MCMC

Industry Performance Report

2021

Statutory Requirements

In accordance with Part V, Chapter 15, Sections 123 – 125 of the Communications and Multimedia Act 1998, and Part II, Section 6 of the Postal Services Act 2012, the Malaysian Communications and Multimedia Commission hereby publishes and has transmitted to the Minister of Communications and Multimedia a copy of this Industry Performance Report (IPR) for the year ended 31 December 2022.

Acknowledgement

MCMC would like to thank all licensees who responded to the IPR 2022 questionnaire, in which part of their feedback were collated and included in this publication.

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Note:
Numbers and percentages may not add up due to rounding practices. Information and figures given are accurate as per current date and time the Report was produced.

Cover
Rational

Connectivity Powering the Nation

The nation continues to forge ahead with positivity and optimism to fulfil its digital aspirations for the people while strengthening its position in the industry, regionally as well as globally. The yellow and orange hues that dominate the cover symbolise clarity, communicate dynamism and exude strong positivity.

The symbol for infinity, or the lemniscate symbolises eternity in a variety of contexts. Here it is associated with the spirit of pushing boundaries and dedication to fulfilling immediate and future tasks, product offerings as well as service capabilities and standard – with the processes involved being executed with transparency and a high degree of accountability. Continuous periodic assessments and improvements will be the cornerstone of success of the national digitalisation agenda.

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Outlook

The Malaysian economy gathered momentum in 2022, rebounding from the pandemic-induced economic shock. Malaysian life returned to normality since the transition to endemic phase in April 2022. The way people connect, share information and interact with the world have changed tremendously, and as a result, people have become more reliant on digital connectivity to carry out their daily activities.

Chairman's Message

The Communications and Multimedia (C&M) sector has become integral to Malaysian modern society, where immense potential was recognised into creating an environment that fosters innovation, facilitates accessibility and promotes digital inclusivity. This sector acts as an accelerator that influenced Malaysia to capitalise on new economic opportunities and drive the nation towards becoming a fully connected, informed and digitally advanced society. The Malaysian Communications and Multimedia Commission (MCMC) remained persistent in assisting the sector through various initiatives and collaborations.

Pelan Jalinan Digital Negara (JENDELA) (2020-2025) is a two-phase initiative which was launched in 2020 to provide wider Internet access and improve broadband connectivity in Malaysia. JENDELA Phase 1 was introduced in September 2020 and to be completed by 31 December 2023. As of 31 December 2022, 7.74 million premises throughout the nation had fibre connectivity, 96.92% of 4G coverage had been achieved, and mobile broadband had reached median speed of 43.46 Mbps, way exceeding its target of 35 Mbps for 2022.

Concurrently, the deployment of 5G networks has been underway since December 2021 in order to accommodate the growing dependency on high-speed Internet. The combination of higher speed and network capacity on 5G networks will allow for greater data transmission and will be a crucial driver of Malaysia's economic growth and connectivity. By the end of 2022, 3,906 sites had 5G infrastructure in place, with 2,576 sites offering 5G services. The rollout was on track to achieve 80% population coverage by the end of 2023 before shifting to the dual network architecture in 2024.

MCMC remains committed to its long-term community internet centre initiative, *Pusat Ekonomi Digital* (PEDi). Since its establishment in 2007, PEDi has evolved from providing internet access services in underserved areas to becoming a community digital economy and learning centre, with the aim of empowering and driving the local community towards digital economy. As of 31 December 2022, there were more than 1.29 million users who enjoyed the benefits of a variety of services and facilities provided by PEDi throughout the country. Simultaneously, 600 *Rakan Digital* PEDi have been appointed under the *Program Pemerkasaan Pendigitalan Usahawan Kecil* (PUPUK) to assist various entrepreneurship programs at PEDi as well as local entrepreneurs in digitalising their enterprises.

