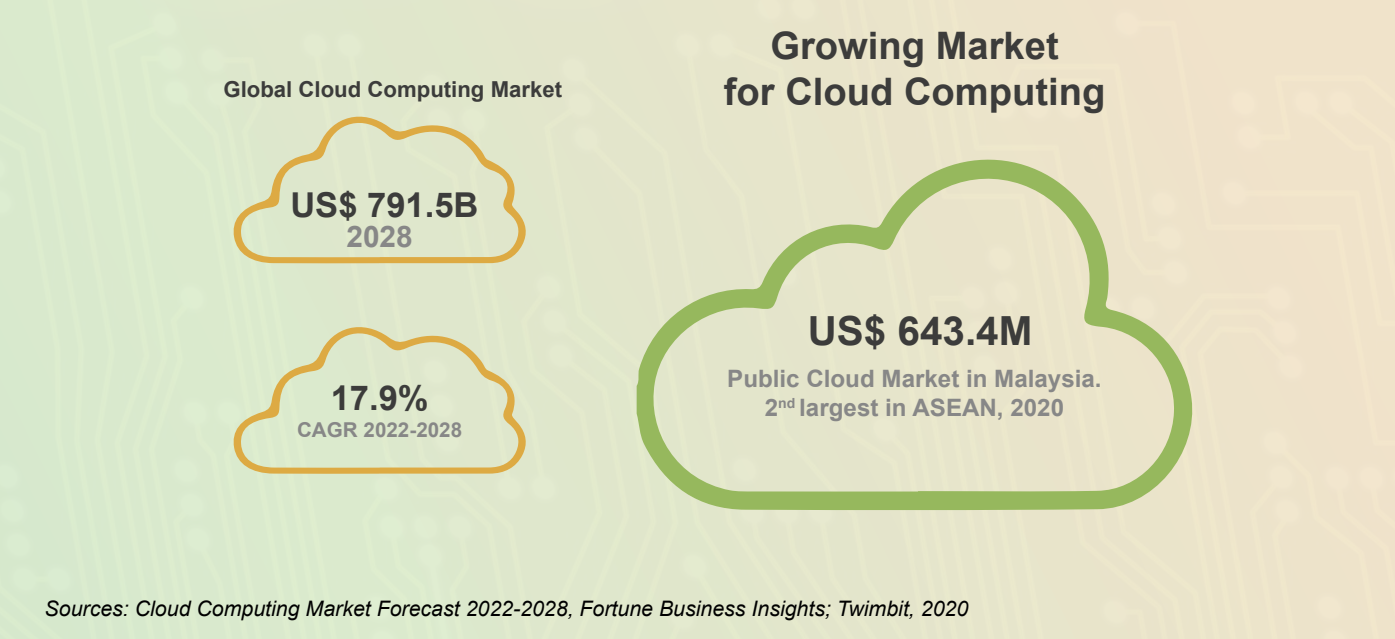
Making Sense of Malaysia's **Cloud First Policy**

By Allan Cheah and Suhaizah Md Salleh
Strategy & Policy, MDEC

In today's digital age, cloud technology has emerged as a game-changer in redefining the way we store, save and share our information. The World Economic Forum (WEF) defines cloud technology as the delivery of technological resources on demand via the Internet.

Throughout the Covid-19 pandemic, cloud technology became a lifeline for governments needing to provide urgent services, from emergency hotlines to online education. Indeed, the cloud has evolved into a critical necessity in our everyday lives.

The current statistics clearly back this up. According to Cloud Computing Market Forecast 2022-2028 by Fortune Business Insights, the global cloud computing market will reach US$ 791.5 billion by 2028 after growing at an impressive compound annual growth rate (CAGR) of 17.9% during that period.



In Malaysia, research site Twimbit highlighted that the nation's public cloud market is already worth US$ 643.4 million on its own, making Malaysia the second largest cloud market in ASEAN after Singapore.

The continual growth of Malaysia's cloud market can be largely attributed to the increased usage of the Internet and increasing adoption of cloud technology by businesses.

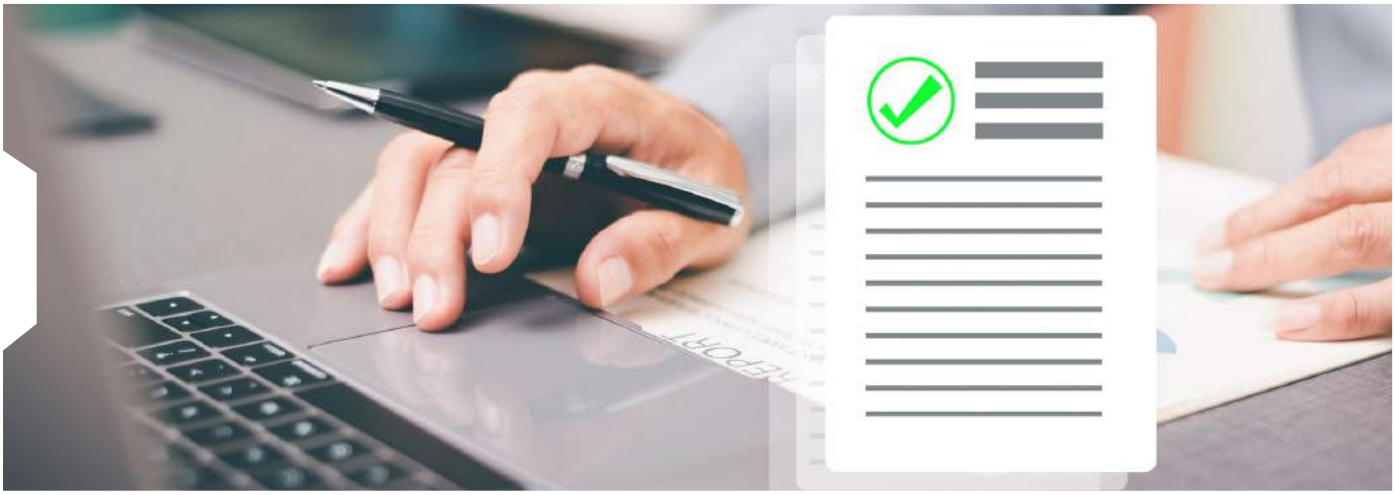
In 2021, the Department of Statistics Malaysia (DOSM) noted that the penetration rate increased 7.2% from the previous year to 95.5%. This is already one of the highest in ASEAN.

Perhaps it is not much of a surprise then to see the Government actively pushing adoption of cloud technology across all its public services.

After all, there are various benefits of cloud adoption such as increasing productivity, ensuring faster turnaround time to market products and services, better security, environmental compliance and more.

Malaysia ranked 8th on the 2020 ACCA Cloud Readiness Index and we are on track to climb higher with the 2022 announcement of the Cloud First Policy.

Origins of Cloud First



The Cloud First Policy was first mooted during the MSC Malaysia Implementation Council Meeting in 2017. Subsequent discussions with the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU), Chief Government Security Office (CGSO) and National Cyber Security Agency (NACSA) supported by Ministry of Communications and Multimedia (K-Comm, now known as the Ministry of Communications and Digital), led to the establishment of the Cloud Computing Committee (CCC) in 2019.

One of the key successes of the CCC was the development of a policy and guidelines on cloud and data management in the cloud environment in 2021. Other successful areas supported by CCC included the Cloud Service Provider (CSP) Recognition Standards, Cloud Framework Agreement and increasing the awareness of cloud to 77% among federal government agencies.

The appointment of four CSPs, namely AWS, Google, Microsoft and TM, to collaborate with local managed cloud providers (MSPs) will certainly boost the local industry.

The proliferation of cloud technology as well as its adoption by various businesses and services is expected to have a profound impact on Malaysia. For example, the collaboration between CSPs and MSPs is projected to attract investments worth RM12-15 billion by 2025.

In 2021, the Malaysia Digital Economy blueprint (MyDigital) was launched to provide a strategic roadmap outlining the path for the country to become a regional leader in the digital economy and to achieve inclusive, responsible, and sustainable socio-economic development.

The Cloud First strategy was primarily focused on reducing the use of physical storage files and adopting a paperless culture at work. It is poised to accelerate and catalyse innovation while ensuring government resources are utilised more efficiently.

In addition, effective use of cloud services would enable the deployment of big data analytics (BDA), artificial intelligence (AI), internet of things (IoT) and other related tech enablers to improve government services. All these are critical to provide efficient and innovative services to the *rakyat*.

As at end of 2022, Malaysia had already successfully migrated 80% of its government data to the cloud. This is in-line with the target set forth in the MyDigital Blueprint. The momentum of the Cloud First Policy was maintained through the upgrading of the Government's Public Sector Data Centre (PDSA) to a hybrid cloud computing service called MyGovCloud to be used by all government agencies.

MyGovCloud is uniquely hybrid in the sense that it combines both private cloud services from PDSA and public cloud from the CSPs. With regards to talent, the collaboration with CSPs is expected to produce more cloud computing experts via their training programmes and certifications.

It is essential to emphasise on building and nurturing a competent local talent pool that can optimise the use of cloud as well as safeguard Malaysia's data integrity and digital sovereignty. In recent years, the Cloud First Policy movement supported by investment incentives has led to positive traction from established industry giants.

Telekom Malaysia (TM)

In July 2022, TM launched Credence, a new cloud and digital services company focused on expanding the capabilities of enterprises and the public sector in their digital transformation journey. Credence will provide capabilities from tech infrastructure to business insights, cloud advisory, IT landscape migration, SaaS, managed services as well as analytics and insights.

https://www.tm.com.my/Newsroom/Pages/CREDENCE,-TM%E2%80%99S-NEW-CLOUD-AND-DIGITAL-SERVICES-COMPANY.aspx

In Aug 2022, Google Cloud announced its plans to roll out its cloud region in Malaysia to meet the growing demand for cloud services locally and worldwide. The cloud region will be complemented by its existing Dedicated Cloud Interconnect locations in Cyberjaya and Kuala Lumpur, which provide direct connections between an organisation's on-premises network and Google Cloud's global network.

https://cloud.google.com/blog/products/infrastructure/announcing-new-google-cloud-regions-in-asia-pacific

In 2019, Microsoft pledged to establish its first data centre in the country to deliver trusted cloud services locally, with world-class data security, privacy and the ability to store data in-country. The announcement coincided with its *Bersama Malaysia* initiative, which reflects Microsoft's commitment in building Malaysia's inclusive digital economy and advancing digital transformation across the private and public sectors.

https://news.microsoft.com/en-my/2021/04/19/microsoft-announces-plans-to-establish-its-first-datacenter-region-in-malaysia-as-part-of-bersama-malaysia-initiative-to-support-inclusive-economic-growth/

The Cloud Framework Agreement (CFA), signed between Amazon Web Services (AWS), Radmik Solutions and an IT systems integrator and technology service provider in Malaysia in 2022, provides consulting and technology services to government agencies. With this CFA, Malaysia's government agencies and departments would be able to access AWS Cloud services through a streamlined procurement model. The access includes any of AWS' 84 availability zones spanning 26 geographic regions around the world.

https://www.businesstoday.com.my/2022/03/10/aws-signs-cloud-framework-agreement-with-malaysian-government/

This being the case, we need to be strategic in planning the necessary investments and interventions to establish a digital ecosystem towards sustainable growth with supporting infra and info structures that can make Malaysia a leading digital hub in ASEAN.

It used to be that the word 'cloud' is associated with depressing, whimsical or negative things. Just think of idioms like dark cloud, cloud of suspicion, be under the cloud, in the clouds and so on. Today, however, it would be more appropriate for us to think instead that every silver lining has a cloud.

Conclusion

As digital technology continues to evolve rapidly, Malaysia has taken the right steps towards anchoring the Cloud First Policy as a cornerstone to set up the country's digital infrastructure.

However, we should not stop here. The demand for cloud services is likely to increase exponentially with the ever-increasing adoption of cloud in business services across all industries.

POLICY

Reframing Tax Incentives **to Suit the Digital Era**

By Wan Amiruddin Wan Omar & Idayu Sabtu
Strategy & Policy, MDEC

The Government of Malaysia introduced the Bill of Guarantees (BoGs) under MSC Malaysia (succeeded by Malaysia Digital (MD) in order to establish a conducive environment for companies to thrive. The 10 BoGs are a collection of incentives, rights, and privileges offered to MD companies subject to relevant criteria, applicable conditions and requirements.

Competitive Financial Incentives

Proffered together with other BoGs, BoG No. 5 ("To Provide Competitive Financial Incentives") was designed as an instrument to complement the country's digital investment promotion strategy.

Companies are eligible to apply for financial incentives to establish and expand their presence in Malaysia. This includes a 100% income tax exemption for taxable statutory income (on income derived from qualifying activities) for up to 10 years.

Through MDEC, the Malaysian Government also offers facilitation and programmes towards ecosystem development which are essential in attracting high-value investments into Malaysia.

These measures in return, contribute to positive economic spillover from domestic and foreign investment, resulting in innovation, research and technology development, higher employment rates and knowledge transfer, as well as stimulate economic activities in less developed areas.

Malaysia's Commitment to International Tax Standard

As part of continuous commitment by the Government in implementing global best practices and standards, the Government of Malaysia has participated in the Forum of Harmful Tax Practices (FHTP) in 2018, coordinated by the Organisation for Economic Cooperation and Development (OECD). The OECD and G20 countries introduced an action plan to address the issue of base erosion and profit shifting (BEPS).

Since then, the Government has taken the necessary steps to streamline all relevant tax incentives in Malaysia including income tax exemption under BoG No. 5, in order to be consistent with the minimum standards under the BEPS Action Plan 5 (Countering Harmful Tax Practices More Effectively, Taking into Account Transparency and Substance).

Towards this end, Malaysia has amended her tax legislation to separate Intellectual Property (IP) and non-IP incentives. The tax incentive under BoG 5 was then amended taking into consideration the following criteria:

1. Ring Fencing

No distinction in tax treatment including transaction and currency restrictions between residents and non-residents.

2. Transparency

The FHTP's requirements are included and the law relating to incentives have been legislated for public information.

3. Substantial Activities

Substantial activities requirements under FHTP are as follows:

i. adequate investment amount or annual business operating expenses incurred in Malaysia; and
ii. adequate number of full-time job employment in Malaysia.

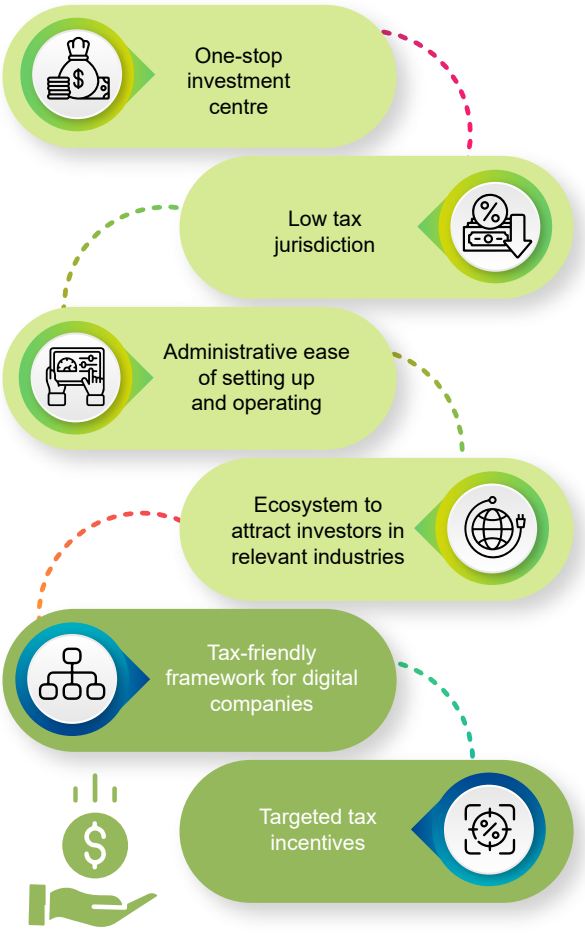
The Malaysian Government will be continually reviewing, enhancing and adapting the existing tax incentive framework with the evolving digital landscape to be aligned with its overall efforts and commitments to address various tax challenges arising from the digitalisation of the economy.

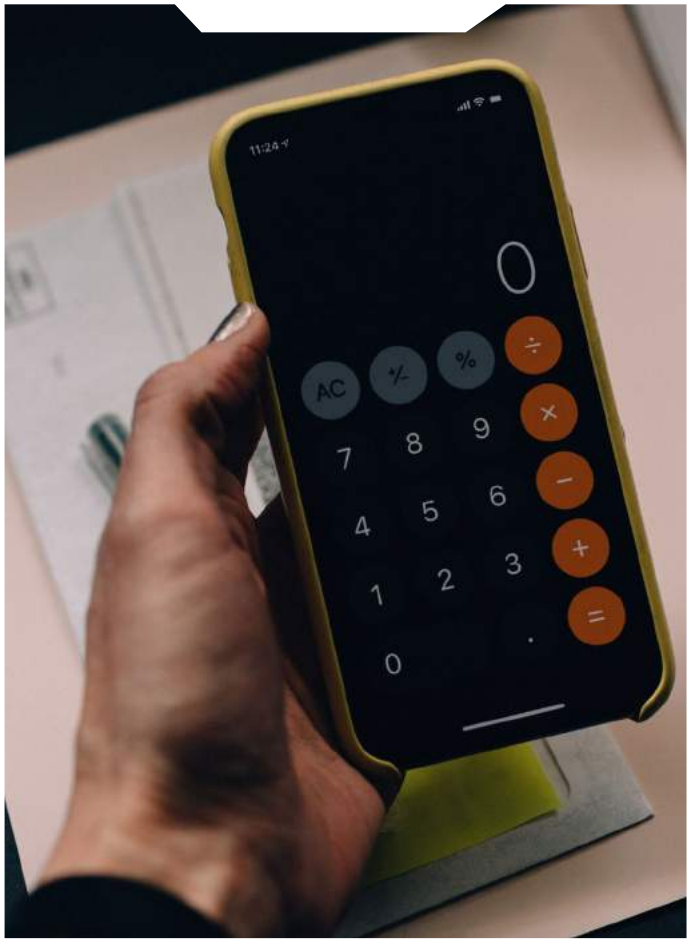
Revolutionising Policy Perspectives

Investment remains among the key factors for sustainable economic growth. With the ever transforming digital landscape, policy makers are reviewing the effectiveness of the existing tax incentive framework and the net benefits it can bring to the country.

MDEC has been actively reviewing the tax incentives for digital investment, taking into account the industry's feedback whilst aligning to global best practices and taxation standards.

Important Factors for Investment Decisions





Tax Incentive to Drive High-Growth Potential of Digital Economy Transformation

With the mission to accelerate Malaysia's digital economy, the Government launched Malaysia Digital (MD) in July 2022 to succeed MSC Malaysia.

MD seeks to transform the nation's digital capabilities and boost the digital economy by continuously and extensively creating sustainable growth for the economy, focusing on these strategic priorities in the digital era:

- Drive high-value digital investments
- Provide a launchpad for tech companies into ASEAN & beyond
- Drive digital adoption to grow local businesses
- Create a digitally-savvy society
- Facilitate a business-friendly and sustainable digital economy ecosystem

Moving forward, the tax incentives granted under MD BoG 5 are being reviewed to reinvigorate the offerings intended to attract high-value digital investments.

The following key areas are being assessed and considered by the Malaysian Government for the review:

Performance-based tax incentive framework

Government offers various types of incentives in form of tax exemption, preferential tax rates, double tax deductions as well as investment tax allowances. Taking into consideration comparative studies and benchmarking of several tax incentive models in ASEAN countries and industry feedback, the focus in reframing the tax incentive framework is aligned with MD mission to attract high quality investments into the country in order to spur more digital economic activities. The concept of a performance-based tax incentive is being carefully assessed for its feasibility in the Malaysian market context with the intention of achieving flexible and avant-garde tax incentive framework.

Targeted net benefits

The Malaysian Government and policy makers are certainly mindful of being 'too generous' and whether the incentives could achieve its goal that may result in positive spill overs for the nation. Prospective investments should raise overall economic value, while creating spill overs such as high-value jobs, strengthened domestic supply chain and improvement in environmental, social and governance (ESG) elements. A robust and holistic cost-benefit analysis as well as better understanding of the investor's appetite and behaviour is critical to ensure balance in incentives and benefit to the country. Aligned with this, the MD promoted sectors and tech enablers are strategically structured to attract targeted investments for long-term economic benefits.

Retaining and expanding growth

The changing industrial landscape and behaviour, as well as the ever challenging economic outlook forces investors to make critical business decisions. It is imperative to look into mechanisms and incentives to retain investments as well as encourage growth and reinvestment in the country, within the same sector or expanded across other industry sectors as well. Looking forward, this calls for a fresh perspective on incentives and better ROI analysis.

Conclusion

Post Covid-19 pandemic, the world has become a highly-dynamic environment with the emergence of technological disruptions, accelerated digitalisation and mobility. This requires a rethinking of existing incentives that can prepare the Malaysian economy for the future. These include designing incentives that are more targeted, relevant, and effective in attracting investments and maximising positive spill-over effects to the rest of Malaysia's digital economy.

SUSTAINABILITY

Growing Trend **Towards ESG Investment**

By Ts. Dr. Shalini Kandasamy,
ESG & Sustainability, MDEC

As the blooming new economy, the digital economy sector is expected to be more sustainable and greener than other economic sectors. Digital and tech companies are deemed disruptive forces in attracting more global investments due to their accelerated adoption by various industries.

With a strong footprint in the fourth industrial revolution, digital and tech companies must advance in multi-dimensional areas to showcase their performance besides financial returns. Integrating environmental, social, and governance (ESG) factors and Sustainability in business operations has become the secret recipe for tech companies to maintain their competitive edge.

In recent years, the role of ESG factors has gained prominence in digital investment decision-making as digital transformation, and ESG advancement goes hand-in-hand. Fund managers are increasingly evaluating the ESG performance of tech companies before investing in digital or tech-based businesses.

These portfolio managers are expanding their due diligence beyond purely financial metrics and considering ESG material matters. Previously, ESG factors were rarely captured in a company's financial reporting since those are typically regarded as non-financial issues.

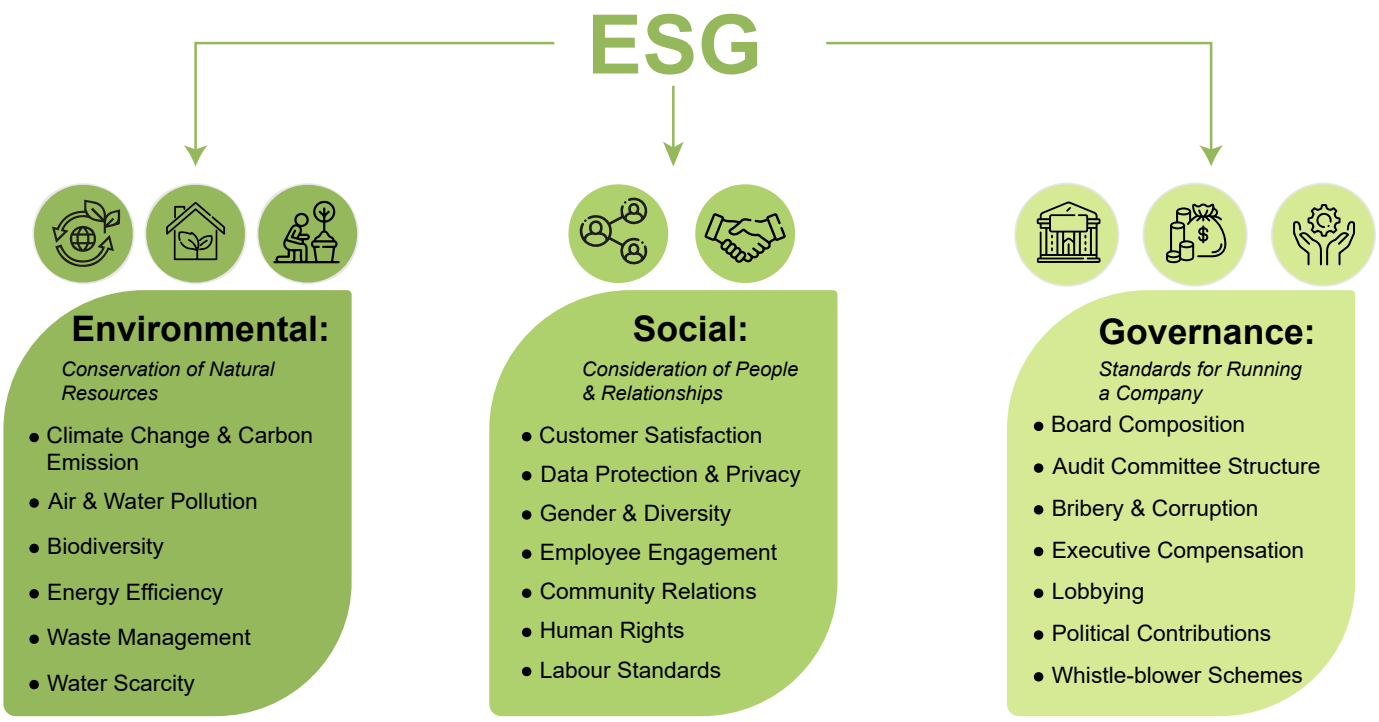
Today however, investors are applying ESG matrices in their review while weighing the material risks and growth opportunities for any prospect. In turn, this is putting pressure on companies to enhance and disclose their ESG performance in annual and sustainability reports, particularly in the case of publicly-listed companies in Malaysia.

Numerous institutions are actively working to build ESG or sustainability frameworks that can identify key material matters that play a crucial role in investment decision-making. They include Bursa Malaysia Securities Berhad on the local front as well as international bodies and organisations such as the Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), Carbon Disclosure Project (CDP), Taskforce on Climate-related Financial Disclosures (TCFD), Climate Disclosure Standards Board (CDSB) and International Integrated Reporting Council (IIRC).


ESG

Pain Points in ESG Investing

Various ESG factors must be considered in a financial analysis when an investor builds an ESG investment portfolio. Samples of ESG factors are shown in the infographic on this page.



While these ESG factors are often measurable, they are also highly interlinked, making the classification of risks or building a definitive ESG taxonomy challenging. Besides, defining an ESG material issue with a corresponding monetary value can be a complex task for investors.

To date, no single or standardised calculation method or approach is available to quantify ESG metrics in terms of financial risks or opportunities. As such, investors across the world are utilising various data sources and analytical research tools to estimate the potential value of ESG material matters to client's interests.

It is this ambiguity from the variety of techniques employed in the process that makes it difficult to monetise risks and opportunities.

Analytical Challenges of ESG Data and Decision Making

ESG data quality relies on two main factors known as materiality and validity. The materiality of data reflects the precision of the data set, where it is measured to provide meaningful insights to considerations for investment.

On the other hand, data validity refers to the data set's accuracy, which reflects the granularity, transparency and timeliness of the measured data.

The validity of ESG data is often improved by objectivity or hampered by the subjectivity of the data collected. For instance, 'hard' data that is often referred to as objective data is readily verifiable due to tangible and repeatable measurement.

On the other hand, 'soft' or subjective data are traditional sets that are challenging to measure and they include experience, opinion, assessment, survey, interpretation and modelling.

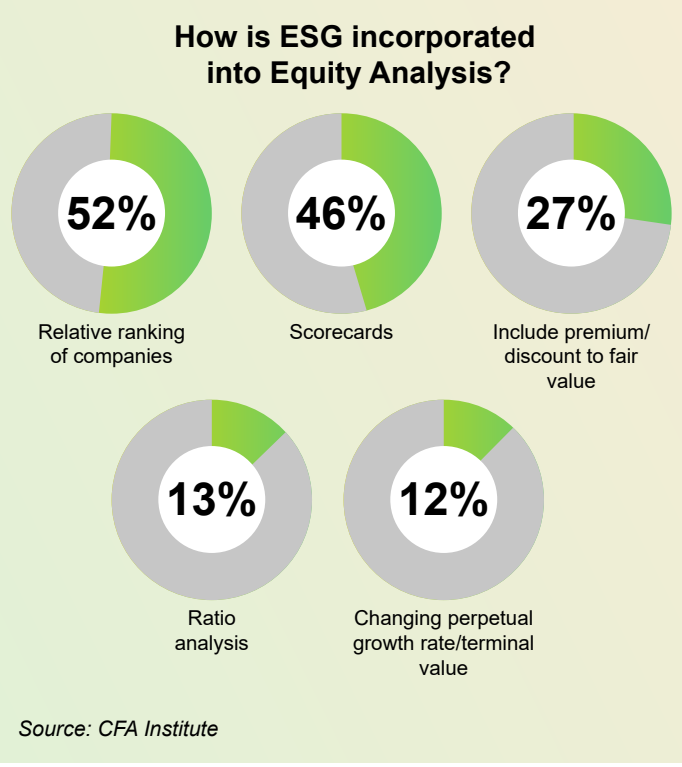
The critical challenge in handling ESG data arises when the subject matter with high materiality falls under the soft category, which raises doubt on its validity. Investors typically rely on a mix of internal and external resources containing hard and soft data for their analysis and decision-making.