Towards promoting growth and enhancement of e-commerce, *Pelan Accelerator Kurier Negara* (PAKEJ) continue to raise the standard of postal and courier services with a key focus on boosting business sustainability and strengthening postal and courier infrastructures. In 2022, an additional 1,846 *Rangkaian PAKEJ* Points offering pick-up and drop-off services were recorded, bringing the total number of *Rangkaian PAKEJ* to 23,034. Notably, 430 facilities were constructed at selected PEDi to cater to local communities in those regions. Consequently, Malaysia has reached 21.4 parcels per capita as at the end of 2022, in line with the projected e-commerce industry growth of 30 parcels per capita by 2025.

YBhg. Tan Sri Mohamad Salim Fateh Din

Despite the challenges, the C&M industry remains resilient as it encompasses a wide range of services that continue to evolve towards the modern digital lifestyle. The overall revenue of C&M industry recorded an increase of 3.1% in 2022 to RM49.69 billion (2021: RM48.20 billion), with a market capitalisation value of RM140.38 billion (2021: 146.93 billion). Revenue in the telecommunications sector increased by 5.6%, while revenue in the broadcasting, and postal and courier sectors declined by 9.3% and 10.3% respectively.

Looking ahead, the industry is poised for positive progress and diversification to better adapt to growing digital transition trends while remaining competitive. Subscribers remain robust as digital applications such as short messaging, virtual meeting, electronic cash payment, e-hailing, online shopping and online food and grocery delivery become entrenched in everyday life as consumers look for ways to reduce costs and time consumption. The rise of smartphones and affordable data plans has led to an increase in mobile streaming, which steered the development of mobile apps by broadcasters and streaming platforms.

Service providers are expected to expand their capabilities and explore opportunities to serve the digital lifestyle trends, including delivering exceptional quality of service. To this end, the Government will continue its commitment in implementing and overseeing initiatives that facilitate the deployment of digital infrastructures, while ensuring that the nation enjoys reliable access to all essential services rendered by the industry.

With that, it is my honour to present the Industry Performance Report 2022.

EXECUTIVE SUMMARY

Economic Performance of the C&M Industry

The Malaysian economy in 2022 showed a recovery momentum, with positive growth of Gross Domestic Product (GDP) supported mainly by the continued improvement in private consumption and investment in labour market and tourism activities. In line with this, the usage of telecommunication and multimedia services for online transactions, online shopping, entertainment, and remote working arrangements remain the norm for individuals and businesses, but at a relatively slower pace compared to the pandemic phase. The C&M industry market capitalisation has declined by 4.5% to RM140.38 billion (2021: RM146.93 billion), representing 8.1% of Bursa Malaysia total market capitalisation of RM1,736.21 billion in 2022 (2021: 8.2%).

In terms of financial performance, the C&M industry revenue witnessed an increase of 3.1% to RM49.69 billion in 2022 (2021: RM48.20 billion), driven by the Government's stimulus programmes and economic reopening which boost consumer demand and business activity. The telecommunications sector began regenerating steadily in 2022, benefiting from significant increase in demand for connectivity services such as internet, video conferencing, and streaming services. In addition, incentives from *Jaringan Prihatin* Programme, *Pakej PerantiSiswa Keluarga Malaysia* and *Pakej Peranti Keluarga Malaysia* subsidised consumers to own a smartphone and affordable data plans contributed to subscriber growth in 2022. These developments fuelled the telecommunications sector's growth, with revenue increasing 5.6% to RM42.56 billion in 2022 (2021: RM40.31 billion). Given the need to expand network infrastructures to support the rising demand, service providers have accelerated capex investments to 8.8% higher to RM5.42 billion in 2022 (2021: RM4.98 billion).

However, broadcasting and postal and courier sector experienced a decline in revenue for 2022. Broadcasters continued to face competition from online video streaming platforms and cord-cutting trend, along with decline in TV home shopping as consumers' shopping trend has shifted back to physical stores. This have led to a contraction of 9.3% in broadcasting sector revenue to RM4.79 billion in 2022 (2021: RM5.28 billion). On postal and courier, the sector continues to witness a fierce competition as the ending of two-year moratorium on the issuance of courier service licence provided an avenue for more courier companies to enter the overly congested market. From the increasing pressure in price and cost, postal and courier service providers saw a decline of 10.3% in revenue to RM2.34 billion in 2022 (2021: RM2.61 billion).