The critical challenge in handling ESG data arises when the subject matter with high materiality falls under the soft category, which raises doubt on its validity. Investors typically rely on a mix of internal and external resources containing hard and soft data for their analysis and decision-making.

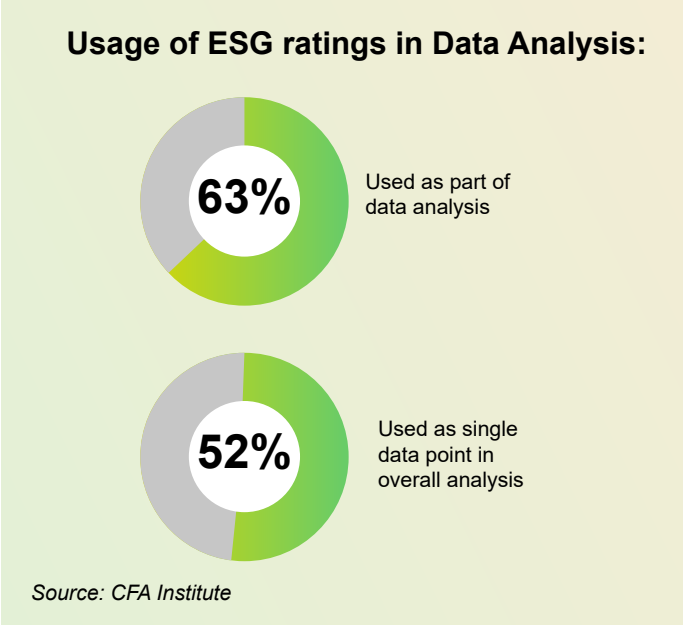
They can perform their analysis by integrating soft data collected from financial transactions, mobile devices, public records, the Internet, satellites and sensors, and integrating them into artificial intelligence algorithms to form a predictive model.

Organisations such as the MSCI and Sustainalytics use ESG ratings for their investment analysis. These ESG analyses are then used to create active investment portfolios and integrated into ESG indices.

According to investment professionals, there are various ways to incorporate ESG into equity analysis with a survey reported by CFA Institute estimating that 52% use relative rankings of companies to incorporate ESG into equity evaluation while 46% use scorecards.



Other ways used by such professionals include the addition of a premium or discount to the fair value (27%), ratio analysis (13%) and changing the perpetual growth rate or terminal value (12%). Besides, 63% of professionals responded that they use ESG ratings as part of their data analysis. In contrast, 52% only use it as one data point among others in the analysis.



There are many analytical/predictive models and rating approaches, however, they differ vastly from each other and are not subject to standards. The differences in predictive models and rating approaches arise due to the nature of the soft data collected, the research methodology applied and the models used to produce the ratings.

Subsequently, the scoring methodologies and weightages related to various ESG issues vary. This makes them weak, unreliable and non-uniform across an economic sector. Hence, these soft data must be given a financial value acceptable across the industry. A consolidated data centre should be made available to build a robust predictive model to provide vital insights into investment decision-making.

An exciting transformation is happening around the investment sphere. Venture capitalists are seriously considering designing an ESG framework to monetise environmental and social impacts on a company's financial returns. For instance, Professor Witold Henisz has developed the "Total Value Framework" as a collaborative effort with Engine No. 1 to help with ESG investment decision-making.

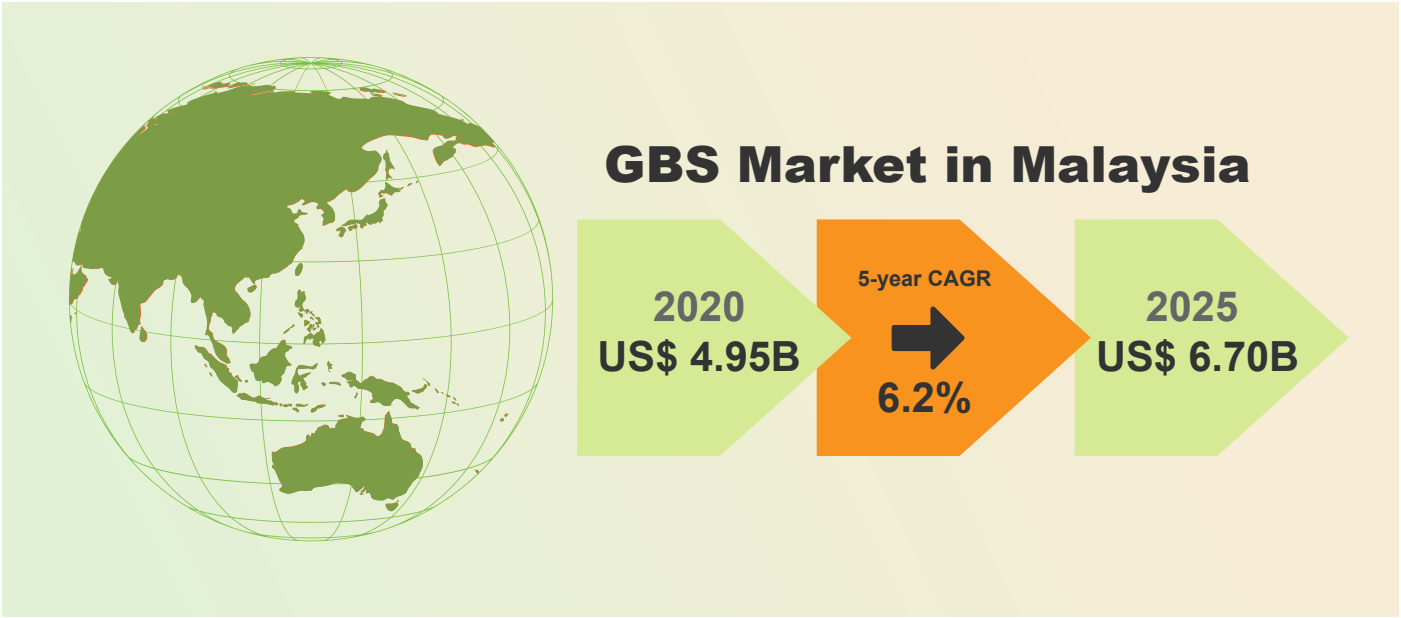
Although ESG data analysis is currently deemed challenging, with the rapid growth of AI, it is highly likely that a robust and reliable ESG taxonomy will be built in the coming years. Therefore, it is a prime time for Malaysian digital and tech companies to step up their ESG initiatives to attract more foreign investments.

Malaysia as a High Value **Digital GBS Hub**

By GBS Malaysia Research Committee, PIKOM
(Raymond Devadass, Woon Tai Hai, Phil Captain, Anthony Raja Devadoss, Cheah Kok Hoong)

Despite the global economic uncertainty, the Global Business Services (GBS) industry in Malaysia is likely to buck the trend and register stronger growth on account of our status as a viable and attractive location for GBS activities.

From an estimated market size of US$ 4.95 billion in 2020, the local GBS industry is projected to exceed US$ 6.70 billion by 2025, growing at a compound annual growth rate (CAGR) of 6.2% over the five-year period.



Currently, Malaysia is ranked the world's third most competitive GBS location behind India and China by global consulting firm Kearney, which acknowledges the nation as a strong and strategic destination offering various opportunities for high-value GBS.

Many others rate Malaysia highly in terms of location and cost-effectiveness. We placed third in Asia Pacific and 12th globally in the World Bank Group's Doing Business 2020 rankings. In addition, CBRE's Market View Asia Pacific Q2 2021 report noted that Malaysia offers the lowest office rentals in Asia Pacific.

Among the nation's many attributes listed by such agencies and organisations include the fact that Malaysia is rarely affected by natural disasters; ensures strong business continuity, is strategically placed and enjoys political stability.

Digital Evolution in GBS

As with other sectors, the GBS industry in Malaysia has been evolving with digital technology. Local GBS players are embracing digital solutions into their frameworks, progressively infusing such technologies as digital transformation (DX), automation, cloud-based services, and data analytics to provide their services.

Indeed, Malaysia's matured technology infrastructure and robust digital environment earned the nation a 3rd placing in Southern Asia and the Pacific in the IMD World Competitiveness Centre, Digital Competitiveness Ranking 2020.

Further, the 2021 Kearney Global Services Location Index also ranked Malaysia at 6th place in Asia Pacific for digital resonance. With digitalisation, the GBS industry is no longer confined to routine tasks and can shift focus to value-adding capabilities to enhance and augment the workforce.

For this reason, digital infrastructure spanning data centres, edge and public cloud resources is becoming a core platform for achieving priority digital business outcomes. Digital GBS was critical during pandemic operations and this migration has continued during the post-pandemic period.

The future of the industry will involve higher reliance as well as more skilled applications of technologies such as artificial intelligence/machine learning (AI/ML) which are key enablers for intelligent GBS services.

In addition to the expected improvements in quality, accuracy and productivity, this will also contribute to more efficient and quicker decisions that can sustain higher levels of customer experience (CX). Malaysia's GBS market continues to be an innovative and vibrant space that provides cutting edge innovation and value to various sectors. Work-from-home arrangements, which were a norm during the Covid-19 endemic phase, has made it particularly important for enterprises to commit towards accelerated digitalisation of their infrastructure.

This led to an increase in digital technology spending in 2021 with sizeable investments allocated to enhance CX. Malaysia's progress in GBS is an achievement which is likely to be noticed by the Government and this would open up possibilities for government agencies to implement initiatives and strategies for better and more progressive outcomes.

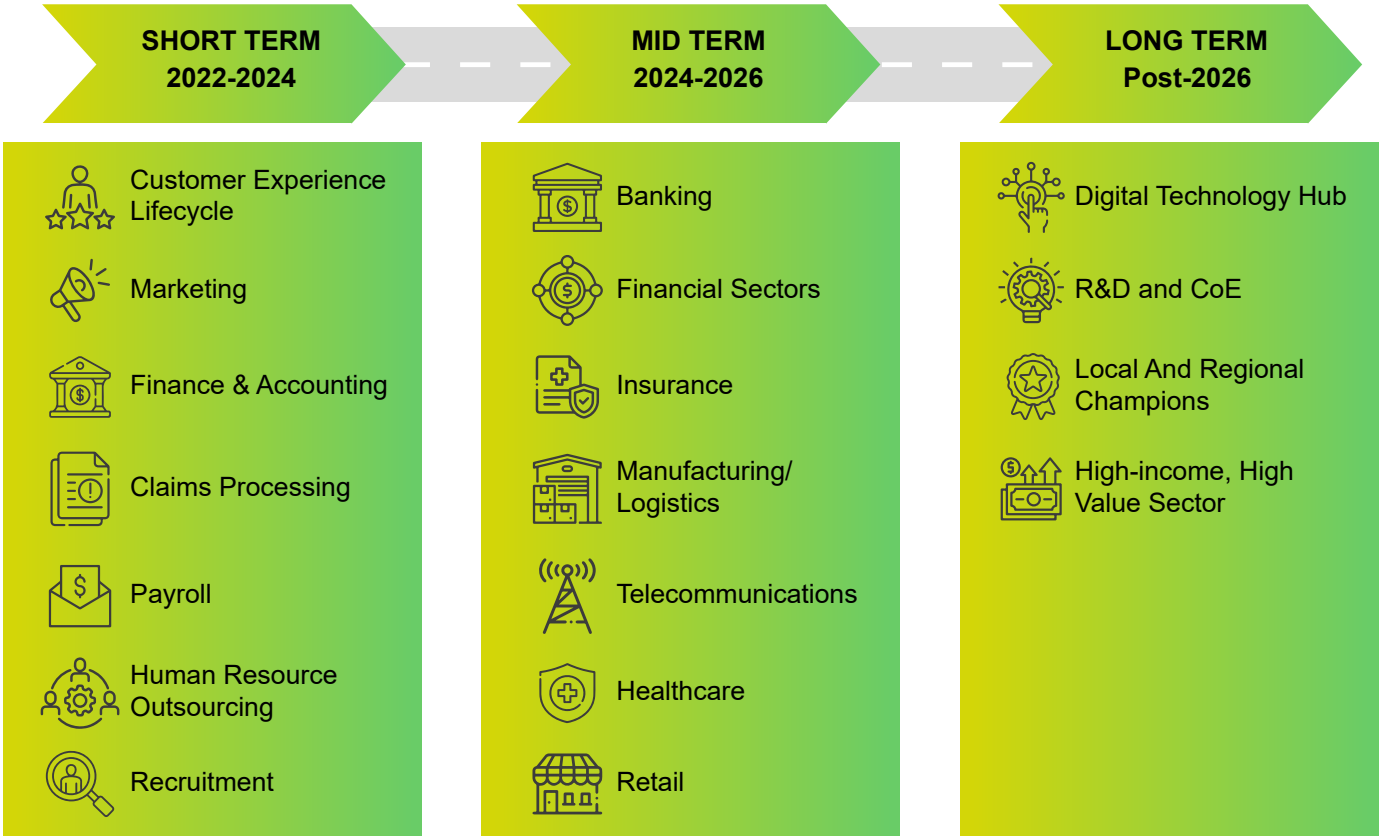
We are already witnessing such moves with the national effort to adopt and implement 5G technologies one example of the Government's interest and commitment.

Focus Areas to Strengthen GBS Industry

Going forward, Malaysia should incentivise policies such as subsidies and tax exemptions. As Malaysia strives to strengthen and increase the effectiveness of our tax system in order to generate more revenue, the Government is paying greater attention to tax policies while also stepping up support for a fair and efficient system of taxation.

Another focus area must be on emerging technology skill sets especially for cloud, big data analytics (BDA) and robotic process automation (RPA).

Malaysia's Vision as a GBS Destination of Choice



Cloud-based development brings the advantages of cloud computing to software development by hosting development environments in the cloud. Such environments support coding, design, integration, testing and other development functions to build both on-site and cloud-native applications which will result in long-term cost efficiency, speed of service and on-demand convenience.

AI technologies like ML and modelling must be acquired and incorporated into applications via application programming interfaces (API) and cloud-based services.

To ensure Malaysia's current position within the global industry is sustained, we should strategise and explore collaborative efforts with universities to roll out more effective solutions. GBS companies and government agencies must also work hand-in-hand to bridge the talent supply versus demand gap.

Other measures include expanding Malaysia's data centre capabilities. This would include investment into sustainable energy sources and development of more comprehensive policies such as the General Data Protection Regulation (GDPR) for better data protection and sharing.

Vision for Malaysia as a High Value Digital GBS Hub

The Malaysian GBS industry can only continue to grow from strength to strength from its current position and the overarching vision is for Malaysia to be viewed as a high-value digital GBS hub.

This vision is in line with the nation's goals of becoming a high-income nation, a premier destination for foreign direct investment (FDI), a hub for future talent and an economy based on digital ideas. This is the future we must work towards.

To make this vision a reality, there are three distinct horizons which are specific areas that Malaysia will be focusing on from a short, medium, and long-term perspective, as shown in the infographic on the following page.

Conclusion

Malaysia continues to be an extremely attractive destination for high-value digital GBS services because of its focus on digital transformation, automation, cloud-based services and data analytics.

Short Term (2022-2024)	Mid Term (2024-2026)	Long Term (Post 2026)
Malaysia's focus will be on building on the existing strengths of the GBS industry and ensuring their continuous evolution. On this front, the focus would be on customer experience lifecycle, marketing, finance and accounting, and other horizontal services such as claims processing, payroll, human resource outsourcing and recruitment. Southeast Asia, in particular Malaysia, continues to be a compelling market for regional and global technology companies and mature startups. The availability of Malaysia's connectivity infrastructure and the promise of a digitalised infrastructure in the near future bodes well for organisations looking to service multiple regional locations from a singular hub. Malaysia's digital workforce continues to skill up in order to cater to the growing needs of captive operations. Basic skill sets already exist in Malaysia, but advanced computer programming, data science and even robotics, internet of things (IoT) and blockchain are becoming new courses at universities.	Malaysia will continue to hone and utilise all skill sets attained, jobs created, sectors introduced and investments obtained into providing verticals of specialisation in the GBS industry. The focus is on banking, financial sectors, insurance, manufacturing /logistics, telecommunications, healthcare and retail. By moving into vertical specialisation, we understand that these are the critical industries driving the economies in Malaysia as well as other countries in Asia and the West. The only strategic moves are providing high-value niche services, maturing the digital workforce and ensuring continuous, innovative, and resilient services across these vertical industries. This will provide momentum and spinoff to other industries that will catch on in the time to come. It is imperative to build this strong foundation now and towards the medium term.	The long-term view of the domestic GBS industry is one that is vibrant, sustainable and high value. The goals and objectives for Malaysia to achieve by 2026 involve the following: • Malaysia as a digital technology hub catering to technology captive centres and high-value industries; • The emergence of Malaysia as a R&D and CoE hub for multiple verticals looking to innovate and complement their operations; • Homegrown providers to emerge as local and regional champions, serving markets throughout ASEAN, Asia Pacific and the world; and • Become a high-income, high-value sector, creating more jobs and a sustainable career path.

Focus Areas for Malaysia's GBS Industry

The attraction of Malaysia lies in its strengths in key areas such as government policies, strong private and public collaboration, maturing and vibrant digital workforce, and a world class digital infrastructure.

The nation has a structured roadmap divided into short, medium and long-term goals places that emphasise on transitioning horizontal skill sets to key verticals of specialisation to sustain and enhance an already vibrant industry. As such, it is only natural that Malaysia could well emerge as a leading global GBS hub.

Why Do Major Digital Studios **Invest in Malaysia?**

By Radlin Ramsah, Juleza Pulai Poh & Jasni Zain
Digital Content Development, MDEC

Numerous internationally-renowned studios have established operations in Malaysia in recent years. This is hardly surprising given that Malaysia has a strong ecosystem, economy, workforce, high-tech infrastructure and supportive government.

To date, there are more than 300 digital creative studios with a workforce of over 10,000 talents. In addition, educational institutions produce more than 3,000 graduates in digital creative disciplines each year. Meanwhile, the ecosystem for digital content generates an average of RM7 billion in revenue annually.

Malaysia's Competitive Advantage

Over the past 15 years, the industry has received assistance from several government agencies, notably the Malaysia Digital Economy Corporation (MDEC) and this has enabled digital content creators to generate intellectual properties (IP) of the highest calibre.

As outlined under the 12th Malaysia Plan, such support is not confined to local studios but also extended to foreign ones based here with the goal of increasing the number of original Intellectual Property (IP)s generated within the country. On its part, MDEC focuses on attracting additional studios to invest in Malaysia in order to expand employment prospects for talented young Malaysians.

These studios provide our talents with the opportunity to work on international projects, which in turn will broaden their experience and knowledge necessary to produce top-notch, global IPs.

Game development, animation and creative technology are the three main areas where MDEC has implemented programmes to support the digital creative industry. The initiatives were developed in accordance with a 10-year Digital Content Ecosystem Framework, which aims to offer sustained assistance to the sector. They are also intended to support efforts to develop the talent ecosystem and attract global as well as domestic investment.

3 Major Areas for Malaysia's Digital Creative Ecosystem

Game Development

Development of studios supporting game art and co-development of global blockbuster

Supporting and developing award-winning indie studios

Facilitating top featured games and exclusive platform deals

US$ 786M
Game Market

>100
Game studios

>RM1B
Annual exports

Animation

International exposure of homegrown animation IPs

Promotion and development of world class animation and visual effects services and studios

>RM567M
Animation industry size in Malaysia

>120
Market and territories

>80
MY IPs in international markets

Creative Tech

XR (Extended Reality) and digital content industrial applications (eg. simulation, virtual production)

Application of creative tech in new platforms (eg. Over-The-Top (OTT) streaming, blockchain gaming, Non-Fungible Tokens (NFT) and creator-led decentralised technologies)

Interactive media development for education, socio-economic and cultural preservation

>US$ 1.8B
OTT Market Size in Southeast Asia

US$ 1.46B
Global virtual production market size

804K
Blockchain gaming active users

Financial assistance is provided via programmes such as MDEC's Digital Content Grant (DCG) and the Digital Content Creators Challenge (DC3). Further, MDEC has also organised several industry events including LEVEL UP KL and the Kre8tif Conference to provide ecosystem players with platforms to develop and expand their commercial potential.

Over and above this, MDEC assists digital creative studios with business development and networking by bring them on trips and visits to prominent games and animation festivals worldwide.

In the case of talent development, MDEC consistently connects institutions of higher learning with studios to encourage more cooperation and collaboration in their syllabus in order to ensure graduates have the relevant know-how and skillsets.

Another programme, Creativity@School, encourages primary and secondary school students to produce their own games and animation short films by offering free training and giving them the chance to compete at the national level.

For university students as well as yet-to-be employed talents, MDEC's Enterprise Development Programme helps to close any skill gaps in technical, business acumen and educator development.

MDEC's progress in developing local digital creative content players has not gone unnoticed, with international studios investing and setting up operations in Malaysia. They include Bandai Namco, Playstation Studios Malaysia, Double Eleven, Larian and many more. With the combination of strong global players and a healthy local studio ecosystem, Malaysia is on the right path to building bigger and better content for all.

Elvis Chew
Head of Production
Anima

"Next year, 4th of June will be Anima's 10th anniversary. It has been a fantastic journey for us. With a team of 90 employees in Kuala Lumpur, we have worked on and completed at least eight independent seasons of a TV series. One primary reason we chose to branch out to Malaysia is its central location in Asia, which means a big talent pool from Southeast Asia and India, as well as its modern infrastructure. Further, the local talent pool is not constrained by language barrier. In addition, the industry has benefitted immensely in Malaysia from the support it has received through the various incentives and grants on offer from local government agencies."

Mufizal Mokhtar
General Manager
Virtuos
Kuala Lumpur.

"I believe in Malaysia's deep pool of raw and experienced talent, and their potential to accelerate the growth of our local game development industry. Through Virtuos and our global resources, we look forward to providing local talent exposure to big AAA-quality games to develop their skills in both design and engineering. Together, we look forward to growing a full-stack game development studio that can produce games from conception to production and ultimately, ship some of the biggest AAA games here in Malaysia!"

Associate Professor Ts. Dr. Tan Chin Ike
Head of School
School of Computing Asia Pacific University of Technology and Innovation

"For such a small country, Malaysia has a unique advantage of having a very close-knit game development community that extends to academia, industry and government agencies like MDEC. Malaysia also has over 15 institutions of higher learning offering various levels of video games qualification, ranging from game art, game design and game technology. This has led to a significant talent output since 2017 and has helped provide the game development ecosystem with a critical mass of game development talents."

SOCIETY


VIET NAM
KEEP CALM

DIGITAL TALENT

Reimagining the **Workforce of Tomorrow**

By Nur Asyikin Abdul Najib,
Digital Talent Pipeline, MDEC

The Covid-19 pandemic has created an uncertain outlook for the labour market, hastening the future of work in which digital transformation is becoming a necessity for all.

Contrary to common perception, however, digital transformation has less to do with technology but more to do with people since our journey to the digital future depends on the next generation of skills. In this regard, it is critical that we future-proof our talent base in narrowing the gap between the supply and demand of human capital in the digital arena.

One lesson we are continuing to learn is that talents need agility to thrive in a future where roles and job functions are fluid and increasingly being replaced by automation, outsourcing, and self-organising teams.

Rising Demand for Digital Skills and Jobs

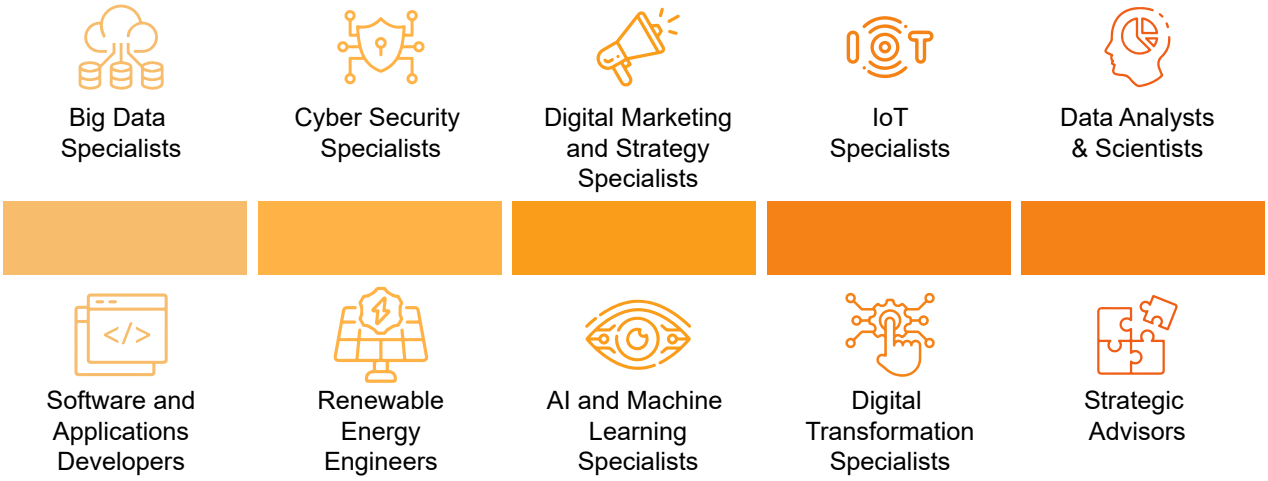
The World Economic Forum (WEF) highlighted in its Future of Jobs Report 2020 that 97 million new roles will emerge in 2025. Specifically for Malaysia, eight of the 10 emerging jobs will require digital tech skills. WEF also projected that 50% of all employees would require reskilling by 2022.

Malaysia's digital economy has been growing and evolving in response to the global economy, resulting in the rising demand for digital talents especially since the advent of the pandemic.

Insights from a Digital Talent Snapshot prepared by the Malaysia Digital Economy Corporation (MDEC) in 2021 show a tripling of digital job vacancies in Malaysia from 19,000 in June 2020 to more than 56,000 in April 2021. The most popular vacancies were in software development, data science, IT services, and e-commerce.

Similarly, Jobstreet by SEEK recorded almost 100,000 job postings for digital-related positions in the first half of 2022 against 106,000 over the entire duration of 2021. By the end of this year, this number may grow to 200,000 or almost double the 2021 total.

Emerging Jobs in Malaysia



WEF: Future of Jobs Report 2020

In terms of skillsets, the WEF report also noted high demand for analytical and computer science skills such as software development, programming languages and computing in Malaysia and Southeast Asia.

This is supported by the findings of MDEC's Digital Talent Survey 2021, which noted that 85% of companies in Malaysia realised the importance of reskilling their employees. The survey also found that 48% of companies adopted digital platforms for day-to-day operations in 2021, up from 19% in 2020. These require skills in cloud computing, cybersecurity, data analytics, digital marketing and software development.

Essential Digital Skills

WEF: Future of Jobs Report 2020

On skillset requirements, the Critical Occupations List (COL) report published by TalentCorp on sought-after and hard-to-fill jobs in Malaysia has revealed that there are mismatches in skills among many new hires.

For a nation, mismatches of jobs can increase unemployment and affect competitiveness and attractiveness to investors, meaning lost opportunities on the pathway to fruitful transformation and job creation.

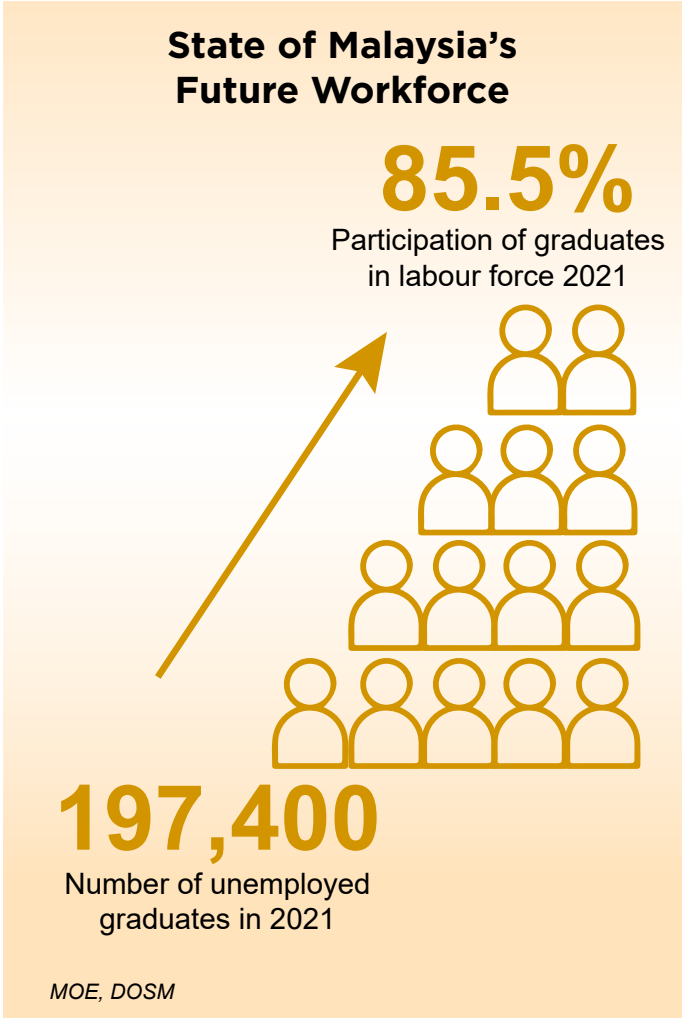
As digital technologies start to play an even more critical role in the economy, it is becoming ever more evident that the need to prepare the future workforce with the right skills for digital jobs can no longer be underestimated.

State of Malaysia's Future Workforce

A more robust talent pipeline should be a top priority to support the nation's digital transformation goals and create a secure digital ecosystem. If Malaysia is to remain a critical digital player in the future, we must begin to equip our younger generation with the knowledge and skills to do so.

Fresh graduates, for instance, are recognised as the backbone of any nation's development and significant contributors to economic activity. For Malaysia, there is room for graduates to enhance their skills in digital technologies since we require more creative and innovative graduates who can use technology to address today's challenges.

Another cohort that requires improvement are school students, who lack the skills to create digital content and solve digital problems. This issue is particularly apparent among students from rural communities.



Developing a Resilient Workforce via Partnerships

Against the backdrop of an increasingly volatile, uncertain, complex and ambiguous world, education is the defining factor on whether our future workforce can embrace the challenges they are confronted with.

The Government has recognised these challenges as the nation accelerates towards becoming a digital society. The Ministry of Education (MoE) has been encouraging public-private partnerships such as the #mydigitalmaker movement championed by MDEC to cultivate digital innovation, creativity, and problem-solving skills among students.

Since its launch in 2016, #mydigitalmaker has impacted more than 2.2 million students nationwide through the integration of computational thinking into the school curriculum and numerous co-curricular activities.

At the higher education level, initiatives such as the Premier Digital Tech Institutions (PDTI) have been introduced to ensure that industry-relevant content is incorporated into the curricula of the 16 universities and seven polytechnics in this programme.

The selection was made through collaboration with government and industry players who looked at various criteria to see if they contributed to a conducive learning ecosystem.

Among the criteria for the selection of industry-relevant content are the employability of students, industry experience among the teaching staff, mentoring and research linkages with industry and career placement services.

"Strategic partnerships such as this will accelerate the delivery of inclusive opportunities in education, employment, and entrepreneurship. It is in our interest to build the skills of young people so that no one is left behind."

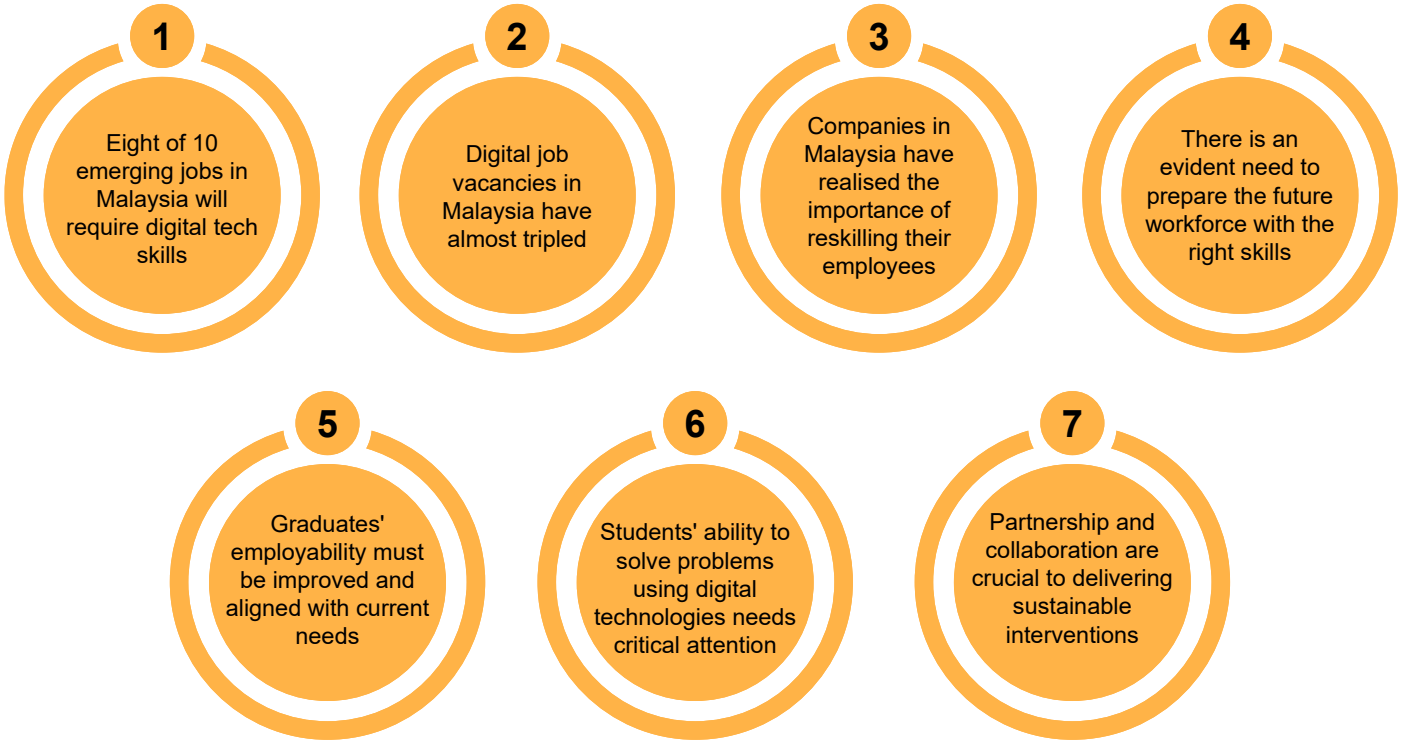
Dr. Rashed Mustafa Sarwar,
UNICEF Representative to Malaysia and Special Representative to Brunei Darussalam
2021

Takeaways for the Road Ahead

The road ahead will require a whole-of-nation approach fuelled by its skilled people. Digitalisation is changing the skills people need for work. New digital tools continue to materialise for traditional workplace tasks and technology-led job opportunities are rising – from cloud computing specialists to digital marketing.

The fast-changing talent landscape brings many new opportunities for our young generation. Essential basic and transferable skills fostered from an early age are vital in nurturing them to become agile and digitally capable for the nation to thrive.

Key Takeaways



Digital Proofing **the Next Generation**

By Nur Asyikin Abdul Najib,
Digital Talent Pipeline, MDEC

Digital disruption is creating new job opportunities and changing the way we work. Now, more than ever, we need to equip our school students with the right skillsets and mindset to ensure they remain relevant to the workforce. The #mydigitalmaker Movement was established in response to this need.

The #mydigitalmaker Movement is a joint public-private-academia initiative in collaboration with the Ministry of Education (MoE) to create a nation of digital makers by transforming school students from being digital users to becoming digital producers.

Through this movement, the students are exposed to skills such as coding, app development, 3D printing, robotics, embedded programming and data analytics; all of which will help to strengthen problem-solving and creativity among our future generation.

The #mydigitalmaker Movement takes on a two-pronged approach:

1 The Movement supports the MoE in integrating computational thinking (CT) and computational science (CS) into the national school curriculum.

2 The Movement partners with industry and academia to nurture and groom talented young Malaysians to become future digital innovators.

MDEC has played a key role in supporting the MoE in this endeavor by assisting with training teachers, school leaders and counselors as well as facilitating collaboration with the tech industry to nurture students who are gifted in digital creativity and innovation.

MDEC #mydigitalmaker Be a Dreamer. Be a Maker.

ACHIEVEMENTS (2016-2021)

2.4 mil
Students participated in digital making activities

327
Digital Ninja groomed

DIGITAL NINJA PROGRAMME #mydigitalmaker

24,000
Post-SPM students funneled to Digital Tech

24
Champion schools established

All
Schools integrated with CT & CS

65
Digital Maker Hubs activated

#mydigitalmaker

20,000
Visitors on average participated in #mydigitalmaker Fair annually

39
Continuous Professional Development Centres recognised

50
Teaching modules

59
Videos created

784
School counselors trained in digital careers

8,843
Master teachers trained in CT & CS

Saii Yashaa A/P Gopinath Rao

19 years-old, is currently a TNB scholar on the road to pursue her degree in Renewable Energy Engineering in Australia. Saii is also currently serving as one of the Country Directors for the Young Founders Summit where she continues her passion in driving change for sustainability through innovations.

Soh Wei Meng

18 years old, developed a system for his school which features the integration of data analytics and artificial intelligence for school administration. He is currently pursuing computer science studies at Tsinghua University in Beijing, China.

Muhammad Akmal Hazim Hafizul Rasydan

17 years old, has more than 400 clients and has an annual income of RM50,000 from the software he created, Benchpoint.io. This software provides remote speed test solutions and a benchmarking system for consumer servers.

Distilling Lessons on Wealth Creation **Through Digital Innovations**

By Ruslena Ramli,
Fintech and Islamic Digital Economy, MDEC

Financial inclusion has been on the Government's agenda since the launch of Bank Negara Malaysia's (BNM) Financial Sector Masterplan in March 2001. Fast forward to today, World Bank has lauded Malaysia for coming a long way to achieving one of the highest levels of financial inclusion among middle-income countries. BNM's Financial Capability and Inclusion Demand Side Survey 2021 revealed an improvement in the Malaysia Financial Literacy and Capability (MYFLIC) Index to 59.0 (2018: 57.1), reflecting a significant increase in the financial knowledge score and a better score on financial attitude.

This is illustrated in the infographic which presents the landscape of Malaysia's financial inclusion and literacy levels.

Financial Inclusion and Literacy in Malaysia

Level of financial knowledge	**1/3** Malaysians rate themselves as having low financial knowledge		
Saving & Budgeting	**84%** Malaysians only save regularly for the immediate term	**76%** Malaysians have a budget, but...	**2/5** ... find it difficult to keep to it
Readiness for unexpected events	**52%** Malaysians have difficulty raising RM1,000 in emergency funds	**24%** Malaysians can sustain themselves for 3 months if they lose source of income	**17%** Malaysians have life insurance and takaful cover
Planning for retirement	**50%** EPF members have <RM10,000 due to pandemic withdrawals	**41%** Malaysians rely on EPF savings as main source of retirement income	
	50% Malaysians are not confident of having adequate retirement income	**60%** Adults are self-employed and not covered by retirement system	

Malaysia National Strategy for Financial Literacy 2019-2023

Empowering Individuals to Improve Financial Well-being

To support the national agenda for financial inclusion, the Government established a Financial Education Network (FEN) in November 2016. FEN empowers individuals with the knowledge and skills to improve their financial well-being - defined as a person's ability to meet current and ongoing financial obligations and to feel secure in their financial future.

Improving financial literacy across all segments of society requires a systematic, sustained and coordinated approach. Technology advancements and digitalisation have significantly broadened and deepened access to faster and cheaper services and financial management tools.

In tandem, several mobile apps and fintech players have emerged among the key drivers spurring financial inclusion and literacy.

These notable digital developers serve the Islamic digital economy, which is blossoming in response to the pent-up demand for Shariah-complaint products and services.

They include Wahed Sdn Bhd, SaphX Technologies Sdn Bhd and HelloGold, whose views and efforts to improve the financial inclusion and literacy of Malaysians are featured in this article:

Malaysia's gig economy is growing fast with statistics recording a working population of five million (or 30% of the Malaysian labour force). The gig economy is defined as the exchange of labour for money between individuals or companies via digital platforms. Based on market statistics, more than 50% of these gig workers do not have a retirement plan, and 55% have financial buffers below three months.

In support of the Government's financially-inclusive agenda, PoD has successfully enabled micro-saving and micro-financing. The platform's pool of customers also includes the underserved segment.

Nadia Ismadi,
Co-Founder and CEO, PoD

Leveraging Islamic fintech, PoD has uniquely positioned itself as a prominent player that serves the investment needs of this fast-growing workforce, which has the potential to grow to 70% of the workforce in Southeast Asia.

Building awareness of the potential pitfalls and the importance of being prepared will help nurture a generation of digitally-enabled gig investors.

Ridwan Abdullah,
Co-Founder, HelloGold

As the name suggests, HelloGold became the world's first Shariah-compliant mobile app that allows investment and selling of physical gold. Connotation of gold being a *ribawi** item did not stop us from exploring the opportunities in Shariah-complaint gold investing.

We are proud of our 200,000+ customers from various countries. Since inception, the HelloGold platform has lent support to address financial inclusion as well as financial literacy. The fact that gold is a safe haven investment has encouraged customers to invest in the platform. Backed by blockchain, the mobile app has enabled greater transparency and security over its gold transactions.

Embracing advanced technology has been a boon in developing our flagship GOLDX that uses smart contracts to digitise gold. This allows our customers to purchase gold on any cryptocurrency exchange that offers trading of the token. HelloGold's remarkable inroads have become a prime example of the value proposition that Islamic fintech can bring to global communities.

**As a ribawi item, gold can only be bought and sold at spot and deferred payment as the purchase of gold is not permissible under the shariah. These factors have discouraged the use of gold as an investment commodity for Shariah-compliant products. In 2016, the World Gold Council and Accounting and Auditing Organisation for Islamic Financial Institutions (in consultation with Armanie Advisors) teamed up to work on a new gold standard that has become a game-changer for the global Islamic finance industry.*

In the past, retail investors gravitated towards investing in physical assets such as properties, gold and silver. The concept of robo advisory, let alone digital assets, has yet to reach the masses in some parts of the world.

A pioneer in investing the ethical and *halal* way, Wahed is the world's first global robo advisor providing digital investment solutions in Shariah-compliant global equities, *sukuk*, gold and real estate to retail investors.

Since its launch in Malaysia in October 2019, Wahed has witnessed solid growth in our customer base despite the pandemic. As people adapted to the new normal, a pivot toward digital investments was inevitable. The healthy performance of the US bourse in the past year has driven much more interest in our services. Wahed's presence has contributed significantly to improving financial literacy.

Wahed's Malaysian clients, who have grown to 100,000+ are investing in Exchange Traded Funds (ETFs) for the first time. Its easy-to-use mobile application enables customers to understand and invest in American, Chinese and Malaysian stocks, which allows wealth diversification.

We serve everyone, from fresh graduates looking to save for their weddings to professionals in the oil & gas sector who need a simple way to grow their money without compromising their religious beliefs.

Juliana Abu Bakar,
Country Head Malaysia, Wahed

Wahed's 'Savings Booster' programme encourages Malaysians to save for their financial goals via discounts from selected merchants providing dental, *umrah* and other healthcare services on the Wahed app.

Wahed continues to build products for everyday Malaysians to use and achieve personal financial goals in a simple, ethical and *halal* way.

Conclusion

The pandemic has highlighted the importance of financial inclusion and literacy to safeguard one's financial well-being. Now more than ever, we need sustainable call-for-action strategies.

There are concerted efforts between the Government, regulators and key stakeholders for this national agenda. In support of this, MDEC has launched several programmes including partnering with ecosystem partners to foster financial inclusion for unbanked and underbanked populations in rural communities as well as to drive digital adoption.

Today, MDEC continues to explore dynamic partnerships with the private sector to reinforce Malaysia's positioning as a digital powerhouse that engages global champions.

Financial Education Network (FEN)

The FEN comprises government and government-linked organisations which include BNM, Securities Commission Malaysia (SCM), Ministry of Education (MoE), Ministry of Higher Education (MoHE), Malaysia Deposit Insurance Corporation (MDIC), Employees Provident Fund (EPF), Credit Counselling and Debt Management Agency (CCDMA) and Permodalan Nasional Berhad (PNB).

FEN has formulated a National Strategy for Financial Literacy 2019-2023, a five-year roadmap to raise the financial literacy of Malaysians and to empower them to: save, manage and protect their finances; plan and ensure a sustainable future; and protect themselves from fraud and financial scams.

DIGITAL AGTECH

Seeding Digital AgTech To Harvest Digital Transformation **Across The Agriculture Sector In Malaysia**

By Navin Sinnathamby,
Digital Agriculture and Drone Technology Ecosystem, MDEC

Digital Agriculture Technology, or also known as Digital AgTech in short, is all about the infusion of digital technologies such as the Internet of Things (IoT), Big Data Analytics (BDA) and even Artificial Intelligence (AI) into the agricultural value chain. The key expected outcomes from this 4IR Technologies infusion includes benefits such as increased food productivity and quality, reduced dependency on food imports, increased income and revenue, reduced operational costs, plantation optimisation and increased interest and participations to sustain and scale Digital AgTech adoption across the agriculture sector.

Programmes such as the Malaysia Digital Economy Corporation (MDEC)'s eLadang/Digital AgTech aspires to modernise the agricultural sector by scaling digital adoption as well as increasing tech industry interest and participation in the sector in the development of Digital Farmers, in turn creating sustained technology adoption towards productivity-enhancing outcomes that addresses the Food Security and boosts the growth of national Digital Economy.

The perennial misconception of agriculture as a low-skilled, low-income activity must be confronted. Malaysia should adopt the mission to catalyse a mindset shift away from perceiving agriculture as dirty, dangerous, and difficult (3D), towards a sector that is high-skilled, highly productive and technology intensive in which it can pride itself on. One key method to achieve this is through a vibrant seeding of diversified Digital AgTech deployment across the nation, which is crucial for harvesting Digital Transformation with a key emphasis on inclusivity, sustainability and scalability throughout the agriculture sector.

With Digital AgTech deployments focussed across the three agriculture sub-sectors in Malaysia, covering crops, fisheries and livestock, collaborative efforts can be actively being pursued to bridge the demand (farmers), supply ecosystem (technology partners) and the industry. To this end, MDEC's eLadang initiative aims to facilitate diversified pilot project deployments for adoption, while upskilling and reskilling farmers with training, and also providing funding support in order for more farmers across the nation to adopt Digital AgTech solutions at scale.

Digital AgTech pilot projects are being developed and deployed across the nation based on real on-the-ground problem statements by the farming community.

To further appreciate these developments, there is a need to understand the challenges faced by each agricultural sub-sector. For instance, one of the main problems under the crops sub-sector is the fertigation and irrigation process, which is still done manually. This process is very prone to errors, which will affect overall yield, productivity and income.

Today, there are Digital Farming Systems in place, which is powered by smart sensors that control and automate key farming processes based on real-time data towards precision farming, which optimises crop management based on things such as weather variability.

In the fisheries sub-sector, a key challenge is the manual-based pond monitoring and control process. However, the key condition parameters (i.e., electrical conductivity (EC), pH, dissolved oxygen, etc.) are now able to be controlled and monitored through a data driven approach with real-time analytics that can create the most conducive and productive environment for marine creatures such as prawns and fish to thrive.

Finally, the livestock sub-sector also has a manual-based water monitoring and treatment process. With the development of Digital Poultry Systems, the farmers are now able to regulate water monitoring, treatment and management processes with greater accuracy, which is one of the most crucial factors for improving the overall productivity of poultry farming and ultimately contributing to the income for the farmers.

Agricultural inputs influence the quality of outputs, which in turn impacts the ability of the producer to command a greater price over their products. While farmer income levels may be a complex mechanism and challenge for policymakers to consider, it has a surprisingly practical solution, which is the empowerment of Digital Agtech across the agriculture sector.

Benefits To Digital AgTech

Digital technologies have the potential to generate beneficial outcomes for agriculture

Livestock: Smart Monitoring and Automated Water Treatment, Johor

A pilot project in Johor involved poultry farming where the control of water infused with vaccines and other medicine is critical to the health of livestock. MDEC and its partners introduced a Smart Monitoring & Automated Water Treatment System that enabled farmers to monitor and automate water treatment remotely.

Aquaculture: Smart Pond Monitoring and Automated Control, Penang

Manual monitoring and control of fish ponds have been unproductive processes for aquaculture farmers. MDEC carried out a digital aquaculture project in Penang for the deployment of a Smart Pond Monitoring & Automated Control System to manage key aquaculture parameters such as pH levels and biological oxygen demand (BOD). The project was successful in creating conducive and productive environments for marine life.

Crops: Smart Fertigation and Irrigation, Selangor

A persistent issue faced by farmers was manual fertigation and irrigation of crops, processes that are commonly prone to errors and which affect productivity and income. MDEC collaborated to implement the initiative's first pilot project in 2018. This involved the installation of smart sensors to provide real-time data, and to control and automate the fertigation and irrigation processes. This Smart Fertigation and Irrigation System for chilli plantations is a first step towards precision farming.

With regards to the aspiration of improving the livelihoods of participants across the agriculture value chain through Digital AgTech empowerment, it is highly crucial to identify and engage the right key stakeholders. It is also imperative to highlight the need to nurture greater demand for agricultural digital transformation, especially from the perspective of improving the state of food and agricultural productivity in Malaysia.

We must be cognizant of how reliant the country is on the importation of particular crops, while also gathering feedback from Malaysia's local farming community to understand the key challenges faced by the traditional sector. This way, the right ecosystem partners can be engaged towards the development of feasible and viable Digital AgTech systems.

With digital transformation, we need to carry out the process carefully too. For example, forcing farmers to figure out the unfamiliar world of AgTech by themselves would be unfair. Whilst there is a dire need for a mindset shift, the fact is that agriculture is indeed getting more attractive and lucrative today with the injection of new and emerging digital technologies driving digital transformation across the sector.

Nevertheless, farmers may still have their reservations about adopting digital technologies and processes, especially when this may break away from often long-held traditional practices that have been passed down through generations of farming experience.

However MDEC, through its extensive experience on ground, has found that implementing these tech solutions have indeed resulted in realised benefits to farmers' income and productivity. But, there is a need to communicate these benefits and empower farmers with digital proficiency and knowledge.

Hence, it is highly essential to equip the farming community with practical upskilling/reskilling modules on digitalisation so that they are able to step out of their traditional mindset and understand, integrate and modernise their current manual farming operations. These awareness activities not only equip farmers with new knowledge, but also enables them to effectively adopt Digital AgTech systems that increase their farm productivity and income while reducing overall operational costs.

Under the purview of Ministry of Communications and Digital, MDEC had been actively seeding Digital AgTech initiatives since 2018 to promote Digital Transformation across the nation's agriculture sector. Under the eLadang program driven by MDEC in collaboration with key stakeholders and ecosystem partners, over 15 collaborative pilot projects had been successfully deployed across the nation, covering crops, aquaculture and poultry to validate, sustain and scale Digital AgTech adoption across the agriculture sector. This led to over 15 Farming Associations to be empowered with Digital AgTech adoption and over 1,500 farmers trained on various Digital AgTech solutions.

It is encouraging to note that, these pilot projects have resulted in over 20% increases in income and productivity with much better overall quality of yield for farmers, as well as a reduction of over 30% in overall operation costs. More importantly, these digital transformation projects have helped to improve the livelihood of the local farming communities across Malaysia.

MDEC, in collaboration with key stakeholders, have engaged and onboarded several financial institutions including Agrobank, CIMB Islamic Bank, Bank Pembangunan Malaysia Berhad (BPMB) and Unit Peneraju Agenda Bumiputra (TERAJU), to provide micro-financing to eligible farmers and technology partners who implement Digital AgTech solutions that are validated by MDEC.

These efforts ensure continuous alignment with the national Program Modenisasi Rantaian Nilai Agromakanan (PMRNA), Majlis Ekonomi Digital dan Revolusi Perindustrian Keempat Negara (MED4IRN) and Dasar Agromakanan Negara 2021-2030 (DAN 2.0).

With more digitalisation efforts across the agriculture value chain, coupled with proactive policy shifts, Malaysia is well-positioned to unlock greater economic value from this sector.

Close collaboration between public and private sectors are encouraged to build a sustainable ecosystem that would increase the productivity, yields, and support economic growth in the rural areas, as well as to narrow the digital divide and income while balancing the food security needs. Digital AgTech has the potential to fortify national food security and boost the growth of the Digital Economy.

eLadang Pilot Initiative

Transformation
Empowering Farming Associations with validated Digital AgTech solutions across the 3 agriculture sub-sectors, i.e., crops, fisheries and livestock

Digitalisation
Training sessions on validated Digital AgTech solutions to increase awareness, reskill and upskill for adoption by Farming Associations

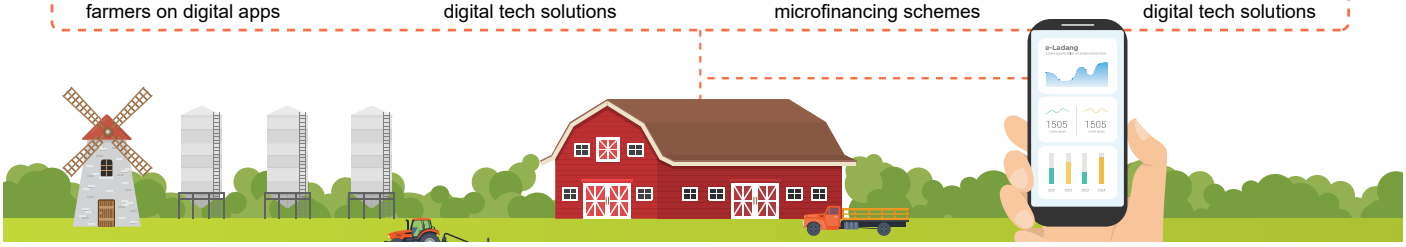
Ecosystem
Engagement with partners, including financial institutions, technology providers and farming associations for adoption at scale

Trainers
Upskilling and reskilling farmers on digital apps

Farmers
Generating demand for digital tech solutions

Financial Institutions
Providing funding support via microfinancing schemes

Tech Providers
Facilitating the supply of digital tech solutions

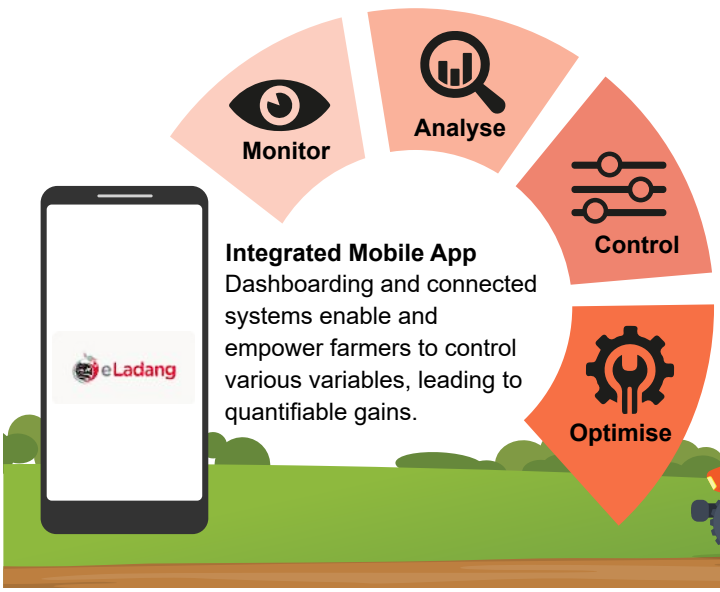


eLadang Digital Labs/Satellite Farms

1,500

Farmers trained and certified on digital technology adoption to increase yield, improve quality and raise their income (as at end 2021)

Gains from eLadang Initiative



Integrated Mobile App
Dashboarding and connected systems enable and empower farmers to control various variables, leading to quantifiable gains.