State of Connectivity in Malaysia

There is a robust growth in domestic economy, driven by rising economic activities as the country transitioned into endemic stage since April 2022. Mobile became more pertinent to the way people live and operate businesses, which promotes the acceleration of digital adoption in especially among Malaysian businesses. In 2022, total mobile cellular subscriptions saw an increase of 1.6% to 47.95 million (2021: 47.20 million), resulted from the improved nationwide connectivity, affordable product offerings and the Government programme-led demand that provides better access to the internet and smartphone devices. Postpaid subscriptions grew 0.8% to 14.29 million (2021: 14.18 million) while prepaid subscriptions increased 1.9% to 33.66 million (2021: 33.02 million). In line with the growth of mobile cellular subscriptions, mobile broadband in 2022 also registered an increase of 2.9% to 43.24 million (2021: 42.02 million).

While impeccable mobile broadband connection creates value for customers, fixed broadband also plays an equally important role in creating the best user experience in terms of greater speed, reliability and stable connection. In relation to this, *Pelan Jalinan Digital Negara* (JENDELA) aspires to continue benefitting all Malaysians by achieving the targets of increasing premises passed with fibre connectivity, internet coverage in populated areas and average speed in mobile broadband. Fixed broadband has seen more demand, with subscriptions growing 13.2% to 4.22 million in 2022 (2021: 3.73 million). The higher uptake of both mobile and fixed broadband has in turn contributed to the increase in total broadband subscriptions nationwide by 3.8% to 47.46 million in 2022 (2021: 45.75 million).

In line with the 12th Malaysia Plan, MyDIGITAL Blueprint and JENDELA, 5G is identified as an important facilitator in digitalisation effort for the country. In 2022, 5G has reached a population coverage of 47.1% through the completion of 3,906 macro sites nationwide. Daily 5G traffic has increased approximately 10 times with 76,000 concurrent users since its commencement in November 2022. Additionally, 5G also provide subscribers with better user experience from its lower latency and improved speed, which were recorded between 14.8 – 21.5 times faster than 4G.