Increased Productivity
>20%

Increased Income
20%

Reduced Costs
30%

Raising Digital Salaries **to Arrest Brain Drain**

By Woon Tai Hai,
Research Committee Chair, PIKOM

Malaysia's digital economy has been growing at a healthy pace over the past 10 years, repeatedly outstripping the performance of the national economy to the extent that digital contributions now account for an estimated 25% of gross domestic product (GDP).

As an increasingly critical component, the digital economy is poised to maintain a high growth rate on the back of accelerated adoption of 4IR (Fourth Industrial Revolution) technologies across all sectors, particularly since the unique circumstances created by the Covid-19 pandemic.

Yet, a sustainable digital economy ultimately depends on the nation having a sufficient pool of talents capable of developing digital applications and assimilating them into work and life processes in business, industry, society and government.

For this reason, Malaysia's long-standing brain drain of talents is arguably the defining challenge we face to drive momentum in digital growth and maturity, and by extension, to become a fully-developed economy.

Over the years, the National Tech Association of Malaysia (PIKOM) has been among the most strident voices in highlighting the threat of brain drain and calling for urgent measures to arrest this outflow of human capital.

Prevailing indications are that this phenomenon is increasing at an exponential rate, as pointed out by a recent report released by think tank Emir Research, which revealed as many as 500,000 Malaysians are working overseas.

We have been losing talents to fully-developed economies such as Singapore where remuneration is considerably higher and fast-emerging ones like Thailand and Indonesia where digital prospects are more attractive.

Over and above Malaysian talents based abroad, local business and industry are further deprived of homegrown talents with the emergence of the digital nomad, who can reap higher wage returns doing work for overseas employers while bearing domestic expenses.

PIKOM strongly believes that any attempts to reverse this debilitating loss of digital talents must start by raising the salary packages and financial benefits of digital professionals working in Malaysia.

Regional Benchmarking of Digital Salaries

For the past 14 years, PIKOM has collaborated with various local and global employment agencies to track and benchmark salaries of digital jobs offered by local industry players against those of selected regional economies. These findings are featured in PIKOM's annual Digital Job Market Outlook.

The insights gleaned from this benchmarking are intended to guide and encourage Malaysian companies to package attractive returns in order to retain their digital professionals while at the same time giving local talents a better picture of career prospects in different markets.

Benchmarking Parameters and Processes

For this benchmarking exercise, we sourced and curated salary data from Payscale on:

- 61 digital jobs in three position levels;
- 3 position levels (technical, managerial and C-level); and
- from 21 economies including Malaysia.

The salaries in national currencies were converted into US Dollars using the prevailing currency exchange rate between the greenback and the respective currency. To benchmark Malaysia against other economies, these salaries in US$ were also converted after taking into consideration the purchasing power parity (PPP) for each economy.

Selected Economies: 21

WESTERN / ENGLISH-SPEAKING (5 ECONOMIES)	AFRICA/LATIN AMERICA (2 ECONOMIES)	ARAB REGION (4 ECONOMIES)	ASIA (10 ECONOMIES)
US	South Africa	UAE	Malaysia
UK	Brazil	Saudi Arabia	Singapore
Canada		Qatar	Thailand
Australia		Kuwait	Indonesia
New Zealand			Philippines
			India
			Hong Kong
			South Korea
			Japan
			China

Table 1 compares US$-denominated salaries of digital professionals in the selected economies benchmarked against counterparts in Malaysia. Southeast Asian economies such as Singapore and Thailand provide higher remuneration to their digital professionals. As expected, talents in Singapore earn on average 2.72 times and Thailand 1.45 times more than Malaysians. We note with concern that Thailand, despite being less developed than Malaysia, is surging ahead in the digital economy with much higher average salaries for their digital professionals.

Table 1: Benchmarking Malaysian Digital Salaries by Position Levels Against Selected Countries in US$, 2022

	UAE	Kuwait	Qatar	Saudi Arabia	Singapore	New Zealand	Australia	Canada	United Kingdom	USA	Hong Kong
Technology Positions	2.71	2.87	3.11	2.45	3.08	3.66	4.49	4.39	3.26	6.22	3.51
Managerial Positions	2.31	2.35	2.85	2.23	2.68	2.61	3.25	3.05	2.45	4.29	2.82
C-Level Positions	2.81	3.01	3.35	2.13	2.49	1.66	2.03	1.91	1.90	2.65	3.11
Overall	2.63	2.76	3.12	2.26	2.72	2.55	3.14	3.00	2.48	4.23	3.14
	Malaysia	Thailand	Indonesia	Philippines	Japan	South Korea	India	China	Brazil	South Africa	
Technology Positions	1.00	1.33	0.50	0.65	2.98	3.53	0.58	2.55	1.63	1.52	
Managerial Positions	1.00	1.33	0.48	0.75	2.19	2.54	0.69	1.91	1.42	1.47	
C-Level Positions	1.00	1.63	0.44	0.75	1.65	1.60	0.74	2.05	1.48	1.17	
Overall	1.00	1.45	0.47	0.72	2.22	2.47	0.67	2.16	1.51	1.37	

Source: Payscale

The widest salary gap is against the US, where talents earn on average 4.23 times more, followed by Hong Kong and Australia (both 3.14) and Qatar (3.12). At the other end of the spectrum, digital professionals in economies like Indonesia, India and Philippines take home much lower salaries, earning only 0.47, 0.67 and 0.72 times their contemporaries in Malaysia.

Table 2 takes into consideration purchasing power parity (PPP) adjustments in comparing the salaries of digital professionals in the selected economies against counterparts in Malaysia.

Under this comparison, Singapore and Thailand are still ahead with adjusted average salaries 1.76 times and 1.44 times higher than Malaysia. Even with PPP adjustments, Indonesia, Philippines and India remain the lowest-paying economies with ratios of 0.59 times, 0.69 times and 0.86 times.

Table 2: Benchmarking Malaysian Digital Salaries Against Selected Countries by Level Position in PPP Currency, 2022

Indicator : $PPP Currency Based	Country	UAE	Kuwait	Qatar	Saudi Arabia	Singapore	New Zealand	Australia	Canada	United Kingdom	USA	Hong Kong
	Currency	BENCHMARKED RATIOS UNDER PPP										
Technology Positions	Typical Income Bracket	1.85	2.02	2.03	2.12	1.94	1.51	1.75	1.94	1.39	2.44	1.73
Managerial Positions	Typical Income Bracket	1.65	1.84	2.09	2.04	1.76	1.14	1.31	1.41	1.10	1.74	1.47
C-Level Positions	Typical Income Bracket	2.03	2.13	2.36	1.92	1.57	0.69	0.79	0.84	0.82	1.05	1.54
Overall	Typical Income Bracket	1.85	2.00	2.16	2.03	1.76	1.11	1.28	1.40	1.10	1.74	1.58
Indicator : USD Currency Based	Country	Malaysia	Thailand	Indonesia	Philippines	Japan	South Korea	India	China	Brazil	South Africa	
	Currency	BENCHMARKED RATIOS UNDER PPP										
Technology Positions	Typical Income Bracket	1.00	1.33	0.62	0.62	1.23	1.96	0.72	1.63	1.41	1.37	
Managerial Positions	Typical Income Bracket	1.00	1.44	0.62	0.71	0.96	1.47	0.90	1.30	1.25	1.37	
C-Level Positions	Typical Income Bracket	1.00	1.54	0.54	0.74	0.66	0.89	0.94	1.31	1.22	1.08	
Overall	Typical Income Bracket	1.00	1.44	0.54	0.69	0.96	1.44	0.86	1.41	1.29	1.27	

Source: Payscale

Qatar is the highest-paying by 2.16 times, followed by Saudi Arabia at 2.03 times and Kuwait at 2.00 times. It is clear that the Arab region offers better salary deals for digital professionals than the rest of the world and would seem to constitute a more attractive destination for money-motivated labour migration.

Table 3: Malaysia Bencmarked Ratio in Top 10% Salary Bracket by Country by Position in USD, 2022

Indicator : USD Currency Based	Country	UAE	Kuwait	Qatar	Saudi Arabia	Singapore	New Zealand	Australia	Canada	United Kingdom	USA	Hong Kong
	Currency	BENCHMARKED RATIO BASED ON USD DOLLARS										
Technology Positions	Top 10%	2.92	2.49	2.39	2.36	3.03	2.76	3.47	3.32	2.78	4.98	3.76
Managerial Positions	Top 10%	2.71	2.14	2.52	2.30	3.31	2.10	2.67	2.48	2.35	3.74	2.66
C-Level Positions	Top 10%	2.51	2.94	2.58	2.24	2.27	1.28	1.75	1.47	1.63	2.14	2.76
Overall	Top 10%	2.71	2.52	2.50	2.30	2.87	2.05	2.63	2.42	2.25	3.62	3.06
Indicator : USD Currency Based	Country	Malaysia	Thailand	Indonesia	Philippines	Japan	South Korea	India	China	Brazil	South Africa	
	Currency	BENCHMARKED RATIO BASED ON USD DOLLARS										
Technology Positions	Top 10%	1.00	1.60	0.72	0.75	3.70	0.26	0.67	2.41	1.03	1.50	
Managerial Positions	Top 10%	1.00	1.89	0.85	0.83	1.78	0.18	0.83	2.30	1.07	1.37	
C-Level Positions	Top 10%	1.00	2.23	0.45	1.07	1.37	0.11	0.91	6.19	1.04	1.24	
Overall	Top 10%	1.00	1.91	0.67	0.88	2.28	0.18	0.80	3.63	1.05	1.37	

Source: Payscale

This section compares the top 10% earnings bracket, benchmarking other nations against Malaysia. In terms of US currency **(See Table 3)**, Chinese digital professionals earn 3.63 times higher followed by the US at 3.62 times and Hong Kong at 3.06 times.

In the case of international PPP currency as shown in Table 4, at overall category, China was higher by 2.24 times (compared to 3.63 times under US$). Similarly, in the technological category, Saudi Arabia and the UAE were at the top at 2.03 times and 2.01 times respectively.

Table 4: Malaysia Benchmarked Ratio in Top 10% Salary Bracket by Country by Position in International (PPP) Currency, 2022

Indicator : $PPP Currency Based	Country	UAE	Kuwait	Qatar	Saudi Arabia	Singapore	New Zealand	Australia	Canada	United Kingdom	USA	Hong Kong
	Currency	BENCHMARKED RATIOS UNDER PPP										
Technology Positions	Top 10 %	2.01	1.77	1.60	2.03	1.86	1.09	1.29	1.39	1.14	1.86	1.80
Managerial Positions	Top 10 %	1.86	1.52	1.68	1.99	2.03	0.83	0.99	1.04	0.96	1.40	1.27
C-Level Positions	Top 10 %	1.72	2.09	1.72	1.94	1.39	0.51	0.65	0.62	1.67	0.80	1.32
Overall	Top 10 %	1.86	1.79	1.67	1.99	1.76	0.81	1.02	1.02	0.92	1.35	1.46
Indicator : $PPP Currency Based	Country	Malaysia	Thailand	Indonesia	Philippines	Japan	South Korea	India	China	Brazil	South Africa	
	Currency	BENCHMARKED RATIOS UNDER PPP										
Technology Positions	Top 10 %	1.00	1.52	0.84	0.71	1.46	0.13	0.84	1.49	0.84	1.33	
Managerial Positions	Top 10 %	1.00	1.79	0.98	0.79	0.70	0.10	1.04	1.42	0.87	1.21	
C-Level Positions	Top 10 %	1.00	2.11	0.52	1.01	0.54	0.06	1.14	3.81	0.84	1.09	
Overall	Top 10 %	1.00	1.81	0.78	0.84	0.90	0.10	1.01	2.24	0.85	1.21	

Source: Payscale

This salary benchmarking clearly shows that Malaysian employers will increasingly lose out to their foreign counterparts if the status quo is maintained. This is certainly not a sustainable scenario for Malaysia's digital economy. This being the case, PIKOM calls on local employers to seek solutions, financial or otherwise, for the retention of homegrown talents and the Government to support this move via incentives and other schemes.

EDUCATION

Keeping the Education Blueprint On Track **During the Pandemic**

By Nadiawati Salleh,
Programme Management Office, Education Performance and Delivery Unit (PADU)

Managing initiatives of the Malaysia Education Blueprint (MEB) 2013-2025 became a real challenge during the Covid-19 pandemic with its ensuing restrictions causing repeated and severe disruption to daily operations.

At PADU, the independent Education Performance and Delivery Unit of the Ministry of Education (MoE), we had to constantly adapt and adjust in order to manage the pandemic's impact and ensure the implementation of the MEB.

Tasked by the MoE to facilitate and support the transformation of the national education system via MEB initiatives, PADU leveraged on the Initiative Programme Management Cycle (IPMC) and identified three areas or factors viable for remote and digital programme management, as outlined in the infographic.

3 Areas for Remote/Digital Programme Management

- **Enhancing Data Centralisation**

  Since 2014, PADU and initiative teams from MoE have been using digital databases for documentation. During the pandemic, it became essential for programme managers and workstream leaders to shift towards the digital workspace.

  Data centralisation is critical to the planning phase of the IPMC. PADU established the structure for teams to collaborate according to work functions, an essential step to ensure members can easily navigate the data. At the same time, initiative teams have the flexibility of creating and modifying collaboration spaces according to their requirements.

- **Rethinking Tracking and Monitoring**

  At the heart of programme management is tracking and monitoring, which enables the review of progress, evaluation of outcomes, resolution of critical issues and mitigation of risks. Monitoring has been made easier via data centralisation as well as a robust tracking and monitoring system using an online dashboard.

  Some initiatives had to be rescoped in response to restrictions during the Movement Control Order (MCO). Monitoring was done almost seamlessly once the revised plan was approved and updated in the digital workspace.

Year-End Review - Online meeting

A video conferencing tool was deployed for the mid-year and year-end review sessions chaired by the Senior Minister of Education. Periodic alignment of the initiative outcomes was a commitment outlined in the Blueprint and was carried out during the evaluation of MEB initiatives twice in the past year.

- **Fostering Team Communication and Collaboration**

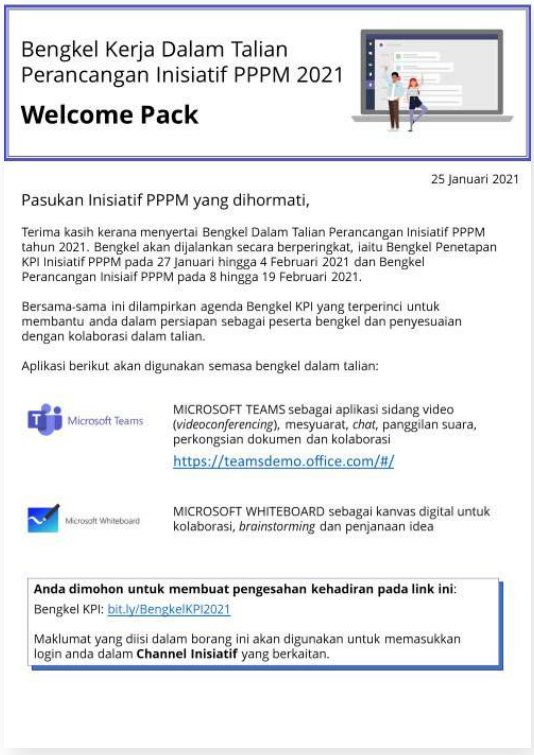
Remote working during the pandemic was a challenge for initiative teams as communication is vital to successful implementation and delivery of initiatives. In this case, the teams depended on online collaboration tools such as video conferencing.

Some programme managers held virtual check-ins to catch up with team members, which also served to maintain morale and focus. Other teams used tools such as Conceptboard to collaborate visually. Even after the progressive lifting of restrictions, online collaboration tools continue to be utilised to effectively communicate and collaborate.

Malaysia Education Blueprint Steering Committee - Online meeting

PADU supported the initiative teams in communicating and collaborating via aids such as the welcome pack before the first Online Initiative Planning Workshop was conducted. The Welcome Pack included basic information on how to set up the online collaboration tool and technical requirements along with a compilation of How-To guides.

A key consideration in implementing digital collaboration was the different levels of digital capability among the teams. Sharing best practices of remote working and providing fast support ensured early buy-in from programme managers and workstream leaders to adapt to a new digital way of working.


Bengkel Kerja Dalam Talian
Perancangan Inisiatif PPPM 2021

Welcome Pack

25 Januari 2021

Pasukan Inisiatif PPPM yang dihormati,

Terima kasih kerana menyertai Bengkel Dalam Talian Perancangan Inisiatif PPPM tahun 2021. Bengkel akan dijalankan secara berperingkat, iaitu Bengkel Penetapan KPI Inisiatif PPPM pada 27 Januari hingga 4 Februari 2021 dan Bengkel Perancangan Inisiatif PPPM pada 8 hingga 19 Februari 2021.

Bersama-sama ini dilampirkan agenda Bengkel KPI yang terperinci untuk membantu anda dalam persiapan sebagai peserta bengkel dan penyesuaian dengan kolaborasi dalam talian.

Aplikasi berikut akan digunakan semasa bengkel dalam talian:

Microsoft Teams — MICROSOFT TEAMS sebagai aplikasi sidang video (*videoconferencing*), mesyuarat, *chat*, panggilan suara, perkongsian dokumen dan kolaborasi
https://teamsdemo.office.com/#/

Microsoft Whiteboard — MICROSOFT WHITEBOARD sebagai kanvas digital untuk kolaborasi, *brainstorming* dan penjanaan idea

Anda dimohon untuk membuat pengesahan kehadiran pada link ini:
Bengkel KPI: bit.ly/BengkelKPI2021

Maklumat yang diisi dalam borang ini akan digunakan untuk memasukkan login anda dalam **Channel Inisiatif** yang berkaitan.


Etika Bengkel Dalam Talian

Teknikal

1. Untuk output yang lebih baik, gunakan aplikasi desktop MS Teams dan bukan *web browser*
2. Gunakan sambungan jalur lebar yang stabil / berwayar
3. Matikan peranti lain yang menggunakan jalur lebar untuk memastikan sambungan yang stabil jika perlu
4. Buat panggilan dari lokasi yang tenang dan terang supaya setiap orang dapat melihat dan mendengar anda dengan jelas
5. Gunakan *headset* atau fon telinga untuk mengurangkan gema dan bunyi latar belakang
6. Tetapkan mikrofon dalam mod senyap semasa menyertai mesyuarat. Mikrofon hanya diaktifkan apabila ingin bercakap
7. Letakkan kamera web anda pada posisi yang betul

Produktiviti

1. Baca agenda terlebih dahulu dan datang ke bengkel dalam keadaan yang bersedia
2. Login lebih awal untuk memastikan kelancaran audio dan video peranti yang digunakan
3. Biasakan diri dengan aplikasi yang digunakan. Anda boleh merujuk panduan yang telah dimuat naik.
4. Tutup tab yang tidak berkaitan dengan perbincangan atau tugasan yang sedang dilakukan untuk mengelakkan gangguan.
5. *Be engaged.* Dengar dengan teliti perbincangan atau pembentangan yang sedang berlangsung. Gunakan *meeting chat* untuk berhubung semasa mesyuarat dalam talian
6. Gunakan *hand-up feature* untuk memberi isyarat bahawa anda ingin bercakap ketika sidang video dijalankan
7. Anggap maksud positif – kadang kala mesej yang disampaikan dalam chat tidak dapat ditulis dengan baik. Sentiasa minta penjelasan lanjut sebelum membuat andaian
8. Anda boleh mencadangkan untuk berehat seketika jika mendapati fokus anda semakin berkurang.
9. Berikan isyarat semasa anda kembali ke mesyuarat - sama ada secara lisan atau dalam *meeting chat*

Live streaming/ Webinar

Semasa *live streaming* atau webinar sedang berlangsung:
1. Kemukakan soalan atau pendapat dalam *meeting chat* dan elakkan mencelah. Fasilitator akan menjawab soalan anda pada masa yang sesuai.
2. Baca soalan yang yang sudah ada dan tekan *like* jika anda mempunyai soalan yang sama. Jangan ulang soalan yang sama di *meeting chat*
3. *Smile and nod!* Berikan isyarat pada pembentang bahawa anda sedang mendengar!

Welcome Pack to the first Online Workshop for Initiative Teams

Keeping Agile and Moving Forward

The impact of Covid-19 has seen many organisations rapidly change internal processes to meet the challenges of remote working. What has not changed is the IPMC which underpins the delivery of the Malaysia Education Blueprint.

By learning from the right lessons during the pandemic, organisations must put those lessons into action to emerge stronger and sustain meaningful change. Agility and digital solutions are key to ensuring initiative teams continue to drive implementation to deliver successful outcomes.

PADU's Initiative Programme Management Cycle (IPMC)

PADU's internally-developed IPMC is based on an internationally-recognised and proven methodology to ensure the realisation of the MEB 2013-2025. In 2021, PADU monitored 17 initiatives under the MEB according to their priorities via the IPMC.

Primary Initiatives monitored weekly

1. Strengthening Unity in Schools
2. Inculcating Higher Order Thinking Skills in 21st Century Learning
3. Enhancing STEM Education
4. District Transformation Programme
5. Transformation of IPG to Improve the Quality of Teachers Training
6. Increasing Access to Education - from Preschool to Upper Secondary
7. Strengthening English Language Education
8. Upholding Bahasa Melayu Education
9. Student Character Development
10. Enhancement of Education Officers (PPP Professionalism)

Secondary Initiatives monitored monthly

1. Primary Literacy and Numeracy Programme
2. Development of Gifted and Talented Education Programme
3. Increasing Access and Quality of Education for Special Needs Students
4. Providing Basic Infrastructure to All Schools
5. Education Transformation for Orang Asli and Indigenous People
6. Development of Equitable Funding Principles to Support Schools
7. Strengthening of Education Leadership & Management (IAB)

About PADU

The Education Performance and Delivery Unit (PADU) was established on March 20 2013 as a unit under the Ministry of Education, Malaysia. The primary role of PADU is to facilitate, support and deliver the Ministry's vision in transforming Malaysia's education system through the success of the Malaysia Education Blueprint for 2013-2025. PADU also collaborates with the Ministry to develop remedial action plans, which ensure ongoing improvements to the quality of Malaysia's education structure.

The unit sets out to effectively deliver strategies oversee implementations, manage interdependencies and introduce new approaches that aim to propel Malaysia's education system to become globally competitive.

www.padu.edu.my
https://www.instagram.com/padueducation
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https://www.facebook.com/padu.pppm


DIGITAL ECONOMY
AT A GLANCE

ICTSA

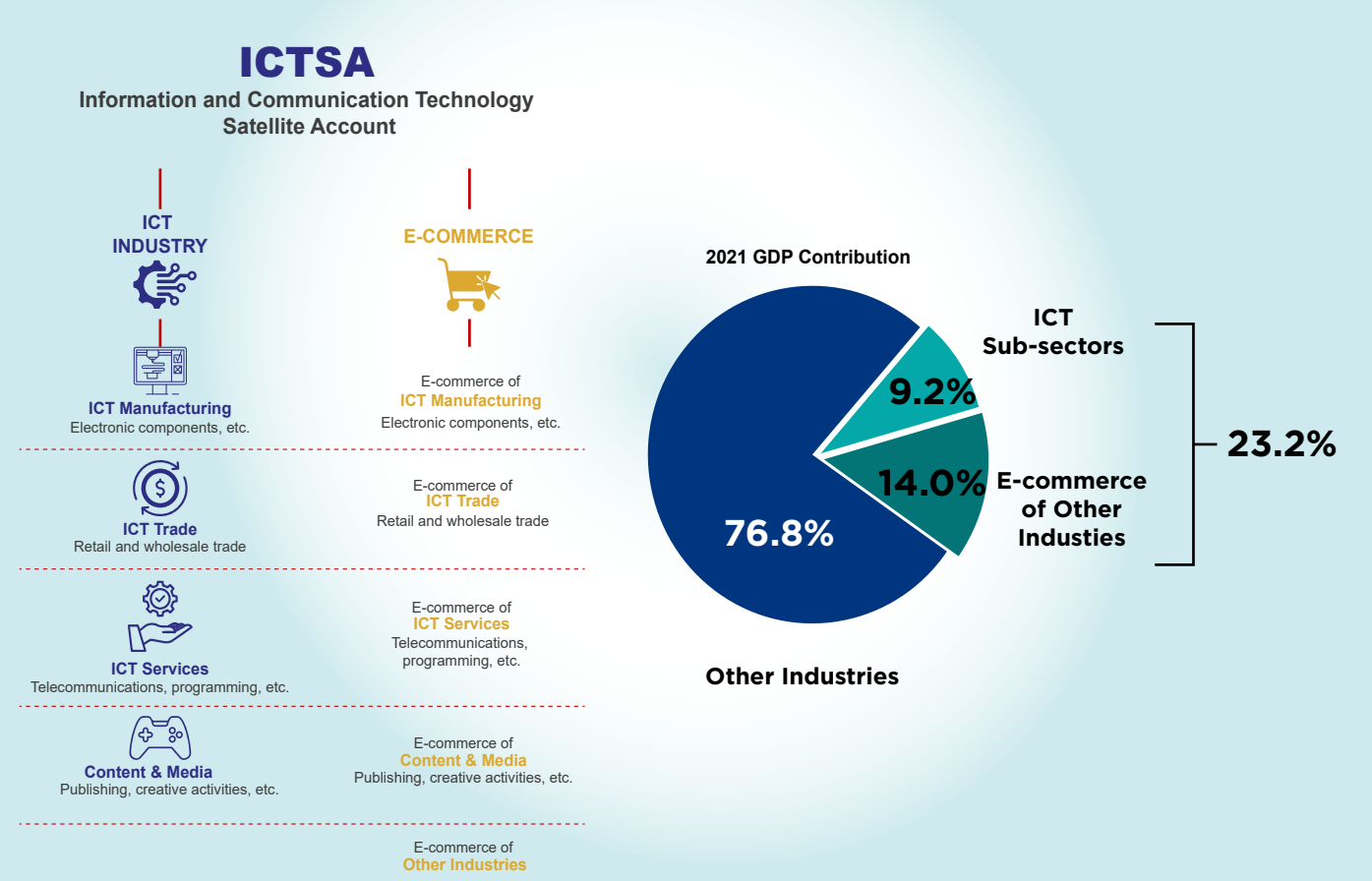
State of Malaysia's **Digital Economy**

Analysis by MDEC Research

In order to drive the digital economy, Malaysia developed a clear statistical measurement approach about a decade ago called the Information and Communication Technology Satellite Account (ICTSA), which focuses on the contribution of ICT to the national economy and is driven by the Department of Statistics Malaysia (DOSM). Published annually, the ICTSA data has given valuable insight into the country's growth of the digital economy and the impact of key policies and Government interventions.

The Covid-19 pandemic has catalysed the nation's digitisation and digitalisation efforts, supported also by the Government's initiatives to encourage digital adoption such as the National Industry4WRD Policy, the National E-Commerce Strategic Roadmap and the Malaysia Digital Economy Blueprint (MyDIGITAL) amongst others.