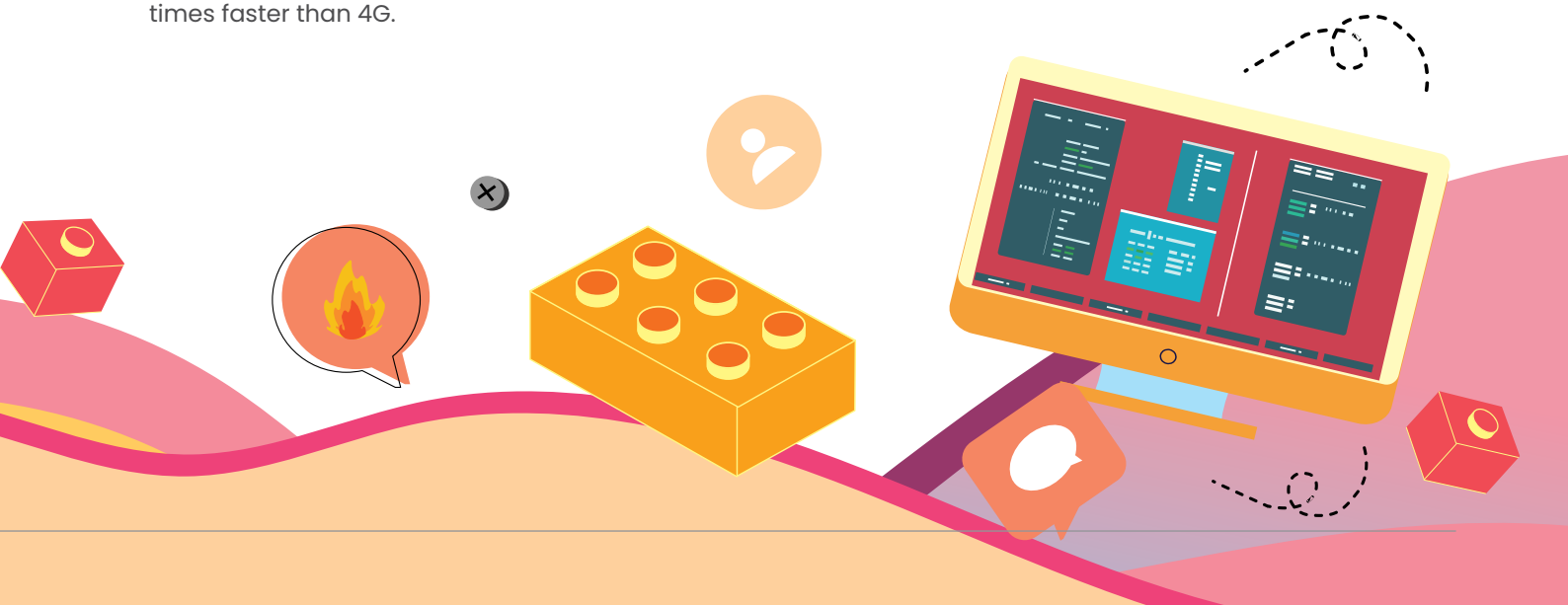
Content Services

TV viewing is evolving rapidly providing access to a plethora of both good quality and assorted TV and video content. The variety of content can be viewed from Free to Air and Pay TV, as well as new form of video through online platforms. Notably, the high percentage of individual and household access to TV at 99% in Malaysia shows that TV is an essential tool for disseminating news and raising awareness, and a popular medium, among others for entertainment and sports.

The growth of TV content in Malaysia is partly attributed to the digital terrestrial TV (MYTV) platform providing access to more content for viewers while creating new opportunities for broadcasters as well as content creators. Two new channels were introduced on MYTV platform namely SUKE TV and Bernama Radio, bringing the total number of free channels available to the public to 27 (16 TV and 11 radio) in 2022. These services are available for free to viewers while service providers generate revenue from advertising and sponsorship.

Pay TV subscriptions stood at 6.5 million, down 3% from 6.7 million in 2021. Similar to the previous year, subscriptions have been downgraded or terminated repeatedly due to lack of spending. As a result of the digital disruption of the media industry, service providers are adapting to change, sustainable for long term such as partnering with streaming service players and harnessing new technology to enhance customer experience.

The video-on-demand (VoD) services in Malaysia are growing with the launch of new services almost every year. This leads to market saturation as competition intensifies and service providers are faced with pricing strategies, a diverse range of content offerings and changing consumer tastes and behaviour. The country's subscription video-on-demand (SVoD) household penetration is anticipated to rise steadily and reach 38% in 2026 from 22% in 2022, partially offset by the decline in Pay TV subscriptions.



Digital Services

Digital services encompass the transfer of information, data, and content through various platforms and devices, such as the web or mobile. Among these services, e-commerce has emerged as a rapidly advancing force in Malaysia since its inception in 2004. With the unstoppable surge in smartphone usage, widespread internet access, and the availability of secure online payment systems, the Malaysian e-commerce market has experienced a staggering growth rate. The Malaysian e-commerce market looked to grow by 19.9% to reach RM38.2 billion (USD9.2 billion) in 2022, according to GlobalData, due to rapid adoption of smartphones, growing internet penetration and the availability of secure online payment systems. Malaysian e-commerce market is dominated by Shopee, followed by Lazada and PG Mall. In terms of e-payment, Touch 'n Go was ranked first as the most utilised e-wallet system in Malaysia based on a survey conducted by Oppotus. Additionally, various initiatives have been created, and one of them is *Pusat Ekonomi Digital* (PEDi) which is to uplift the socio-economic and human capital development of rural communities and to bridge the digital divide between urban and rural communities. With these exciting developments in the digital services realm, Malaysia is poised to witness a thriving e-commerce ecosystem and foster a safe and robust digital economy for its people.

Postal and Courier Services

The transition to the endemic phase, which began on the first of April 2022 revived economic activities and readjusted consumer purchasing behaviour when people opt to purchase from physical stores rather than merely going online. In light of this situation, postal and courier services have been impacted by e-commerce business that has returned to pre-pandemic levels.

Postal traffic decreased marginally by 0.8% to 397.01 million items in 2022 (2021: 400.22 million), while courier services traffic decreased by 8.3% to 706.87 million items in 2022 (2021: 770.78 million). Although courier services traffic has softened slightly since the peak in 2021, the exponential growth of e-commerce during the pandemic years led to a surge in volume with 51.8% increase in parcels per capita from 2020 to 2022.

The enormous growth in e-commerce requires endless support from postal and courier services to meet consumers' delivery demands. Government initiatives from *Pelan Accelerator Kurier Negara* (PAKEJ) were introduced in 2021 and continued to improve the quality of services offered by the industry. For instance, one of the initiatives under PAKEJ known as *Rangkaian PAKEJ*, offering a wider network of pick-up and drop-off services has increased from 21,188 points in 2021 to 23,034 points in 2022. Further, as the nation reached 21.4 parcels per capita in 2022, more infrastructures are targeted to be established to increase accessibility and support the projected e-commerce growth of 30 parcels per capita by 2025.

MCMC has imposed a moratorium policy on new courier service licence issuance commencing 14 September 2020 until 15 September 2022 to allow for a thorough review of the licensing framework. After the two-year moratorium period ended, the application for new licence has resumed for all categories of licence. New applicants are encouraged to deploy green technology and promote e-consignment to provide sustainable and environmentally friendly services. Additionally, existing service providers continuously prioritise business innovation and increase efficiency for sustainability such as enhancing route optimisation and implementing intelligent logistics systems.

Quality of Services

Consumer protection and quality of service are the practices of protecting and safeguarding consumers' interests. As part of MCMC's responsibilities, the aim is to ensure that consumers are satisfied and confident in the services they receive, as well as to facilitate widespread access to communications services.

MCMC has been conducting regular meetings, communication sessions and collaborating with the industry and various stakeholders throughout the year to discuss and resolve consumer issues. For instance, MCMC collaborates with the industry to conduct awareness programmes under the JENDELA initiatives. In addition, another inter-agency collaboration was initiated within the Ministry of Communications and Digital to create consumer awareness and education programmes on consumer digital literacy. As a result, MCMC received a total of 146,659 complaints for all services under the communications and multimedia industry in 2022, down 49.7% compared to 291,718 complaints received in the prior year.

Specifically on telecommunications services, the number of complaints regarding cellular services has been the highest with a total of 66,112 complaints, followed by High Speed Broadband or HSBB (6,760 complaints) and wireless broadband (5,398 complaints). Most of the issues reported were related to the quality of network service, i.e., poor or no coverage availability of 4G LTE and HSBB, service disruption/downtime, Internet connection/speed and intermittent call connection due to network congestion.

Among the measures taken to reduce these complaints and improve broadband service are to monitor traffic utilisation and planning for capacity improvement or changing traffic routes. Further, there will be continuous consumer awareness campaigns on the necessity to migrate to 4G services. The campaigns include the use of devices that support 4G VoLTE and the understanding of packages with certain limitations.

LICENSING

01

This chapter reports on the number and growth of licensees, including new licensees and renewed licensees under Individual and Class licences as well as the shareholding composition by types of Individual licences. It also reports on the monitoring of licensees for roll out compliance from the date of issuance.

KEY HIGHLIGHTS
2022

459
Individual Licences
(2021: 454)

248 NFP (I)
Network Facilities Provider (I)
(2021: 239)

171 NSP (I)
Network Service Provider (I)
(2021: 173)

40 CASP (I)
Content Applications Service Provider (I)
(2021: 239)

11 NFP (C)
Network Facilities Provider (C)
(2021: 11)

11 NSP (C)
Network Service Provider (C)
(2021: 11)

11 CASP (C)
Content Applications Service Provider (C)
(2021: 9)

513 ASP (C)
Applications Service Provider (C)
(2021: 465)

546
Class Licences
(2021: 496)

OVERVIEW

The licensing provision under Communications and Multimedia Act 1998 (CMA 1998) enables flexibility on licensing structures as the requirements vary over time, in line with the evolution of the C&M industry. Convergence of the licensing framework allows the formulation of licences to be both technology and service neutral, creating opportunities for expansion of the industry and promoting a more effective utilisation of network infrastructure.