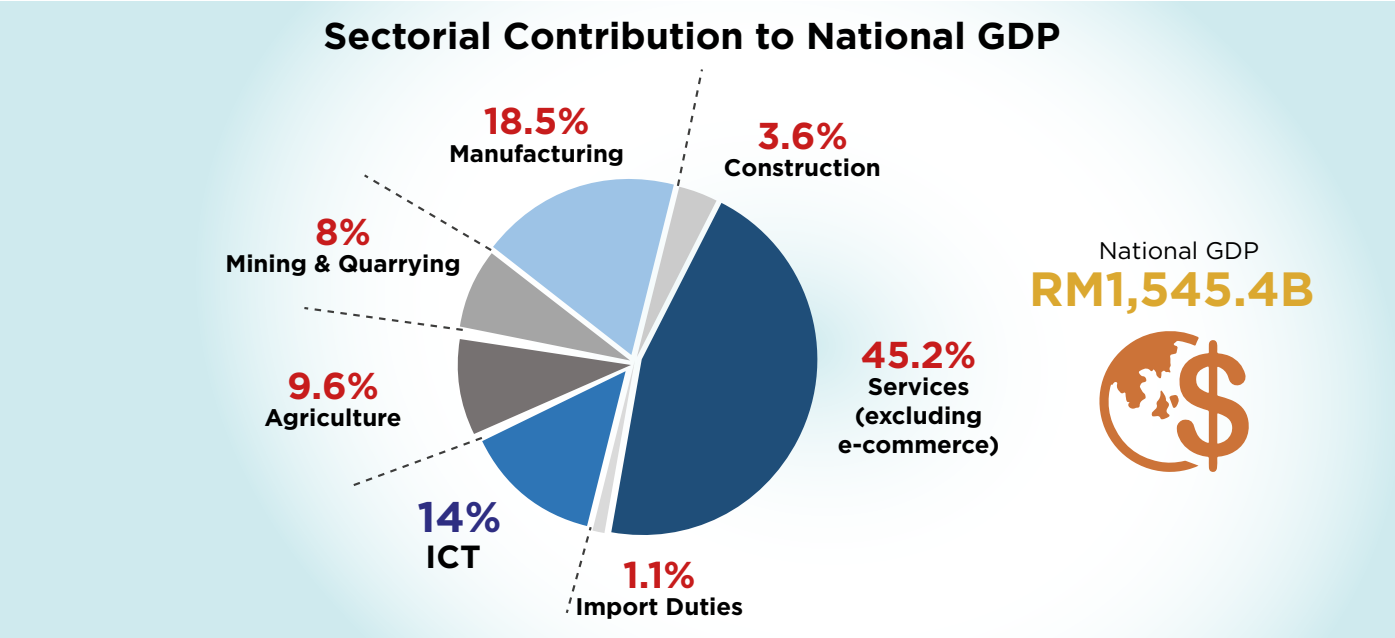
Under the ICTSA definition by DOSM, the ICT sector comprises of two elements, ie. (1) ICT Industry and (2) e-commerce. Under the ICT Industry, there are four ICT sub-sectors, namely ICT Manufacturing, ICT Trade, ICT Services, and Content & Media. The e-commerce element comprises e-commerce of other industries, as well as e-commerce of the four ICT sub-sectors. In 2021, the ICT sector contributed 23.2% to the national GDP, comprising of 14% from the ICT sub-sectors and 9.2% from e-commerce of other industries.



The following are ten key highlights from a deeper analysis into the current state and past trends of the ICTSA:

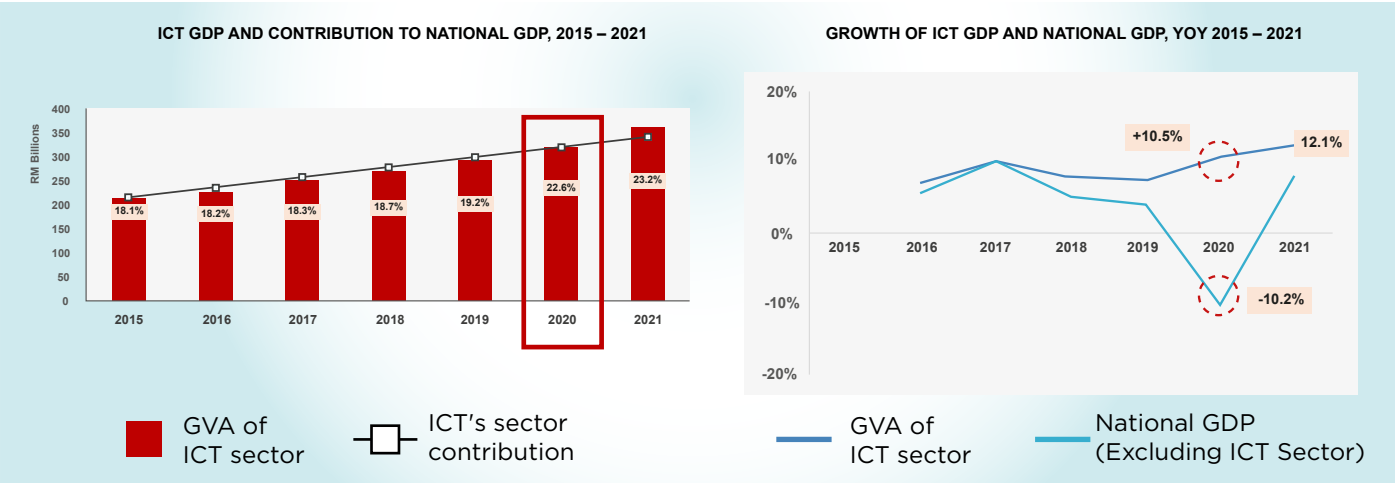
1. ICT Sector is 3rd Largest Contributor to the National GDP

In 2021, the ICT sub-sectors which comprise of ICT manufacturing, ICT Trade, ICT Services and Content & Media contributed 14% to the national gross domestic product (GDP) (value: RM217.1 billion). This makes the ICT sector the third largest contributor to the national GDP, which by comparison is already greater than the value of the entire Agriculture and Construction sectors combined, underlining the importance of the ICT industry not only in a post-pandemic world, but also in an increasingly digital and knowledge-based society.



2. Although national GDP shrank -10.2% in 2020, the GVA of ICT grew +10.5%, largely contributed by e-commerce

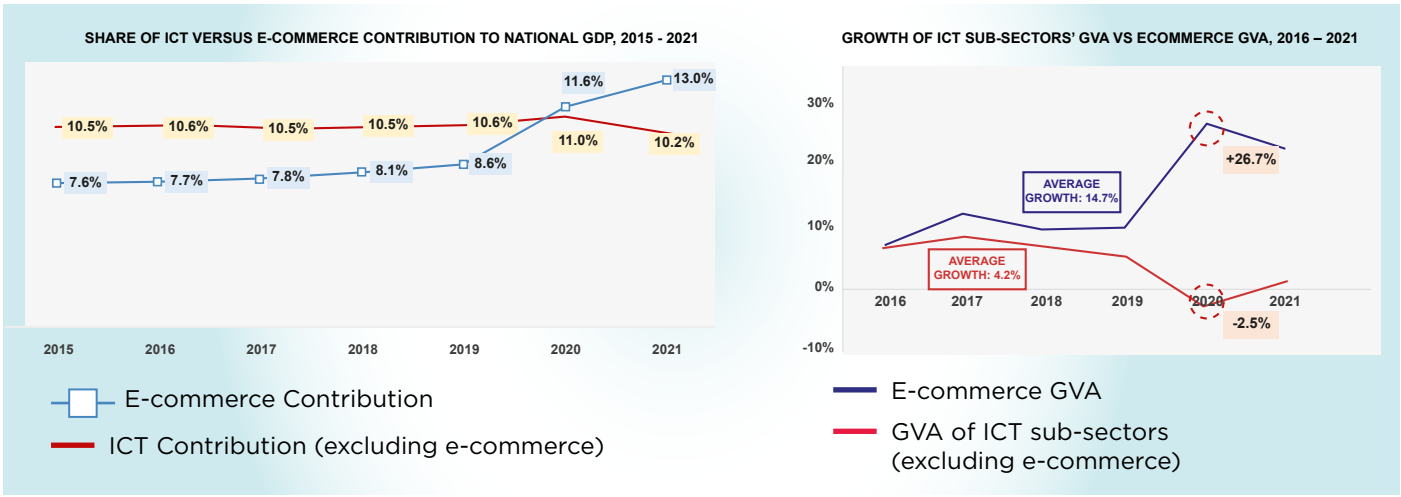
From 2015 to 2019, the contribution of the ICT sector to the national GDP has been following a relatively stable trend at around 18% - 19%. In 2020, the national GDP shrank -10.2%, whilst the ICT sector grew +10.5%. This pushed the share of ICT sector to the national GDP up to 22.6%, its highest contribution to the national economy since 2015. This was likely catalysed by the digitalisation of businesses that adapted by going online as well as government services during the Covid-19 pandemic.In 2021, not only did the ICT sector register a higher growth rate of 12.1% compared to pre-pandemic levels, the share of contribution to the national economy was also sustained at 2020 levels. This underlines the importance of harnessing and maintaining the momentum of growth of the ICT sector, in order to realize the full potential of the digital economy's contribution to the country going forward.



3. The contribution of e-commerce to National GDP overtook ICT sub-sectors since 2020

The contribution of e-commerce has been on an upward trend since 2015, jumping higher than the contribution of ICT sub-sectors from 2020 onwards. In 2021, e-commerce contributed 13% to the national GDP, which is the highest since 2015. GVA of e-commerce has been growing at an average growth of 14.7% since 2016. This is more than 3X the average growth of the GVA of the ICT sub sectors. The peak of the e-commerce GVA growth peaked during the pandemic with a growth of 26.7% while other ICT sub-sectors reported a decline of 2.5%. Despite the slower growth in 2021, e-commerce continued to grow faster in post-pandemic compared to pre-pandemic levels.

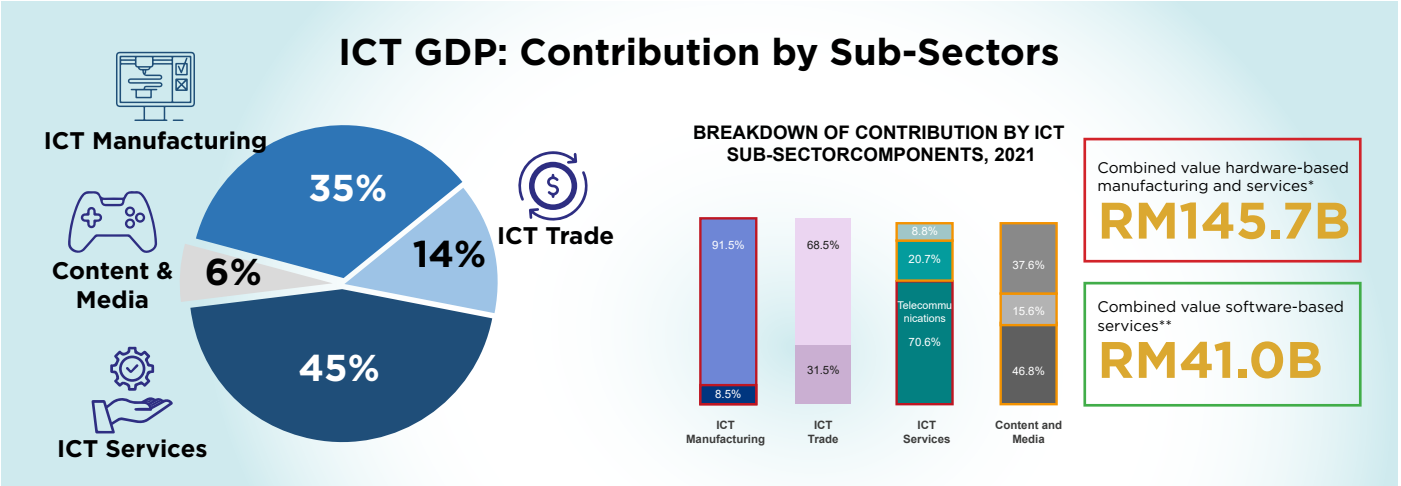
With ICT registering lower growth rates in 2021, this would indicate that e-commerce is the major driver behind positive momentum in the ICT sector post-pandemic. Without e-commerce, the ICT sector (excluding e-commerce) has been slower to rebound post-pandemic and has yet to reach pre-pandemic levels.



4. GVA from ICT Manufacturing and Telecommunications constitutes 64% of the entire ICT Industry in Malaysia

Out of the four sub-sectors of the ICT Industry, ICT Services contributed 44.7% (RM96.9 billion) to the total GVA, followed by ICT Manufacturing at 35.6% (RM77.3 billion), ICT Trade at 14% (RM30.4 billion) and Content & Media at 5.7% (RM12.5 billion).

When the components of each of the sub-sectors are analysed further, hardware-based manufacturing and services contributed significantly more as compared to software-based services. For example, the GVA from manufacturing of electronic components & boards, communication equipment and consumer electronics (RM70.7 billion) and Telecommunications services (RM68.4 billion) constitutes almost two-thirds of the entire ICT Industry in Malaysia. This implies that the domestic ICT ecosystem can be further diversified and developed to grow more software-related activities in an increasingly service oriented digital economy.

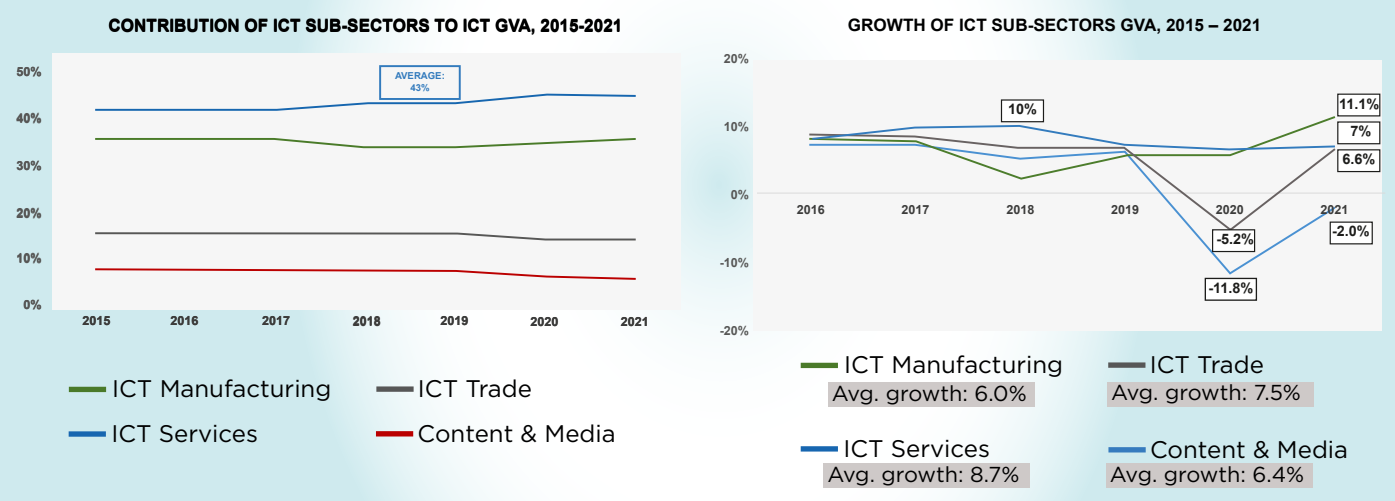


5. All sub-sectors except for ICT Manufacturing registered lower growth in post-pandemic

ICT Services maintained a relatively high percentage of contribution to the GVA of the ICT sub-sectors from 2015 to 2021 (average contribution of 43.0% per year), although the year-on-year growth rate of ICT services has been slowing, falling since the Covid-19 pandemic from a high of 10.0% in 2018 to around 7.0% in 2021. However, ICT Trade and Content & Media were the two most severely impacted by the pandemic, with growth recorded at -5.2% and -11.8% in 2020 respectively.

In 2020, a combination of movement control orders and border controls were implemented that affected the retail industries. The slow re-opening of the entertainment industries and the bigger impact to broadcasting and traditional media companies also affected the Content & Media sub-sector during the period. ICT Trade subsequently rebounded to positive growth in 2021, but Content & Media still registered a negative growth of -2.0%, indicating a slower rebound post-Covid due to difficulties in adapting to the new norms of digital media post pandemic.

Generally, all sub-sectors except for ICT Manufacturing registered lower growth post-pandemic (ICT Manufacturing: 11.1% in 2021 compared to average growth 6.0% from 2015-2019, ICT Trade: 6.6% in 2021 compared to average growth of 7.5% from 2015-2019, ICT Services: 7.0% in 2021 compared to average growth of 8.7% from 2015-2019, Content & Media: -2.0% compared to average growth of 6.4% from 2015-2019).

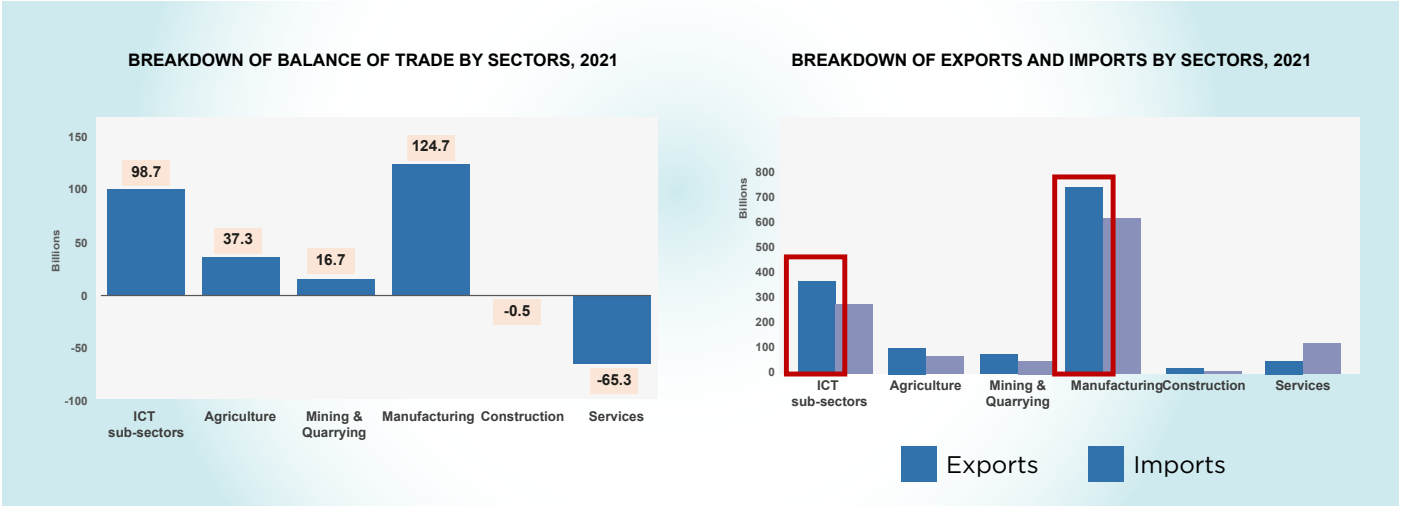


6. From 2015 to 2020, the ICT sub-sectors are the highest contributor to Malaysia's trade surplus, doubling in this period; only overtaken by Manufacturing in 2021

In 2021, ICT sub-sectors are the second-highest contributor to Malaysia's Balance of Trade (BOT), with a trade surplus of RM 99 billion. The trade surplus in the ICT sector is largely driven by exports of ICT goods (RM326b), however the value of ICT goods alone is still lower than the sum of the manufacturing sector's exports. Electrical and electronic (E&E) products are Malaysia's largest exports and is the primary driver behind the trade surplus. This underlines the importance of diversification of exports in the ICT sub-sectors.

The highest contributor to the BOT is the manufacturing sector with a trade surplus of around RM 125 billion, while the services sector has the highest trade deficit in the country. The manufacturing sector has the highest trade surplus in 2021, driven by high exports of a diverse mix of processed commodity products like petroleum (RM96.2b), chemical (RM70.7b), rubber (RM64.6b) and metal products (RM61.6b) as well as machinery, replacement parts (RM49.9b) and scientific instruments (RM46.9b).

It has been growing its trade surplus since 2018 through the diversification of exports – the sector was able to cushion the effects of the US-China trade tensions through diverse exports to different regions of the world. This underlines the importance of diversification of exports in the ICT sub-sectors. In contrast, the services sector's high trade deficit is primarily caused by high imports of sea freight as well as a low value of exports.

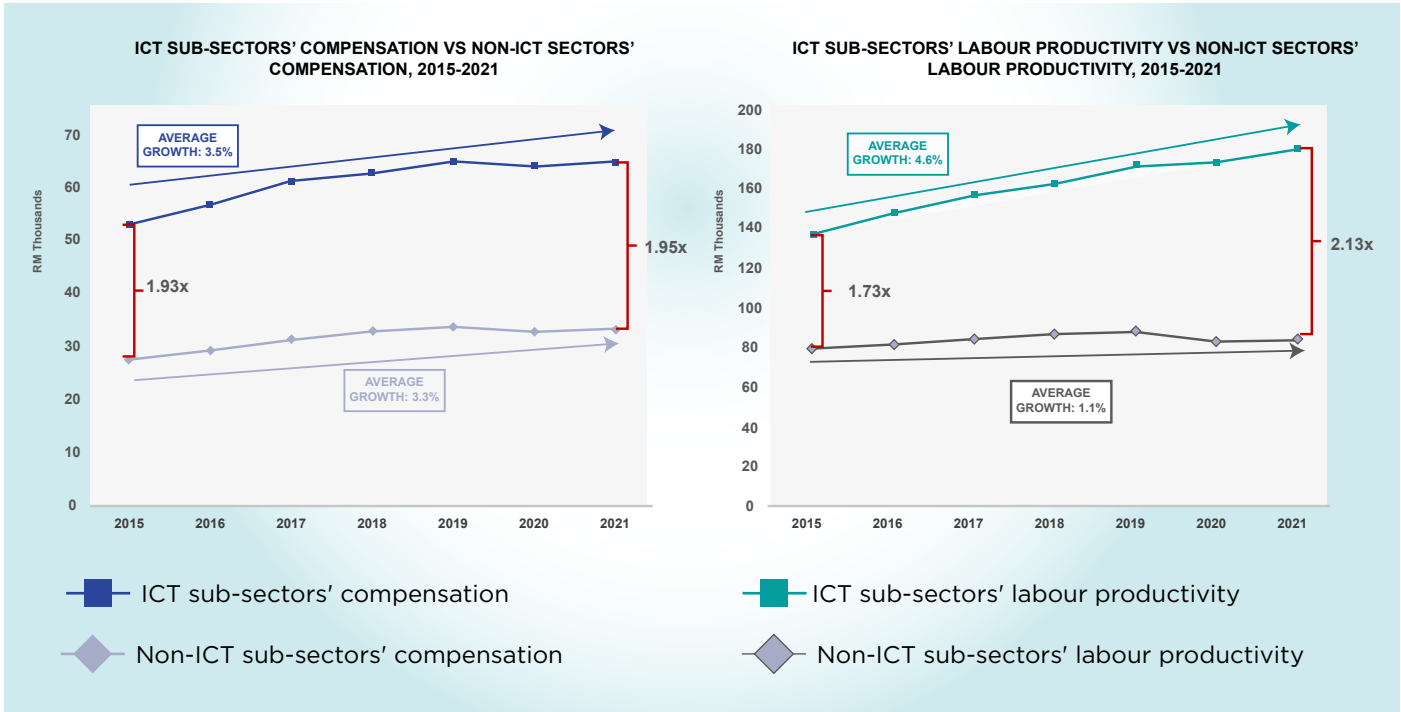


7. Employees in ICT sub-sectors earn close to 2X higher than non-ICT sectors; labour productivity per employee in ICT sub-sectors are also on average close to 2X more efficient than non-ICT sectors combined

In 2015, employees in ICT sub-sectors were being paid 1.93 times more in wages than employees in non-ICT sectors; between 2015-2021, this multiplier increased to 1.95 times. The average compensation for ICT sub-sectors is RM 60,930.66 per year from 2015 to 2021, whereas for non-ICT sectors it is RM 31,511.40 per year. The average growth of compensation for ICT sub-sectors is 3.5% in this period, which is slightly higher than the non-ICT sectors at 3.3%.

Meanwhile, in terms of productivity, employees in ICT sub-sectors are at an average of 1.95 times more productive when compared to the non-ICT sectors in the six-year period, with an average growth of 4.6% compared to 1.1% average growth in non-ICT sectors.

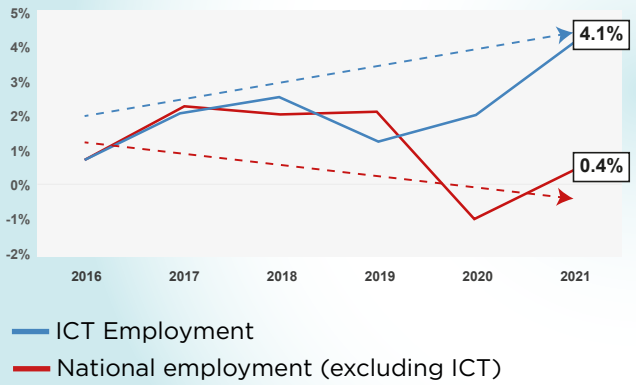
However, it was observed that the productivity in ICT sub-sectors is growing faster than the compensation (productivity: 4.6% average annual growth versus compensation: 3.5% average annual growth). This means that whilst the sector remains productive, the compensation has not been able to keep up with this growth, particularly in the ICT Services sub-sector.



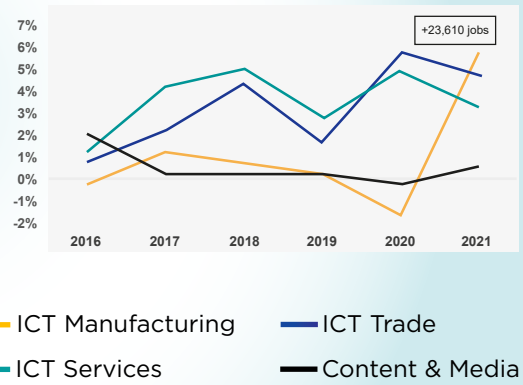
8. Employment growth in ICT continued to accelerate between since 2021 while other sectors reported negative or near-negative growth

Unlike ICT GDP, ICT employment numbers were not impacted by the pandemic, indicating that the industry has been hiring even if or when the bottom line has been affected. In 2021, employment in ICT recorded growth of 4.1%, which was significantly higher than the national employment growth of only 0.4%. This signals a positive outlook for the ICT industry overall. Employment growth mainly resulted from rising job opportunities in ICT Manufacturing, where a total of 23,610 new jobs were created in 2021. According to PIKOM Research Committee Chair Mr. Woon Tai Hai, most of the job growth in the ICT industry from 2020-2021 was in the low to mid-level job categories. Hence, more efforts should be directed at increasing high-value add activities of the ICT industry going forward.

GROWTH OF ICT EMPLOYMENT VS NON-ICT EMPLOYMENT, 2016-2021



GROWTH OF ICT EMPLOYMENT BY SUB-SECTORS, 2016-2021

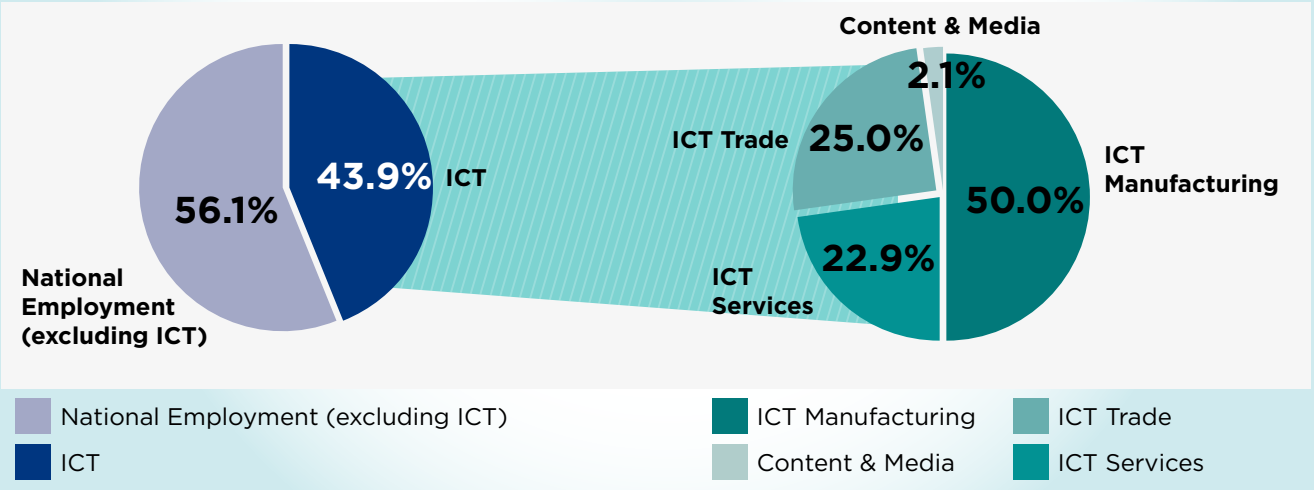


9. In 2021, the ICT sector created 44% of total new jobs in Malaysia, with ICT manufacturing creating half of those jobs

From 2020-2021, there was an overall higher demand for low to mid-level jobs in the ICT industry. In 2021, the ICT sector created 43.9% of the total new employment in Malaysia. Out of this percentage, the ICT manufacturing sub-sector created 50.0% of the jobs in the ICT sector and 22% of new jobs in the country. Despite contributing 35.6% of the ICT sub-sectors' total gross value-added, the ICT Manufacturing sub-sector created over half of the new jobs in ICT. This signifies that the industry is gearing up for growth. Another reason for the increased number of jobs created in this sub-sector could be due to the high demand for electronic and PC hardware during the pandemic period. However, this would also mean that ICT manufacturing is still reliant on low to mid-skilled labour, as also emphasized by the PIKOM "Economic and Digital Job Market Outlook in Malaysia 2021 report, which found that there was a lower demand for senior positions as compared to low to mid-level jobs in the ICT industry from 2020-2021.

ICT CONTRIBUTION TO EMPLOYMENT CREATED, 2021

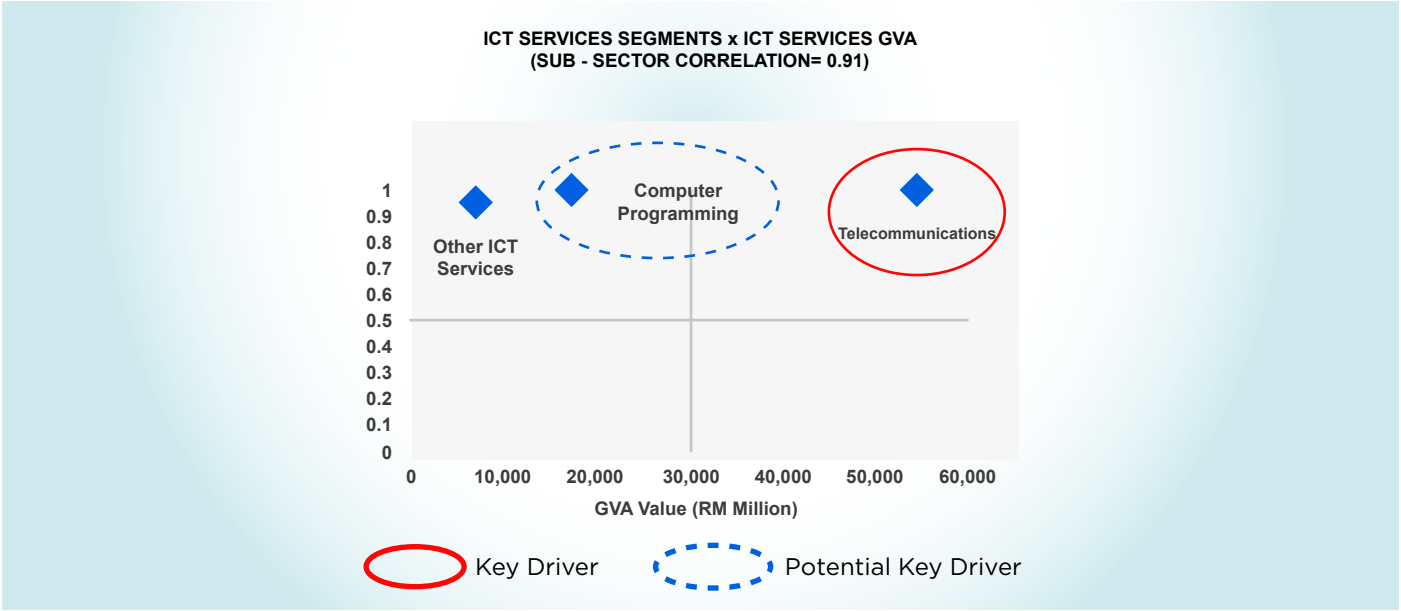
BREAKDOWN OF CONTRIBUTION BY ICT SUB-SECTORS, 2021



10. A high co-relation between Computer Programming, Data/Cloud Hosting Services and other related activities with the Telecommunications segment means that higher investment or focus will improve the GVA of ICT Services

From 2015 to 2021, the average annual GVA of the Computer programming, consultancy, information and related activities segment was RM 17.4 billion, whereas the average annual GVA of the Telecommunications segment was 3.5 times larger at RM 54.1 billion. Despite this, driver analysis shows that both segments are highly correlated to the ICT services' GVA. This suggests that increasing the GVA of the Computer programming, consultancy, data, information and related activities segment – for instance through increased investments or policy efforts to strengthen the segment by the public/private sector – would yield similar results to the Telecommunications segment.

The drivers to the GVA of each ICT subsector are electronic components in ICT manufacturing, retail trade in ICT trade, telecommunications in ICT services, as well as publishing activities and other content & media. It can be observed that B2C trade drives the ICT trade sub-sector as opposed to B2B trade, although B2B trade has the same correlation to B2C trade. This suggests that should the income of B2B trade be increased, the impact to the sub-sector would be equivalent to that of B2C trade. This trend is also observed in the ICT services sub-sector – whereby Computer programming and Telecommunications have nearly identical correlation factors to the ICT Services GVA. Hence, a potential area to increase the GVA of ICT services is to invest more in the segments of Computer Programming, Data and even Telecommunication infrastructure.



Moving Forward

Not many countries in the world have managed to segmentize all ICT-related components to measure its impact and contribution to the national economy like Malaysia and the ICTSA. Therefore, it is imperative for us to leverage on this unique instrument and its analysis to address any gaps and make necessary improvements, strategies, or policies to drive the growth of Malaysia's digital economy forward.

Firstly, considering e-commerce has been identified as a major component in the ICTSA, it becomes more critical to develop strategies on sustaining and preserving the growth of e-Commerce in the country. These may include enhancing the e-commerce infrastructure nationwide and perhaps also to boost the potential of untapped e-commerce in other ICT sub-sectors.

Secondly, the analysis also highlighted ICT Manufacturing as another important component of the ICTSA, particularly in the areas of job creation and exports. Some immediate actions that could be taken would be to increase high-value added activities in ICT Manufacturing. This could lead to the creation of more high-value digital jobs. In addition, there is a serious need to study and review the current compensation structure of the ICT services to ensure that the salary packages across all ICT sub-sectors continue to remain competitive and attractive.

Malaysia Digital Status Companies And Their Contribution To **The Digital Economy**

By Velladurai Balakrishnan
Strategy & Policy, MDEC

Malaysia Digital (formerly known as the Multimedia Super Corridor), a national strategic initiative launched by the Government in July 2022, continues to contribute to the digital economy by strengthening the digital ecosystem with international and domestic investors, companies and talents. The Government offers various incentives and benefits to the Malaysia Digital (MD) status companies to accelerate their growth and create direct and indirect impact to the economy with many international companies making Malaysia their home.

The performance of MD companies (formerly known as MSC-status companies) are regularly tracked through the Malaysia Digital Industry Research (MDIR) survey on the metrics of digital investments, creating new jobs, increasing revenues and driving exports. In 2021, MD companies contributed to the post-pandemic economic recovery via a surge in investment, rebound in job creation and rise in sales and exports.

Key takeaways from the MDIR 2021:

RM46 bil Digital Investments

Investments grew by 17% y-o-y, 3 times higher than the average annual growth rate of 5.7%, largely driven by GBS cluster.

6,462 New Jobs

Jobs grew by 4% y-o-y, which is higher than the CAGR from 2017-2021 of 3.3%; 86% of jobs are filled by Malaysian talents.

RM62 bil Revenues

Revenues increased by 10% y-o-y, fuelled by accelerated digitalisation post-pandemic. Infotech and GBS clusters contributed almost equally to generate 91% of total revenues.

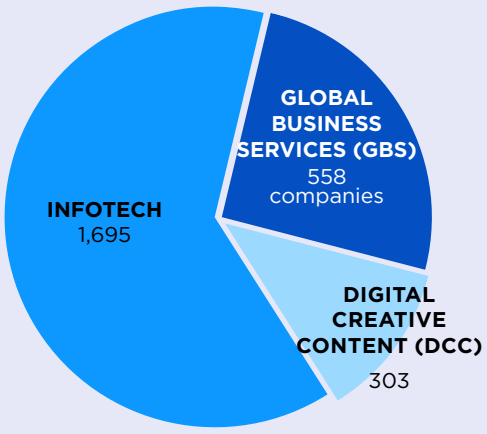
RM25 bil Exports

Export growth slowed down at 5% y-o-y, which is lower than the CAGR from 2017-2021 of 5% due to delayed border re-openings post pandemic. GBS continued to emerge as top exporters.

What is the Malaysia Digital Industry Report (MDIR) survey*

MDEC monitors the performance of MD companies via a half-yearly MDIR survey. The data in this article is sourced from the MDIR 2021 survey with a sample size of 2,556 MD companies.

Breakdown of respondents by cluster



* formerly known as the Annual Quarterly Industry Report (AQIR)

The majority of MD companies are from the Infotech cluster (64%) with the remainder in Global Business Services (GBS-21%) and Digital Creative Content (DCC - 11%).

The GBS cluster includes companies that manage centralised and integrated service delivery models that encompass shared services, knowledge-based and business process outsourcing services, and centres of excellence for multiple business units located in geographically dispersed locations. The Infotech cluster includes companies involved in the design, development, implementation and technical services of any computing based information systems. DCC companies are engaged in the creation, delivery and enhancement of digital content. This includes the use of creative technologies for the development, production and distribution of digital contents, and complimentary tools, products, services and platforms.

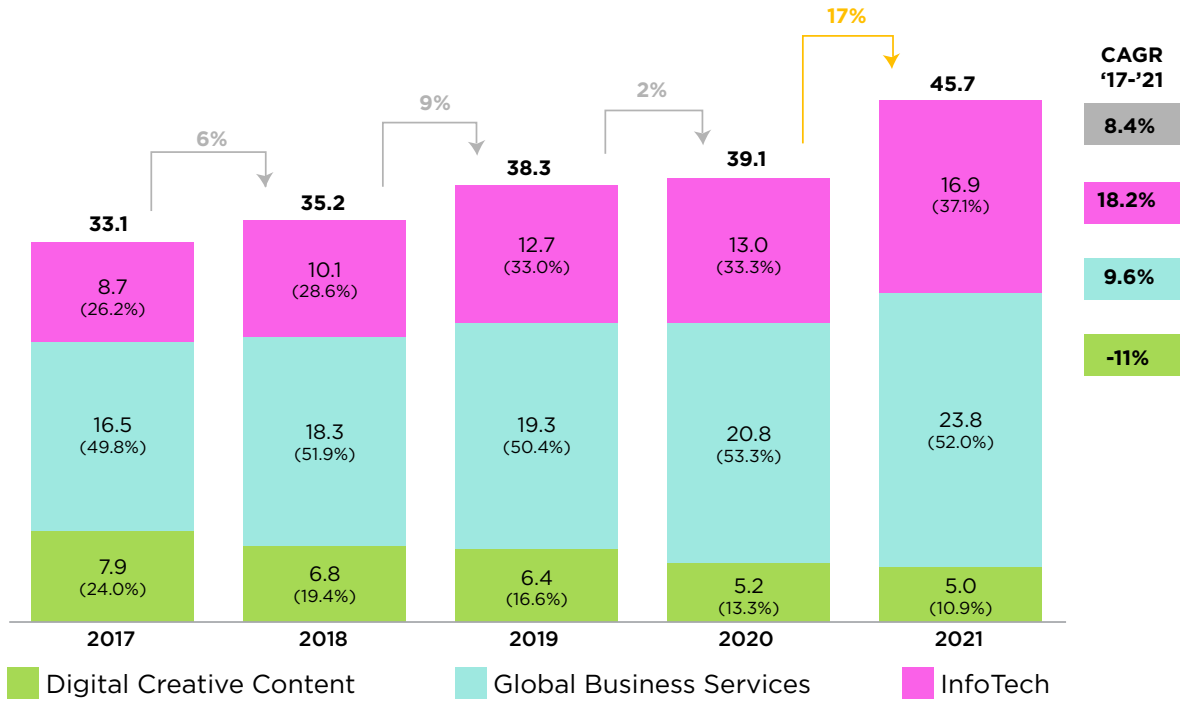
INVESTMENT

Uptick in Investments

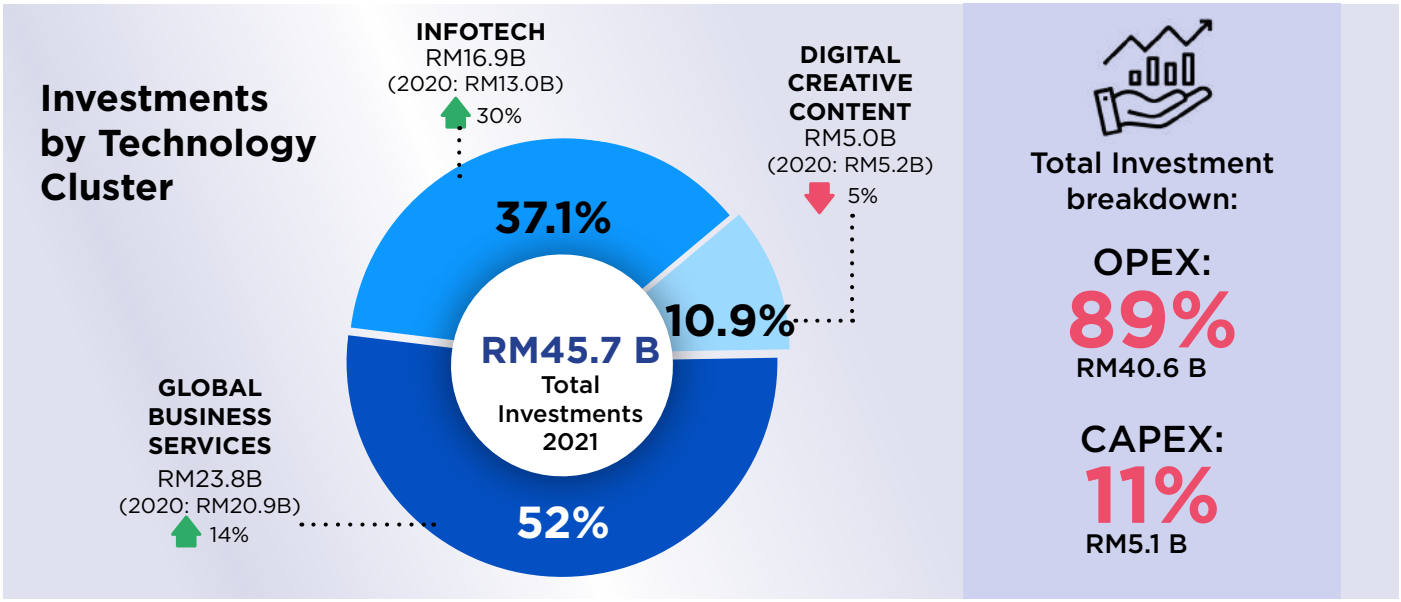
Investments by MD companies surged as Malaysia's economy gradually recover from the Covid-19 pandemic in 2021. Total investments grew by 17% year on year (y-o-y), representing an almost three-fold increase over the average annual growth rate of 5.7% from 2017 – 2020. The compound annual growth rate (CAGR) for investments over the same period was 8%.

Although the major contribution of investments is coming from the GBS cluster, it is encouraging to note that there is a 4% increase of investments from Infotech companies from 2020 to 2021, indicating some renewed confidence of expenditure of tech and software related companies in post Covid. It was also observed that DCC companies continue to remain cautious in their expenditures during the recovery phase after the pandemic.

Investment by Segment, RM billion (%), 2017-2021



More than half of the total investments came from the GBS cluster (52%), followed by Infotech (37.1%) and DCC (10.9%) in 2021. With Malaysia consistently emerging as the top three GBS locations in the world since 2004 (Kearney Global Services Location Index), this sector continues to feature prominently in the nation's digital foreign direct investment (FDI) landscape. The largest CAGR from 2017-2021 of 18.2% is from the Infotech cluster, indicating positive growth in investments in the technology space. Through the Malaysia Digital initiative, MDEC hopes to accelerate the growth of the other technology sectors as represented by the Infotech cluster.



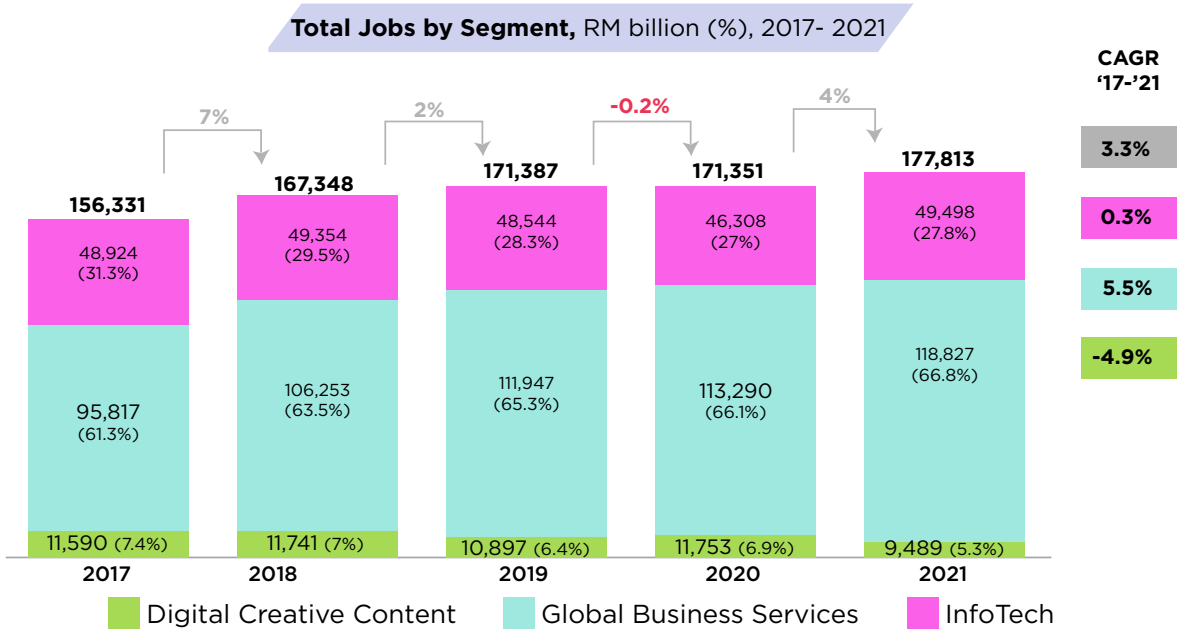
The MDIR 2021 also found that consistent with the digital economy being driven by knowledge-based industries, the digital investments by MD companies are more focused on operating expenses. It was observed that DCC companies remained cautious during the pandemic with decreased investments to sustain economic cashflow. The sub-sectors that were most affected were those in broadcasting and traditional media. However, this could lead tto more efforts to spur investments in trending spaces of games and animation.

JOBS

Jobs on the Comeback

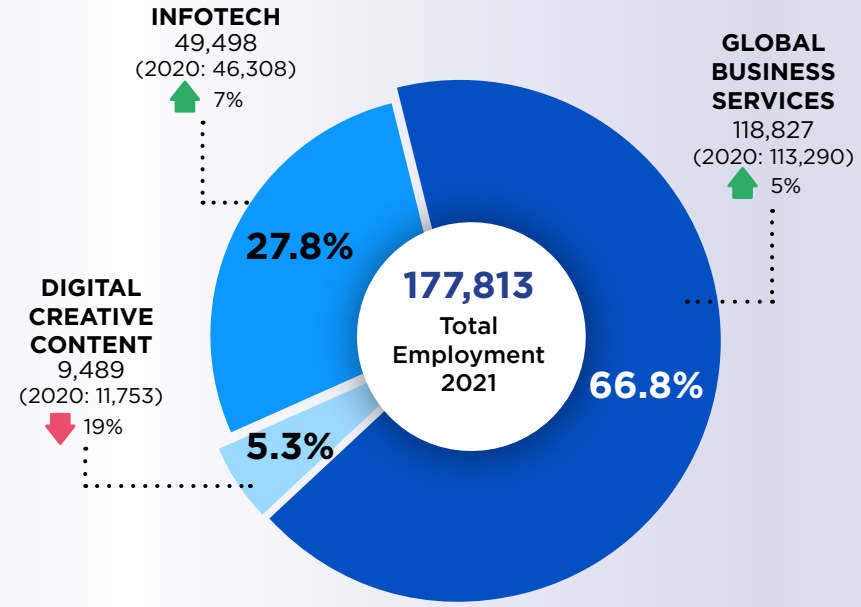
In 2021, MD companies employed a total of 177,813 talents of which close to 90% are filled by Malaysians. This is a clear indication of the talent readiness in the country, thanks to consistent efforts by the government to ensure that local talents have the skills needed by the industry.

From a year-on-year (y-o-y) perspective, job creation dipped in the first year of the pandemic, but rebounded in 2021 with an increase of 6,462 jobs compared to the preceding year. The 4% y-o-y growth is higher than the five-year CAGR of 3.3%, propelled by the rapid digitalisation resulting from the pandemic.



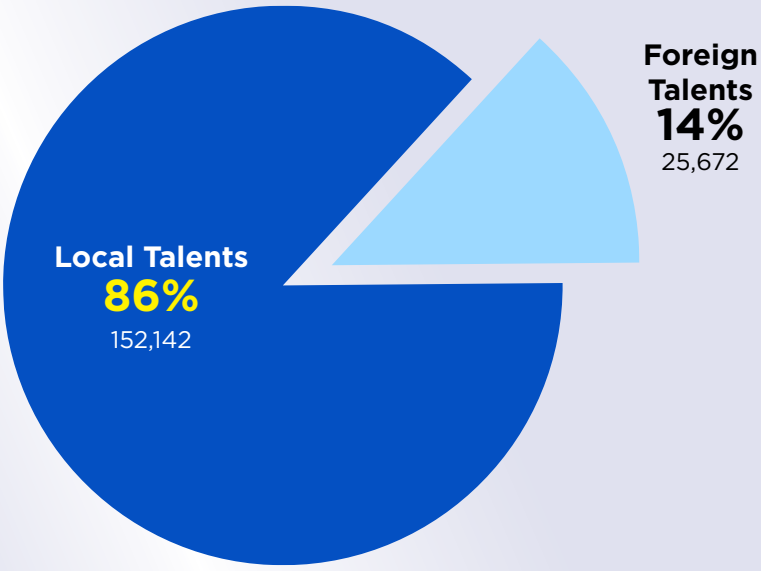
The GBS sector was the biggest employer, generating close to 70% of 177,813 jobs in 2021. This is due to the talent-intensive nature of this sector as well as the skilled talent pool in Malaysia. A third of the jobs created to-date serve the Infotech and DCC clusters which are largely made up of start-up and scale-up tech companies. The reduction of employees in the DCC cluster was primarily due to the negative effect of the pandemic on some large companies in the broadcasting and traditional media space. In order to keep costs down, the DCC companies leveraged the gig economy to hire more freelance talent to support their operations.

Breakdown of Jobs Created 2021

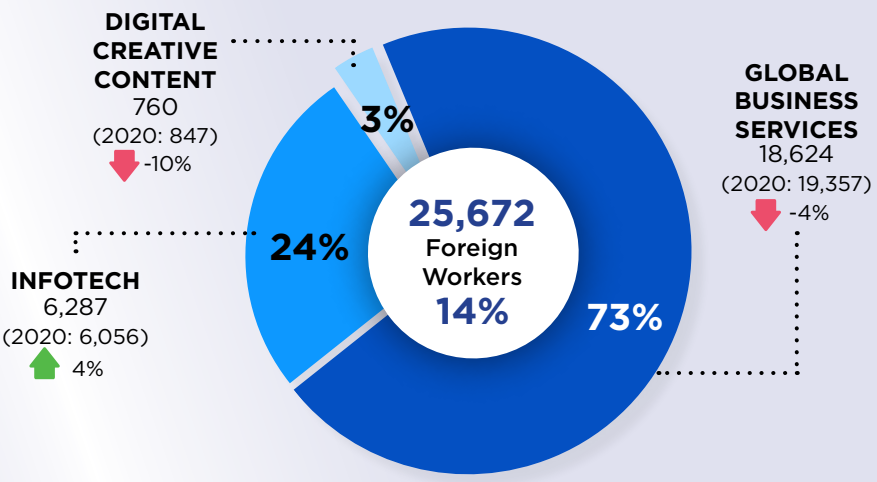


Of the total jobs created in 2021, 86% were filled by local talents. Employment of locals increased by a healthy 10% in 2021, suggesting the effectiveness of the government's efforts to spur the hiring of local talents, coupled with prolonged border closures due to Covid-19. The remaining 14% were foreign workers, who are mostly made up of native foreign language speaking talents that serve the international clientele of GBS companies.

Job Vacancies Mostly Filled by Local Talents



73% of Foreign Workers are Employed in GBS Cluster



REVENUE

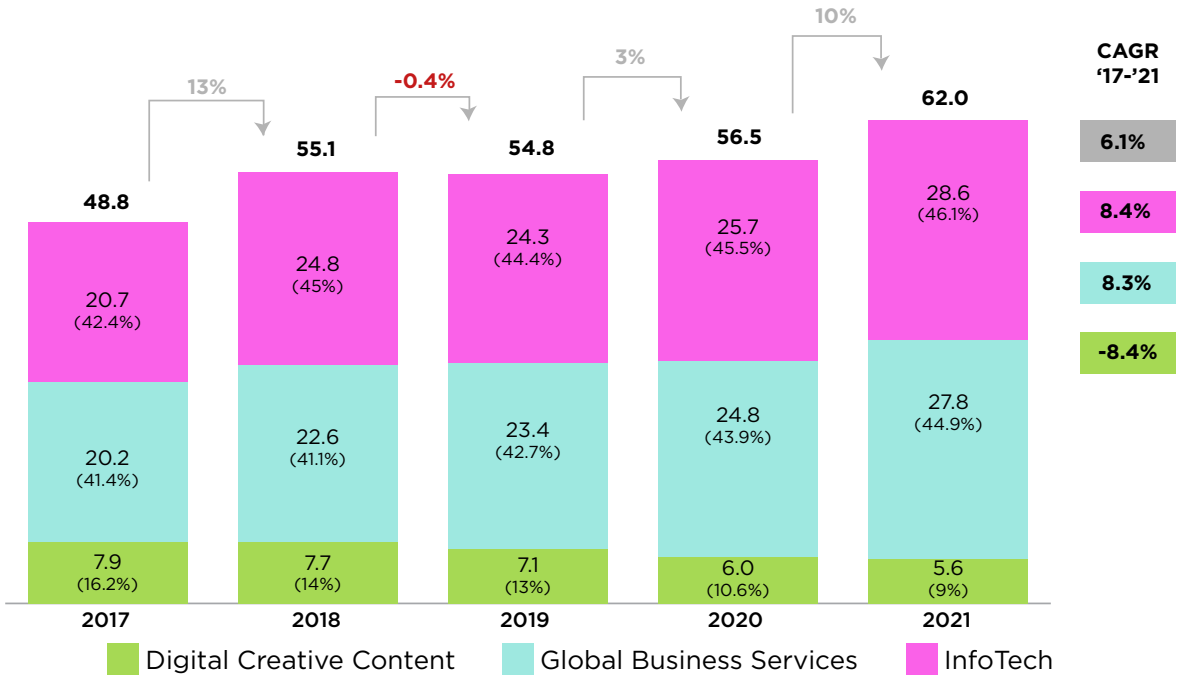
Double Digital Growth Rate Point to Recovery

Revenue contributed by MD companies grew by 10% in 2021 to RM62 billion boosted by strong demand for digital solutions during the pandemic. The percentage increase for that year is almost twice the 5.2% average growth rate recorded in the previous three years. The CAGR of total revenue in the five-year period 2017 - 2021 was 6%.

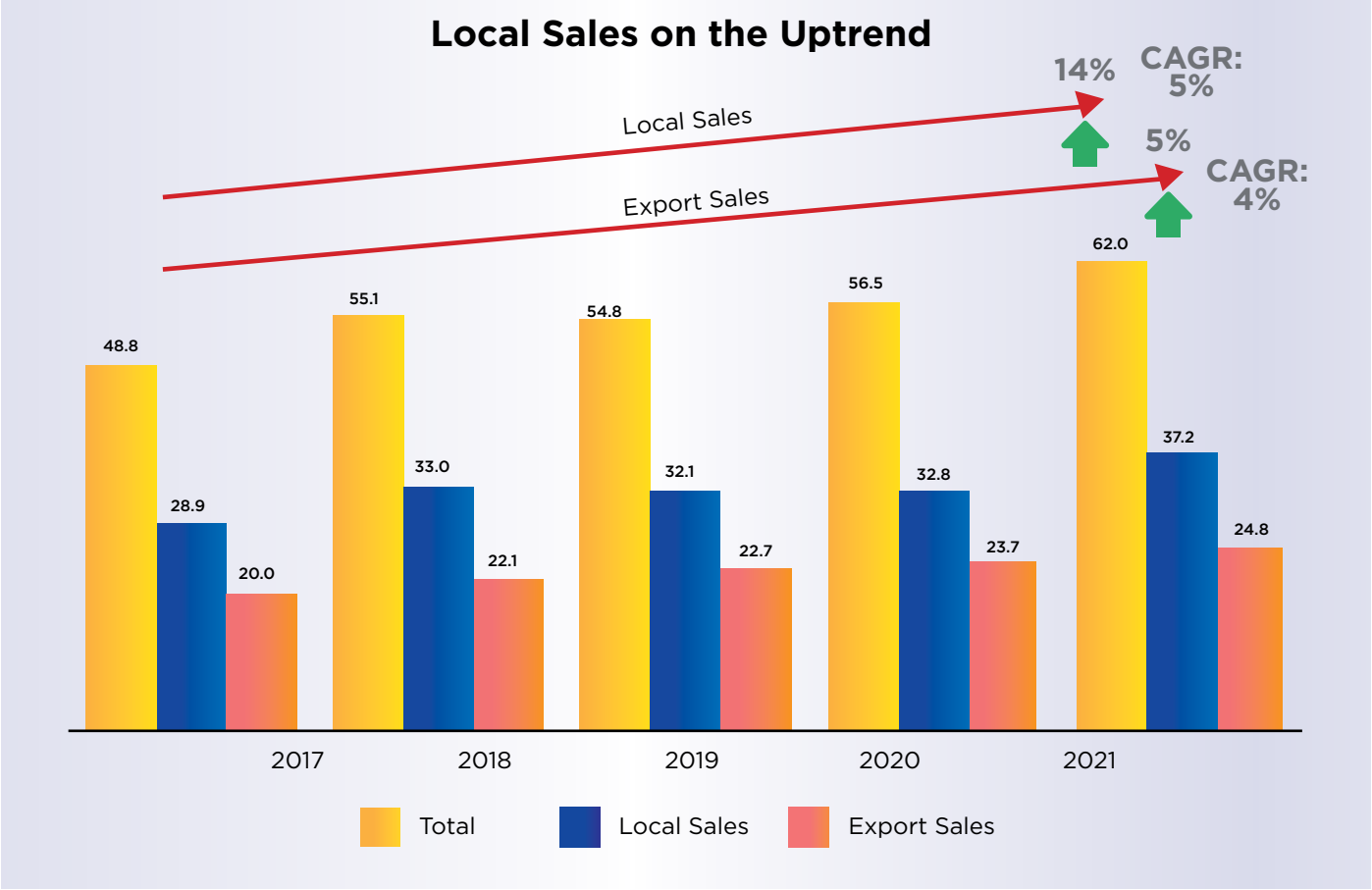
It is interesting to highlight that in terms of revenues, MD companies in the Infotech sector performed better than the other clusters, recording a CAGR of 8.4% since 2017. This could primarily be a result of various MDEC programmes over this period to support the growth of scale-ups, including the MDEC growth intervention programme based on pillars of Gateway, Amplify, Invest, and Nurture (GAIN) and the MDEC Innovation Exchange (MIX).

Revenues generated by the DCC cluster has been decreasing at an average rate of 8.4% over the period due to the tech disruption affecting linear broadcasters and traditional distribution, leading to competition from Over The Top (OTT) platforms and an increasingly crowded broadcast market.

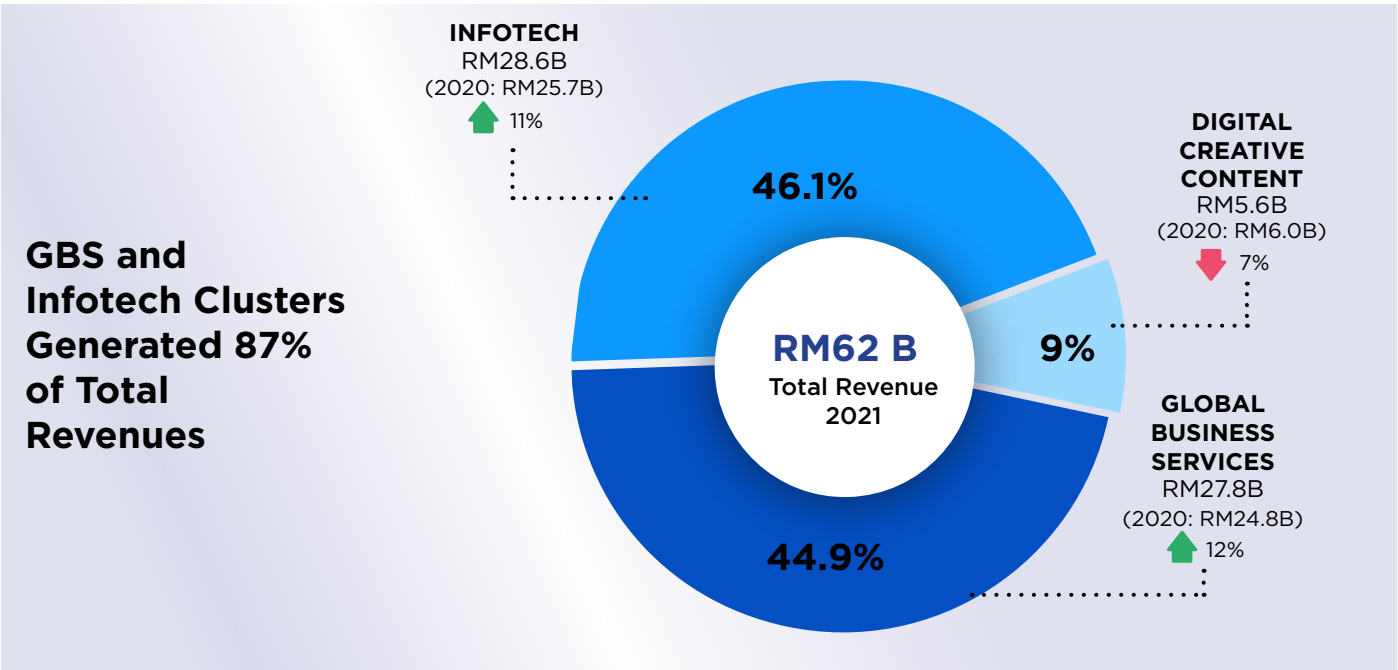
Revenue by Segment, RM billion (%), 2017- 2021



The increase in revenue was driven by local sales, which grew at 13% in 2021 to RM37.2 billion. The overall y-o-y growth rate of 14% was three times the average annual growth rate of 4.6% in the previous three years. The surge in local sales is also higher than the annual growth rate of exports from 2020 to 2021 at 4.6% which declined slightly compared to average annual increase of 5.9% from 2018 to 2020. This was mainly due to the delay in borders reopening post-pandemic. Over the past five years, both local and export sales grew at a healthy CAGR of 5% and 4% respectively.



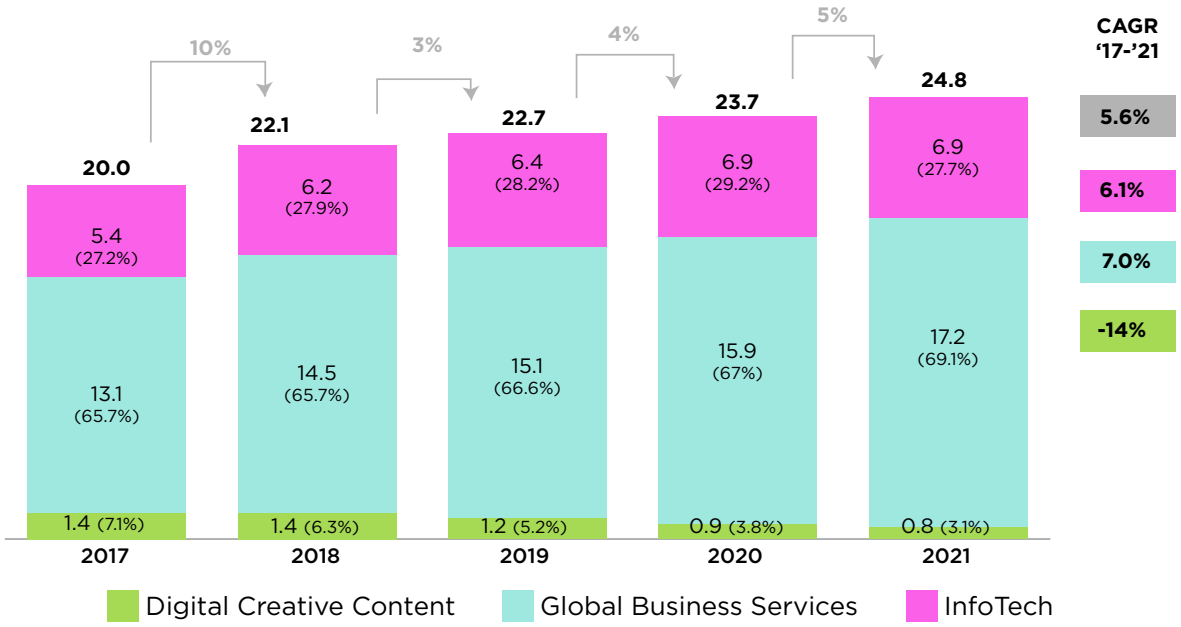
GBS and Infotech Clusters Generated 87% of Total Revenues



EXPORTS

Due to the global nature of their businesses, GBS companies are unsurprisingly the major contributors to export sales, accounting for 69% in 2021. At the same time, MDIR data suggests there needs to be significant focus on growing the exports of the Infotech cluster in the coming years. Both GBS (7%) and Infotech (6%) clusters recorded higher CAGR than the overall average of 5.6% over the 2017-2021 period. Export sales in the DCC cluster were largely affected by stricter border controls and increased regulations during the pandemic period. In addition, there was also the Children's Online Privacy Protection Rule (COPPA) that impacted the content industry for Youtube distribution of studios largely catering to the children segment.

Exports by Segment, RM billion (%), 2017- 2021



Conclusion

MDIR 2021 suggests a healthy growth of the digital industry, showing a surge in digital investments, jobs and revenues. The GBS cluster continues to be a key contributor to the MD ecosystem, while there are signs of a steadily expanding Infotech sector. The MD ecosystem is expected to grow from strength to strength with more business-friendly, inclusive and export-focused interventions that are being designed by MDEC in collaboration with key government agencies.

Digital Talent Landscape **in Malaysia**

By Allan Cheah
Strategy & Policy, MDEC

Talents are invariably one of the most essential components in the digital economy. Despite the looming threat of automation replacing millions of jobs, there will still be a requirement for digital talents in any and every industry, now and into the future.

Over the years, numerous programmes have been introduced and considerable budgets have been allocated to develop and nurture Malaysia's digital talents. All the efforts and resources poured in by various ministries, agencies, companies and academic institutions only serve to highlight the value of digital talents to the growth and development of the nation's digital economy.

Nurturing digital talents is like the art of landscaping. In the actual sense, the landscapers would need to understand the conditions of the land, its topography, terrain, soil properties, nutrients and other variables. This would help them identify the type of plants or flowers suitable to be planted, after which, they would need to ensure proper care is applied so that growth can be optimised.

In the context of digital talents, this would mean addressing questions such as: What sort of talents does Malaysia have? What are their strengths and qualities? What are the fast-growing skills our talents need to stay relevant? How do we compare regionally?

All these are critical data points we would need before we can proceed to outline intervention plans or upskilling/reskilling programmes for our digital talents.

Our analysis of the digital landscape in Malaysia is based on three sources:

1. LinkedIn Talent Insights – filter and analysis of 969 digital job titles across all industries; as of 1 Aug 2022;

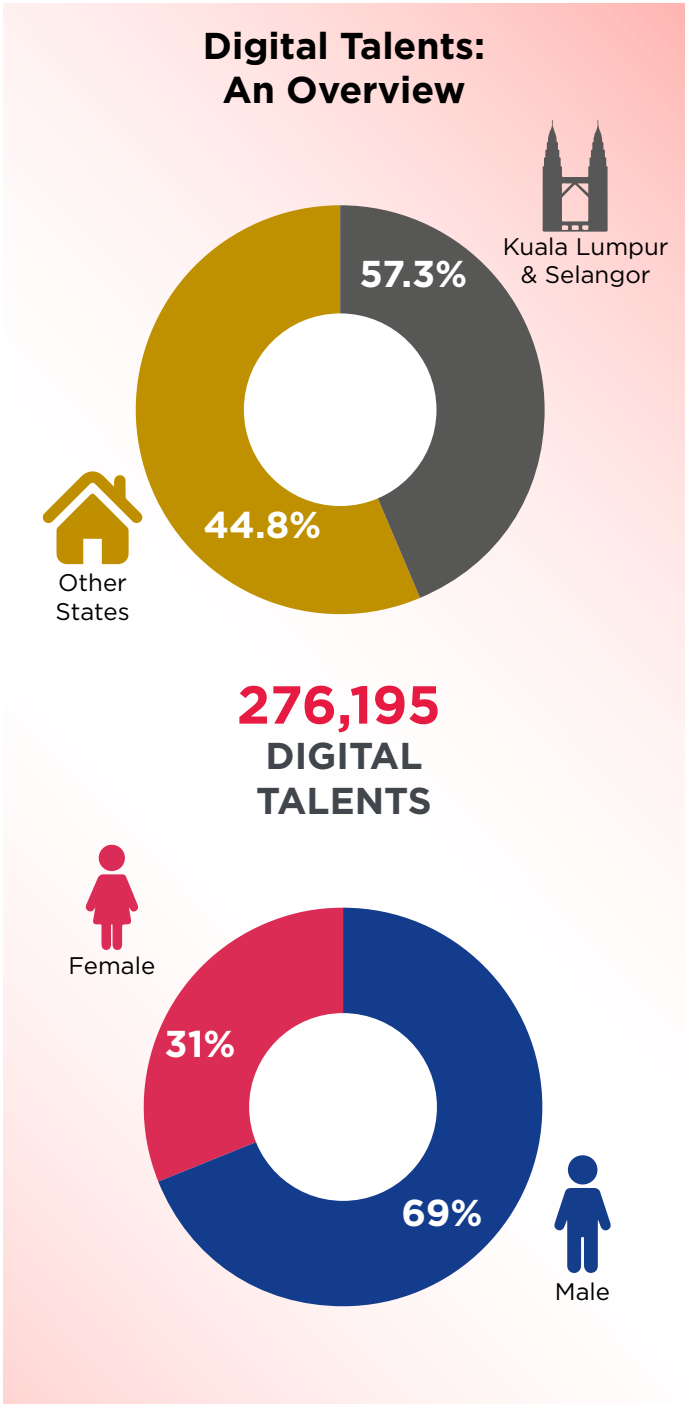
2. Internal MDEC tracking and analysis of digital vacancies from five job portals (Jobstreet, LinkedIn, Monster, Jobstore and Indeed); as of 31 Jul 2022; and

3. MDEC Digital Skills Training Directory analysis, 2022.

Breakdown of Digital Talents

According to LinkedIn Talent Insights (LTI), there are 276,195 digital talents in Malaysia as of 1 Aug 2022. This is an increase of 5.8% over a six-month period since the start of 2022. The majority (57.3%) are from Kuala Lumpur and Selangor, possibly due to many LinkedIn professionals being urbanites in the Klang Valley.

More than two-thirds (69%) are male. While it is encouraging to note that 31% of female digital talents is comparatively higher than the global proportion of 28% or Asian proportion of 26%, Malaysia is still lower against the regional average of 34%.



Demand for Digital Talents

The overall demand for digital talents remained relatively constant throughout 2021. This pattern began fluctuating between locations from 2022 with high demand in Kuala Lumpur, Selangor, Perak and Pahang.

It should be noted that the latter two locations had never before experienced high demand for digital talents. This could be attributed to recent initiatives by both state Governments to spur the digital ecosystem growth.

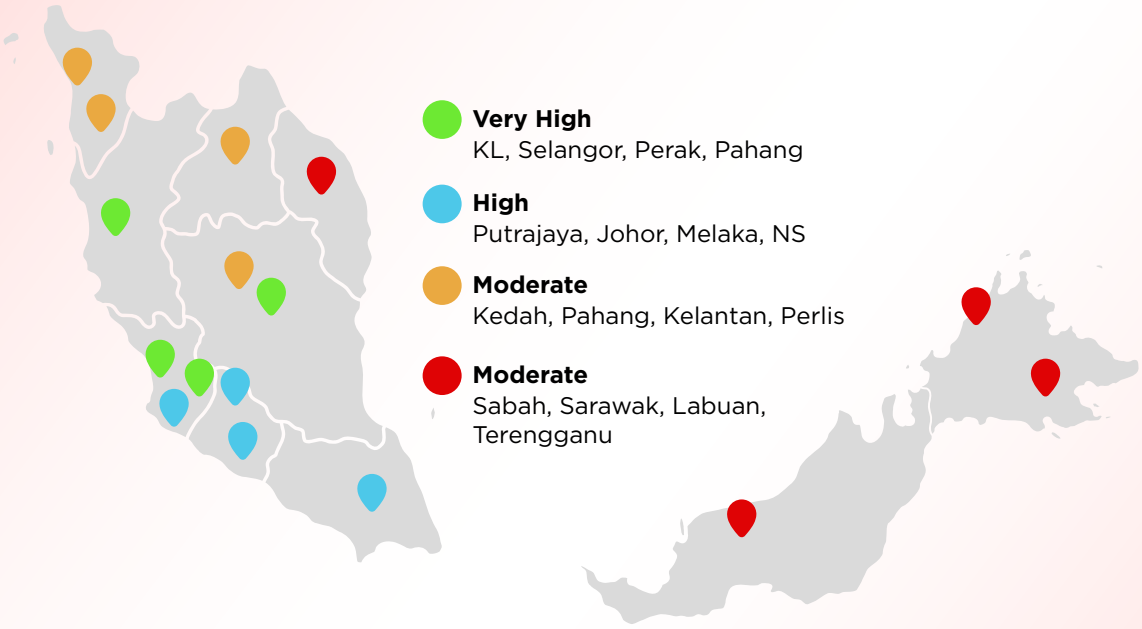
For example, in the middle of 2022, Pahang launched the Pahang Digital Plan 2021-2025, which outlined strategies to provide the best services to the people, optimise state revenues, cultivate a digital culture, and also to ensure that Pahang would be digital ready for investors.

In September 2022, the Perak state Government launched the Talent Perak application, which was essentially a platform for Perakians to find job opportunities and prepare the skilled workforce as needed by the industry.

At the other end of the spectrum, the four states with low hiring demand throughout 2021 and 2022 were Sabah, Sarawak, Labuan and Terengganu. As such, there is an opportunity for talent development programmes to be introduced to these states.

There are also three 'hidden gem' locations, which are cities with higher supply compared to demand, essentially marking them as potential areas for hiring digital talents. In 2022, they were Georgetown, Johor Bahru and Ipoh.

Talent Demand Concentration



Throughout 2022, we have been observing that the demand for digital talents does not only come from ICT-related industries. Today, digital talents are highly sought after across all industries with demand not confined to ICT-related sectors.

In 2021, LinkedIn observed that 7 out of 10 industries with 'very high hiring demands' for digital talents are from non ICT-related industries.

In 2022, two new non-ICT related industries emerged in the top 10 list: Marketing & Advertising and Chemicals.

Another trend observed throughout 2022 was that non-ICT related industries have been hiring more digital talents compared to traditional ICT-related industries.

The top three industries were in E-Learning, Computer Games and Aviation & Aerospace.

Industry Demand for Digital Talents

Demand for Digital Talents Top 10 Industries:

- Staffing & Recruiting
- IT & Services
- Computer Software
- Marketing & Advertising
- Internet
- Financial Services
- Human Resources
- Management Consulting
- Banking
- Chemicals

Increased Hiring from Industry Segments:

- +9% E-Learning
- Computer Games +8%
- +6% Aviation & Aerospace
- Financial Services +5%
- +5% Renewables & Environment
- Semiconductors +5%
- +5% Internet
- Market Research +4%
- +4% Accounting
- Information Services +4%

In 2022, top 10 companies with the highest growth in digital talents were in the areas of e-commerce, digital payments, gig/self-employed platforms and GBS. There is also a minor shift towards automation and environment-related sectors.

Comparatively, in Southeast Asia and Asia, Amazon and Apple are the top two companies with the highest digital talent growth. Shopee is the only company to feature in the top 10 list for Malaysia, Southeast Asia and Asia.

Companies With Highest Growth in Digital Talents in Malaysia

1. Shopee	+63%
2. MoneyLion	+62%
3. Greatech Technology	+51%
4. Micron Technology	+46%
5. Grab	+43%
6. BASF	+36%
7. Freelancer.com	+35%
8. Orsted	+30%
9. Fujitsu	+29%
10. Cognizant	+27%

In 2022, four of the top 10 fastest growing jobs in Malaysia were in Data Science, in particular, the role of Data Engineers. The other popular Data Science roles were Data Analyst, Data Specialist and Data Scientist. Jobs of Developers and Engineers were also on the rise, with four in the top 10 list in Malaysia, seven in Southeast Asia and nine in Asia.

It appears that tech-heavy jobs were in demand throughout the year amid widespread economic recovery as compared to the prevalence of Digital Marketing and Design roles the year before.

Fastest Growing Digital Jobs

MALAYSIA		SOUTHEAST		ASIA	
1. Data Engineer	+18%	1. Data Engineer	20%	1. Software Engineer Intern	43%
2. Frontend Developer	+18%	2. Back end Developer	16%	2. Assistant System Engineer	31%
3. Data Analyst	+12%	3. DevOps Engineer	15%	3. Associate Software Engineer	26%
4. Digital Specialist	+11%	4. Frontend Developer	9%	4. Data Engineer	22%
5. Junior Engineer	+10%	5. Data Scientist	9%	5. Back End Developer	16%
6. Data Specialist	+9%	6. Mobile Engineer	8%	6. Junior Software Engineer	15%
7. Data Scientist	+7%	7. Associate Software Engineer	7%	7. Lead Software Engineer	11%
8. Test Engineer	+6%	8. Digital Specialist	7%	8. Application Developer	11%
9. Senior Analyst	+5%	9. Senior Analyst	6%	9. Data Scientist	10%
10. Test Technician	+5%	10. Junior Software Engineer	6%	10. DevOps Engineer	9%

Fastest Growing Skills

MALAYSIA		SOUTHEAST		ASIA	
1. Analytical Skills	+52%	1. Design	60%	1. Design	66%
2. Design	+51%	2. Copwriting	55%	2. Microsoft Azure	63%
3. React.js	+46%	3. Analytical Skills	47%	3. Analytical Skills	63%
4. Python	+35%	4. Finance	46%	4. React.js	60%
5. Machine Learning	+32%	5. React.js	45%	5. Front-End Development	56%
6. Data Entry	+31%	6. Data Entry	44%	6. Data Entry	56%
7. Node.js	+31%	7. Front-End Development	43%	7. GitHub	53%
8. Information Tech.	+29%	8. Information Tech.	37%	8. Finance	51%
9. Amazon Web Services (AWS)	+29%	9. Back-End Development	37%	9. Spring Boot	51%
10. Finance	+29%	10. Digital Marketing	35%	10. Docker Products	47%

As technology evolves, digital talents need to continuously upskill to remain relevant to the industry.

The most popular common skills of fresh graduates are Python, Java and C++. However, design skillsets like Photoshop and Graphic Design seem to be prevalent even for experienced professionals.

Fastest growing skills include areas like Quality Assurance, Copywriting, Power BI, Git/Github, Social Media Marketing and even Electrical Wiring. For experienced professionals, the top three fastest-growing skills are Analytical Skills, Preventive Maintenance and Process Improvement. These are indicators of the type of skills relevant to talents at a more mature level.

Talent Upskilling Priorities

Most Common Skills

Fresh (< 2 years)	Experience (> 2 years)
1. Python	1. Engineering
2. Java	2. Software Development
3. C++	3. React.js
4. Adobe Photoshop	4. Python
5. Javascript	5. Technical Support
6. Engineering	6. Troubleshooting
7. HTML	7. Graphic Design
8. Software Development	8. Javascript
9. Graphic Design	9. Information Technology
10. CSS	10. Java

Fastest Growing Skills

Fresh (< 2 years)	Experience (> 2 years)
1. Quality Assurance	1. Analytical Skills
2. Copywriting	2. Preventive Maintenance
3. Technical Support	3. Process Improvement
4. Power BI	4. IT
5. GitHub	5. Amazon Web Services
6. Social Media Marketing	6. Data Entry
7. Git	7. Node.js
8. React.js	8. Python
9. Electrical Wiring	9. Finance
10. Adobe XD	10. Operation Management

Digital talents seeking employment should go for upskilling in Analytical Skills. It remains to be the most commonly-required skill for digital job vacancies in Malaysia, SEA and Asia.

Other skills that are fairly strong across include Software Development, Cloud Computing, SQL, Engineering and Design.

Digital Skills in Demand

MALAYSIA	SOUTHEAST	ASIA
1. Analytical Skills	1. Analytical Skills	1. Analytical Skills
2. Computer Science	2. Computer Science	2. Engineering
3. Engineering	3. Engineering	3. Software Development
4. Software Development	4. Software Development	4. Design
5. Design	5. SQL	5. Programming
6. SQL	6. Programming	6. Java
7. Programming	7. Design	7. SQL
8. Javascript	8. Cloud Computing	8. Javascript
9. Cloud Computing	9. Javascript	9. Cloud Computing
10. Information Technology		10. Computer Science

Supply of Digital Talents

Seven out of the top 10 IHLs supplying Malaysia's digital workforce are Premier Digital Tech Institutions (PDTI) recognised by MOHE and MDEC.

IHLs Supplying the Digital Workforce

1 Universiti Teknologi MARA	6 Universiti Putra Malaysia
2 Universiti Teknologi Malaysia	7 Universiti Kuala Lumpur
3 Multimedia University	8 Universiti Sains Malaysia
4 Tunku Abdul Rahman University College	9 Universiti Malaya
5 Universiti Tunku Abdul Rahman	10 Asia Pacific University of Technology & Innovation

Post Covid-19, Digital Jobs are Increasing Again

Technical skills required by the digital industry are fluid and unpredictable. In 2021, Data Analytics was the fastest growing skill in Malaysia, Southeast Asia and Asia.

By mid-2022, Data Analytics and another sought-after skill of Digital Marketing were already out of the picture. Instead, Analytical Skills followed by Design are in demand In Malaysia with Design the fastest growing across the region.

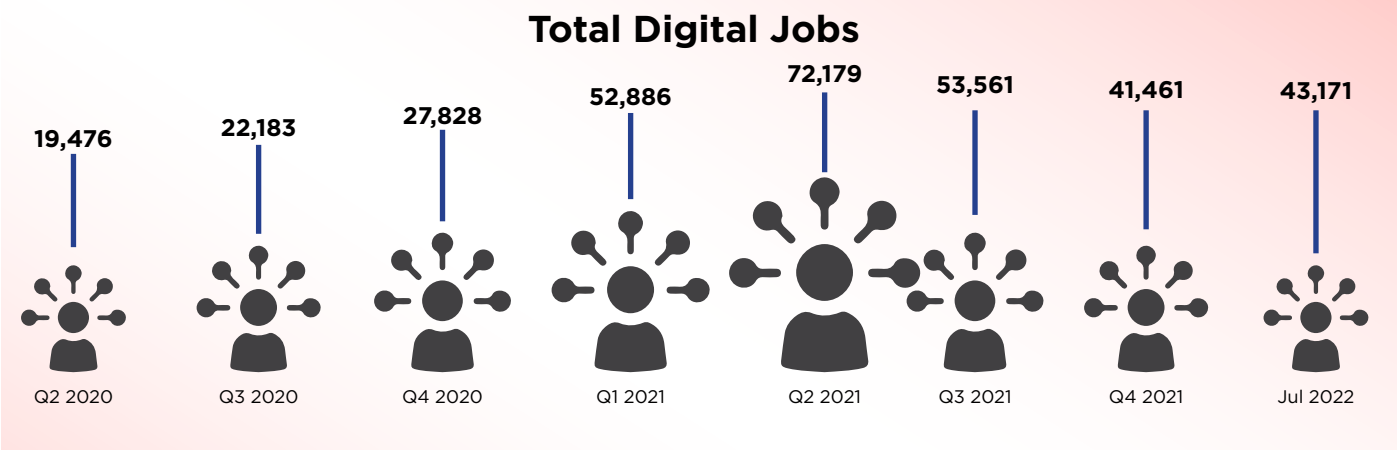
Data Science jobs continue to be highly sought after in Malaysia while Data Entry is now appearing in all top 10 lists. As for non-ICT related skills, Finance remains the most popular among digital talents.

MDEC has been tracking the vacancies of digital jobs at five online job portals: LinkedIn, Jobstreet, Monster, Indeed and Jobstore since mid-2020.

Total job vacancies peaked in mid-2021 and has been declining progressively over the next few quarters, likely the result of economic slowdown during Covid-19 movement restrictions.

In mid-2022, this downward trend seems to have reversed in tandem with economic recovery, judging by the 4% increase in digital job vacancies.

Jobs with the highest growth in vacancies over the past six months were cybersecurity, followed by engineering and IT services. Jobs were in e-commerce activity among consumers post Covid-19.



Uptake of Courses via MDEC's Digital Skills Training Directory

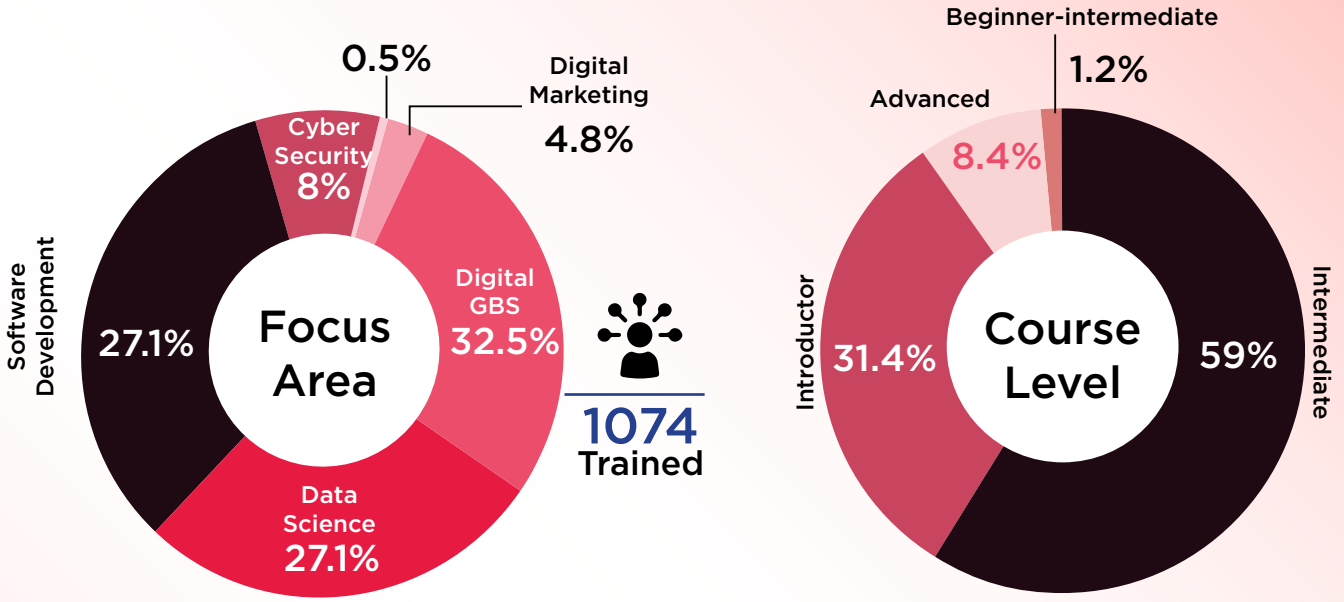
Up to mid-2022, a total of 1,074 talents have been trained in digital courses registered under MDEC's Digital Skill Training Directory, which is a catalogue of courses and online training providers endorsed by a panel of digital industry experts. The directory is useful in guiding people to select training courses that meet their needs for a job in the digital economy.

An analysis on the uptake of courses from the directory gave us some indication of the present interest and appetite on the type of preferred digital training courses by professionals today. For example, the most popular training courses were in Digital GBS, followed by Software Development and Data Science.

This is an encouraging sign for the GBS cluster as Digital GBS courses were only added on to the directory much later in mid-2021 compared to the other courses.

In terms of course levels, the most popular were Intermediate-type courses (59%), followed by Introductory (31.4%) while Advanced only accounted for 8.4% of participants. From this we can surmise that the majority of digital training courses were undertaken by mid-level management or those not very technical in nature.

The Directory can be accessed here:
https://mdec.my/digitalskillstrainingdirectory



Source: Analysis from Digital Skills Training Directory, June 2022, MDEC

Malaysia's Future Forward **Digital Resilience Amidst Global Headwinds**

By Azam Wan Hashim
Strategy & Policy, MDEC

The Global Macroeconomic Landscape

2022 was a year of adjusting to post-pandemic recovery for the digital economy. While the Covid-19 pandemic in the two years prior had resulted in a significant boost of adoption in digital technologies by both businesses and consumers, the gradual return to normality for many economic sectors in 2022 also presented a return to pre-pandemic trends in consumption for some sectors. There is much anticipation of how the digital economy will revolve in the next coming years.

Tough Challenges Driving Market Forces

The global economy experienced various geopolitical and economic challenges in 2022, which has led to a broad-based slowing down in the pace of post-pandemic economic recovery. Ongoing supply chain disruptions, the Ukraine conflict, as well as the rise in inflation rates to multidecade highs, are all negatively impacting households' purchasing power.

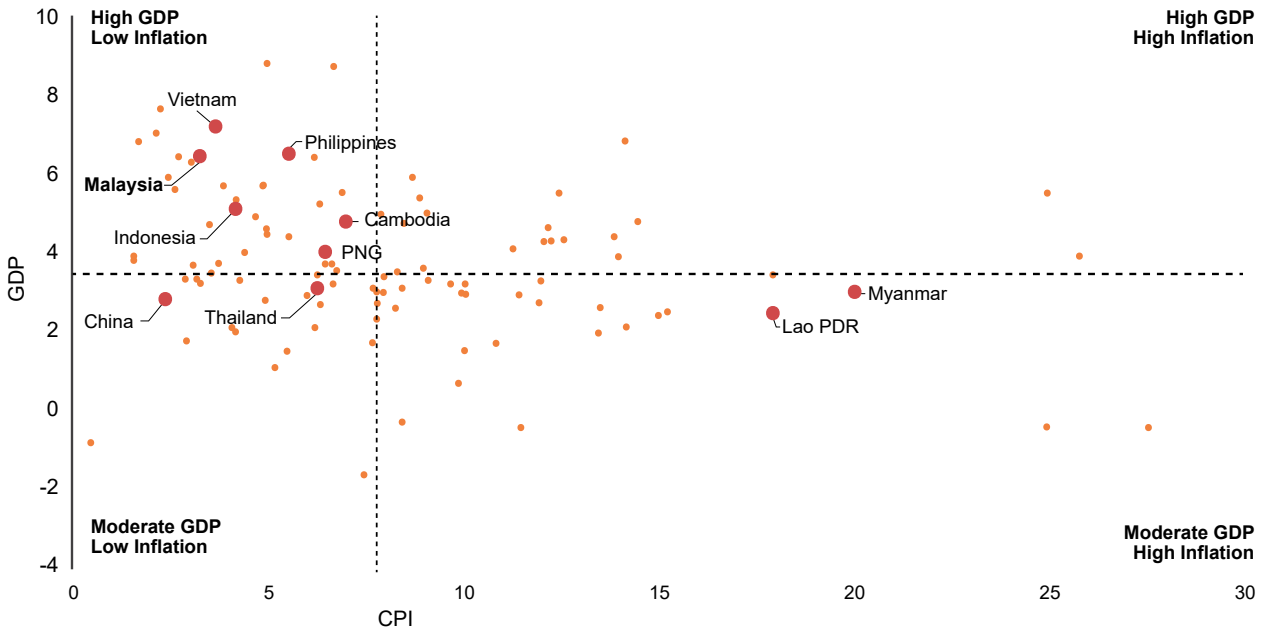
Monetary policy tightening and the squeezing of household budgets are also resulting in a slowdown to digital economy growth, with more and more global digital giants showing earnings figures below expectations.

Outlooks Impacting Digital Economy growth

The macroeconomic pressures and geopolitical tensions are expected to continue into 2023 and are already being felt within the tech industries. 72% of IT Executives surveyed by IDC think that a recession is likely to occur in the next year.

Of course, these sentiments present their own risks of self-fulfilling expectations as investors, executives, and consumers alike may take precautionary hawkish measures and reduce spending. Interestingly, only 4% of IT Executives in the Asia/Pacific region believe that a recession is currently taking place in the region.

Inflation and GDP Growth Forecasts of Regional Economies, %, 2022



Note: •••Dotted lines show median of emerging markets and developing economies (EMDEs)

Source: MDEC Research team analysis: World Bank EAP Economic Update, October 2022

Asia's opportunity to leverage from such a divergence in the growth and inflation expectations will be crucial in attracting investments as supply chain disruptions continue to drive corporate strategies for reshoring, onshoring and near-shoring.

Technology Trends: Where Digital Markets Are Headed Today

From Pandemic Booms To Permanent Shifts

Undoubtedly, Covid-19 had presented itself as a unique opportunity for the growth of the digital economy. Consumer demand for digital media and digitally delivered goods and services increased while people were stuck at home. Businesses were also forced to rapidly adopt digital technologies to continue operating remotely.

According to social media companies, We Are Social and Hootsuite, there were approximately 4.62 billion active social media users worldwide at the beginning of 2022, growing at 10.1% annually or at a rate of almost 13.5 new users every second from the previous year.

For the region, the pandemic had brought about an increase of 60 million new users in Southeast Asia, bringing the total population of internet users to 460 million in 2022[1]. Globally, a total of 12.5 trillion hours was spent online in 2022, growing from the previous year to almost 7 hours per day per person on average[2].

This also presented potential business value, especially for the advertising revenue of Social Media platforms such as YouTube and Instagram, which have a global ad reach of 32.4% and 18.7% of the world population, respectively.

In the wake of the Covid-19 shutdowns and movement restrictions, consumers dramatically shifted towards online channels and purchased more goods and services online, raising e-commerce's share of global retail trade from 14% in 2019 to about 17% in 2020[3].

In Malaysia, the gross value add (GVA) of e-commerce grew from RM129 billion in 2019 to RM201 billion in 2021, at an unprecedented rate of almost 25% CAGR over the two years.

On the business side of things, companies pivoted nearly overnight, launching technology-driven initiatives at the start of the pandemic disruptions for business operability.

According to a McKinsey Global Survey, in 2020 companies had accelerated their digitisation of consumer and supply-chain interactions, as well as internal operations by up to four years, bringing digital transformation to a level that was only expected to be reached by 2024.

[1] Google, Temasek and Bain, e-Conomy SEA, 2022
[2] https://wearesocial.com/us/blog/2022/01/digital-2022-another-year-of-bumper-growth-2/
[3] https://unctad.org/news/how-covid-19-triggered-digital-and-e-commerce-turning-point

Digitalisation Resiliency

Indeed, perhaps the most significant shift in preferences occurring out of the Covid-19 pandemic is the consensus on business digitalisation and its impact to operational resiliency.

This realisation was imposed onto entire industries as Covid-19 forced many organisations to shift to remote operations, online communications and even electronic-based processes, procedures and routines.

Digitally-enabled businesses, in essence, kept economies afloat during pandemic lockdowns. The UNCTAD estimates that the global value of digitally delivered services trade between 2019 and 2021 grew by 8.4%, while other non-digital services trade declined by 11.8%.

In Malaysia, too, we saw that digitalised businesses provided more resilience to business revenue and workers. The World Bank's Business Pulse Survey found that businesses which invested in new digital solutions during Covid-19 experienced declines in revenue 12% less than those that did not. This also translated to employment resilience, with 'digital businesses' recording employment declines 5% lower than 'non-digital' businesses.

The implications of this shift in preference were the observable acceleration in the growth of the digital economy, the pace and scope of hiring tech talent, and the level of investments in digital service delivery which took place in both the tech and non-tech sectors.

Post-pandemic Reality Check And Future Growth Outlook For The ICT Industry

While the increased digital adoption and ensuing growth in customer data continues to spur greater product innovation and new digitally-driven business models, the digital economy may be facing some challenges in the near-term. Against the backdrop of challenging global macroeconomic pressures coupled with a rapidly emerging economic crisis, the digital economy has experienced a relative slowdown in performance in 2022 compared to the unprecedented boom during the pandemic.

These challenges manifested themselves in disappointing earnings figures for some giants like Alphabet, Meta, Amazon and Microsoft who had to lay off a significant portion of their workforce to adjust down from the accelerated hiring during covid.

Digital markets are showing signs that the pandemic boom in digital consumption seems to be normalising as economic borders reopen. Data from the latter half of 2022 shows that some consumers are readjusting their preferences of consumption, returning some markets to their previous pre-Covid trendlines.

The Food Delivery and Online Media markets, for example, are expected to return to their pre-pandemic trendlines after a 2-year spike of home-trapped demand.

[4] Google, Temasek and Bain (2022)

Nevertheless, we still see segments of the digital economy showing sustained growth momentum in the next few years. Markets like e-commerce and Digital Payments are expected to follow an 'S-shaped' growth curve, with post-pandemic growth returning to similar pre-pandemic trends, but with a permanent growth spike during Covid-19[4]. Despite global headwinds, Southeast Asia's digital economy also continues to grow.

The region's digital markets are expected to reach approximately US$ 194 billion in Gross Merchandise Value (GMV) in 2022 – a figure that was previously forecasted to be achieved only by 2025. Google, Temasek and Bain estimate the regional digital economy to maintain its strong growth throughout the next few years to a total GMV of US$ 330 billion in 2025 and growing at a 20% CAGR between 2022-2025.

Growth Outlook for Selected Digital Segments in Southeast Asia, 2022-2025[5]

Segment	Expected growth trajectory from pandemic (2019-2025)	GMV 2022 (US$ billion)	GMV 2025 (US$ billion)	Drivers of growth momentum
E-commerce	S-shaped	131	211	• Tapered, but positive, growth from pandemic peaks • Operational optimisation efforts for improved profitability • Shifts from customer acquisition to engagements
Food Delivery	Return to trendline	17	24	• Consumers resuming pre-pandemic habits of dining out • Companies prioritising profitability per unit, potentially leading to fewer discounts, higher fees, increased take rates and lowered consumption
Online Travel	U-shaped	17	44	• Easing of travel restrictions and quarantine requirements • Pent-up travel demand spurred a surge in 2022 • Domestic travel rebounding to 60-70% of pre-pandemic passenger traffic
Online Media	Return to trendline	24	36	• Video-on-demand peaked during pandemic and back to trendline • Music-on-demand recovering from pandemic-led decline as on-the-go music-listening behaviours return • Gaming is facing a post-pandemic pullback in demand • Digital ads maintain momentum
Digital Payments	S-shaped	806	2,135	• Digital financial services experience persistent offline-to-online behavioural shifts post-pandemic

[5] Google, Temasek and Bain (2022)

Tech Developments to Watch

Tech for Humans

• ***Metaverse***

While the metaverse may not be a new concept, its current development is still at nascent stages. Despite this, however, its potential to bring about the next wave of digital disruption in human interactions is becoming increasingly clear as real-world benefits are already emerging for early adopters.

Whether you are sceptical of its long-term popularity or adoption, it is difficult to ignore the potential impact the metaverse may have to everything from employee engagement to customer experience, omnichannel sales and marketing, product innovation, and community building.

Tech giants like Meta, Google, Microsoft, Nvidia and Qualcomm are already investing billions into the concept. Some applications such as Microsoft's Mesh or Meta's Horizon Workrooms are emerging as early examples of the metaverse's applications that can be seen in offices today.

According to a report by McKinsey & Co, investments into the metaverse space equalled over US$ 120 billion in 2022, more than doubling from the previous year. The report estimates that by 2030, the value of the metaverse could potentially reach up to US$ 5 trillion.

About 59% of consumers surveyed by McKinsey & Co are excited about its potential and 57% of metaverse-aware companies say they are adopters of the technology.

These enhanced online environments powered by augmented and virtual reality are already being utilised by industries like gaming and being populated by regular users today.

Roblox, for example, is a massive multiplayer online gaming platform which has 230 million monthly active users. These users roam around as virtual avatars in millions of online worlds that were created by partnered developers.

As at the end of the third quarter of 2022, Roblox generated US$ 2.2 billion in revenue in the last year, growing by over 33% year-over-year.

In the coming years, as computing hardware becomes even more powerful and network infrastructures facilitate faster data transfers, people may find themselves spending less time communicating with their fingers and more immersed by the human interactions taking place in virtual worlds.

• ***Intelligence Revolution***

From personally curated recommendations of music, videos and search results to predictive maintenance, robotic process automation and self-driving vehicles. Chances are, you have encountered artificial intelligence (AI) today and may not have even noticed.

AI has impacted every facet of many industries and will continue to make significant strides in a variety of fields. Advancements in machine learning and deep learning will likely lead to improved performance in areas such as natural language processing, computer vision, and speech recognition.

In healthcare, for example, AI technology experienced a major boom during Covid-19 and continues to find widespread applications, ranging from providing diagnoses to formulating treatments.

AI has now made it possible to conduct early-stage detection of cancers. IDC estimates the global revenue for AI market, including software, hardware and services to exceed US$ 450 billion in 2022 and continuing with a double-digit growth rate throughout the next 5 years.

Additionally, the increasing availability of data and computing power has enabled the development of sophisticated AI tools which is now consumable by non-technical end users. For example, OpenAI, which is a private artificial intelligence research institute, releases cutting-edge AI systems such as GPT-3 (Generative Pre-training Transformer), which has garnered mainstream popularity and adoption in the past year.

This model has been a breakthrough in the field of natural language processing and is accelerating the rate of disruption from AI technology. Its applications into Generative AI products like ChatGPT and DALL·E is boosting adoption from both consumers, who can now generate entire essays and original artworks in seconds as well as businesses which are applying the technology to their customer service and copywriting activities.

However, as these systems become more prevalent, the challenges related to the ethical and societal implications of AI will be exacerbated, and ongoing research will need to address these issues. Some of the primary challenges and regulatory questions associated with AI development include bias and discrimination, job displacement, privacy and security, accountability, explainability and transparency. It is important for researchers, policymakers and industry leaders to work together to address these challenges and ensure that AI is developed and used in a responsible and ethical manner.

Tech for Industry

• ***Next-gen Internet***

Web3, also known as Web 3.0, is the next generation of the internet which aims to be more decentralised and autonomous than the current web.

The Web3 protocol is based on the concept of peer-to-peer networks which allow users to interact directly with each other rather than relying on intermediaries such as centralised servers or organisations.

The technology is still in its early stages of development, but it has already attracted a significant amount of investment and interest from a variety of industries.

The global Web3 market revenue was valued at US$ 2.9 billion in 2021 and is forecasted to grow at a CAGR of almost 42% to an estimated value of US$ 23.3 billion in 2028, according to a report by Vantage Market Research.

The report also projects the Asia Pacific region to dominate the worldwide Web3 Blockchain market. One of the main drivers of this growth is the increasing adoption of blockchain technology, which is the foundation of Web3, and emerging concepts such as decentralised autonomous organisations (DAOs).

Blockchain is being used in a variety of industries, including finance, supply chain management, healthcare and real-estate to improve transparency, security, and efficiency.

Additionally, the increasing use of decentralised applications (dApps) is also expected to drive growth in the Web3 market and transform traditional industries.

Another significant driver of this technology is the growing demand for decentralised solutions, as individuals and organisations are becoming more aware of the benefits of decentralisation, such as security and privacy, and more conscious of the risks of centralisation such as data breaches and censorship.

Southeast Asia has the potential to be transformed by Web3 technologies but the transition could be difficult. A digital divide, coupled with the lack of governance and infrastructure in many countries, may impede the progress of technology diffusion.

On top of that, addressing the regulatory complexities of a decentralised internet will require significant effort by both domestic and international regulatory bodies.

[6] https://www.idc.com/getdoc.jsp?containerId=prAP49741322

• ***Digital Twin, 3D***

Digital twins utilise real-time data from IoT devices, advanced analytics and machine learning to create a digital virtual representation of industrial products, processes or systems.

This technology is transforming industrial supply chains today and driving strong market growth, propelled largely by the adoption of Industry 4.0 and IoT in manufacturing and other industries.

The global digital twin market size is estimated to grow by 39% CAGR from US$ 10.9 billion in 2022 to US$ 15.2 billion in 2023 and is expected to grow to US$ 56.7 billion in 2027.

In Malaysia, PETRONAS has been recognised by IDC Malaysia in 2022 and received the Best in Future Intelligence award for integrating the Digital Twin technology[6] PETRONAS' Digital Twin Enterprise Optimisation Centre (EOC) offers end-to-end integrated views and insights of the entire company's flow of operations.

This is done through a virtual and connected "digital twin" of all PETRONAS operations, including more than 40 processing plants, 20 feeds and 60 products. With EOC in place, the company now can have near real-time insight into the molecular flow across the entire enterprise.

The increasing demand for efficiency and productivity-enhancing technologies in various end-use industries such as oil and gas, healthcare and transportation is expected to drive the digital twin market growth in the coming years.

Tech for Governance

• ***Cybersecurity***

With an ever-increasing volume of consumer, business and government activities becoming digitised, we are seeing an exponential growth in the exposure of crucial social and economic functions such as infrastructure, financial services, private consumption, social communication and public service delivery to the risks of cyber-attacks.

According to Statista, the global cost of cybercrime was estimated at US$ 8.4 trillion in 2022. The cost of incidents caused by illegal activities on the internet are set to surpass the US$ 11 trillion mark in 2023.

By 2026, annual cybercrime costs worldwide could exceed US$ 20 trillion, an increase of almost 150% compared to 2022. Governments and businesses are investing heavily in cybersecurity to protect themselves from cyber-attacks.

Revenue in the cybersecurity market is projected to reach US$ 173.50 billion in 2023, with the largest segment being Security Services projected to contribute more than half of the total revenue. Cybersecurity has also become an essential aspect of national security.

Governments are investing in cybersecurity to protect their critical infrastructure, such as power plants, water treatment facilities, and transportation systems.

Governments like Malaysia are also investing into ways to protect consumers from exposure. In Malaysia, almost RM600 million in losses were recorded throughout 2022 as a result of cyber crime.

Towards the end of 2022, the Government has set up the National Scam Response Centre (NSRC) to deal with a growing number of cyber fraud cases.

This joint effort by the anti-financial crime centre (NFCC), police, Bank Negara Malaysia (BNM), Malaysian Communications and Multimedia Commission (MCMC), financial institutions and telecommunications companies aims to help victims of cyber crime to prevent losses.

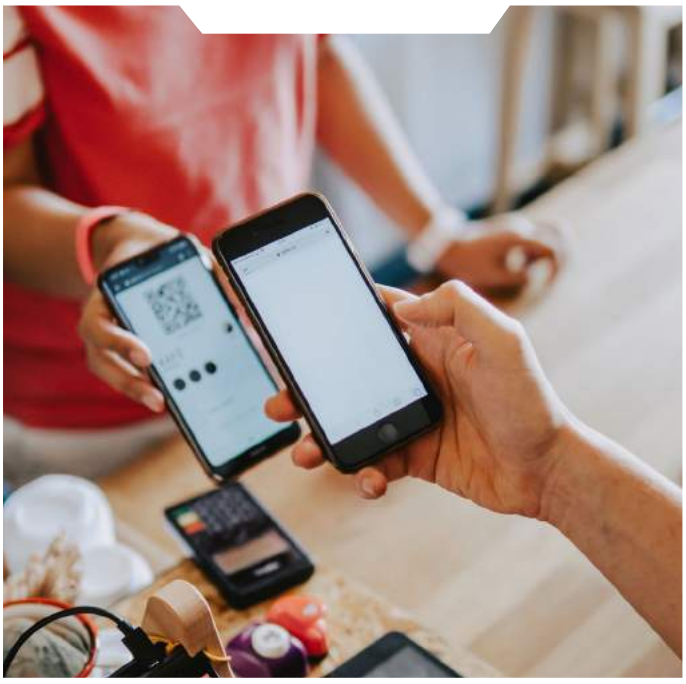
While these public-facing initiatives aid in protecting consumers from cyber crimes, the focus will also need to be placed on educating the public towards becoming more digitally literate.

Malaysia's Response To Digital Trends

In the last 3 years, Malaysia's digital economy has grown significantly, driven by increasing adoption of digital tools such as mobile phones, e-wallets, and accelerated by the Covid-19 pandemic.

Government support has also been instrumental in facilitating this growth and encouraging greater adoption of digital technologies.

While the national GDP contracted from movement restrictions and disruptions to business operation, the pandemic drove the digital economy to grow by 10.4% from RM290 billion to RM320 billion. The ICT sector continues to grow as a proportion to GDP, reaching 23.2% in 2021 and targeted to reach 25.5% by 2025.



E-commerce has been a major driver of this growth, with platforms such as Lazada, Shopee and Grab growing tremendously during the lockdown periods amidst the pandemic.

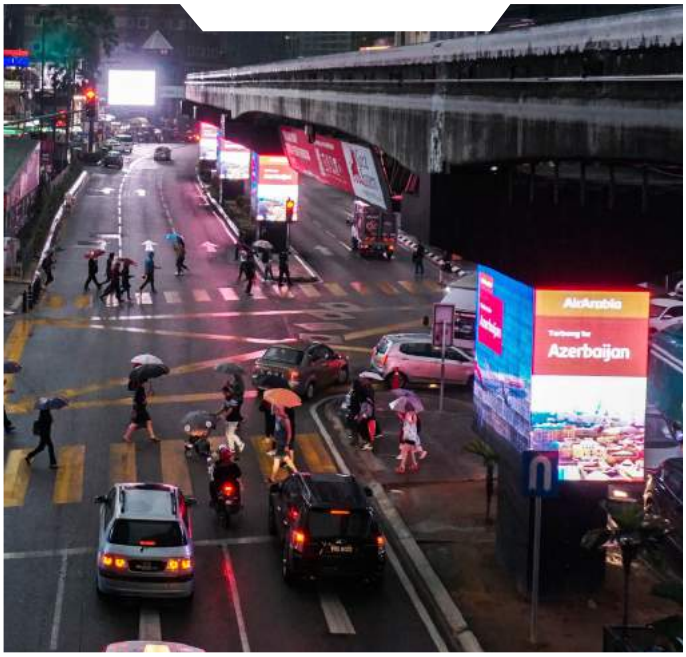
The fintech industry has also seen substantial growth, with digital payment platforms such as Boost and Touch 'n Go becoming increasingly popular for both consumers and businesses alike.

In 2021, over 7.2 billion transactions were made with electronic payment (e-payment) channels in Malaysia, growing at the fastest rate since 2006 of about 30% year-on-year.

Efforts from government agencies and supportive policy frameworks continue to boost the rate of business and consumer adoption, which also translates to job creation and FDI numbers for Malaysia.

Since its inception in 1996, MDEC has attracted more than RM430 billion in digital investments from 2,708 active companies and created close to 200,000 jobs.

In the coming years, Malaysia's growing digital infrastructure and 5G nationwide deployment will offer promising opportunities for both local and international businesses.



The government aims to provide nationwide 5G coverage by 2025, which will enable a range of emerging technologies and applications such as artificial intelligence, edge computing, smart cities, and extended reality.

Malaysia continues to actively promote the development of its digital economy through initiatives like Malaysia Digital and the Malaysia Digital Economy Blueprint (MyDIGITAL), recognising the potential of technology to drive innovation, productivity and economic growth and the well-being of the citizens.

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