Further, government initiatives announced for the C&M industry, such as JENDELA, resulted in new industry entries and were reflected in the increased number of NFP (I) license applications. Moving forward, the industry is expected to grow further following JENDELA's emphasis on optimising resources and infrastructure for mobile and fixed broadband.

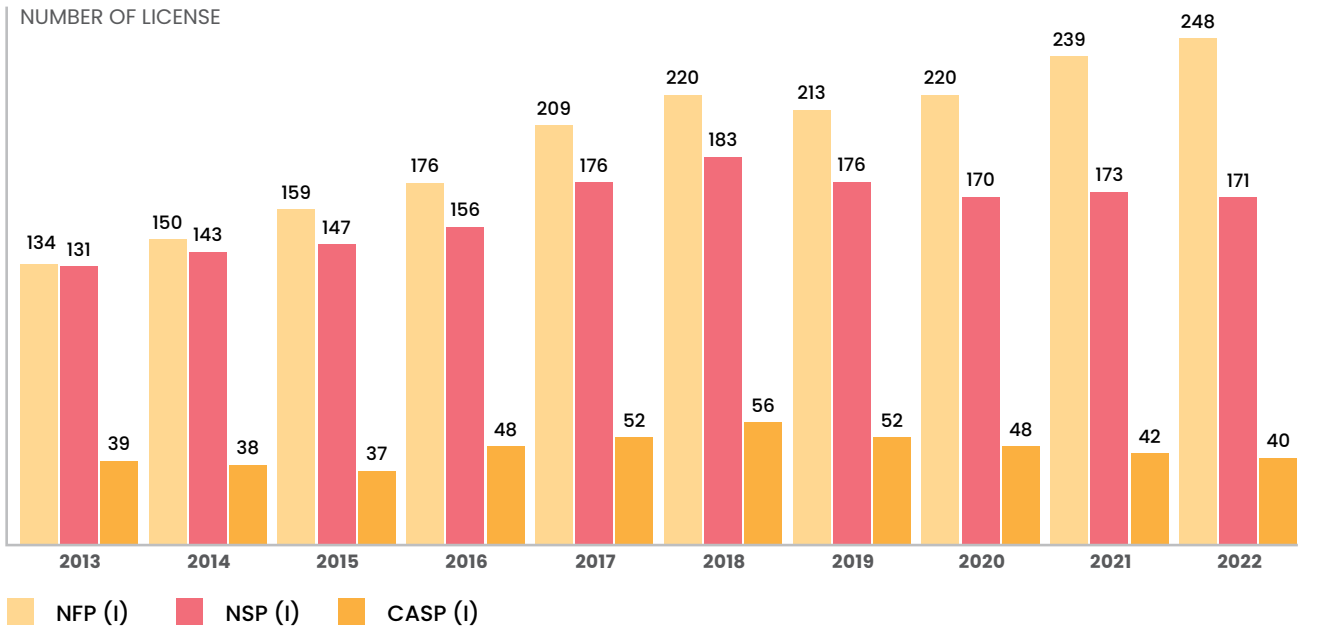
LICENSING PROFILE OVER THE YEARS

As at 2022, Individual licences comprise 248 NFP (I), 171 NSP (I) and 40 CASP (I). In total, there was a 1% increase in the number of licences to 459 mainly from higher NFP (I) and NSP (I) licenses by nine, and partly offset by lower NFP(I) licenses by two and CASP (I) licenses by two from the previous year.

In 2022, 24 new Individual licences were issued and six Individual licences were renewed by the Minister of Communications and Digital (KKD). This includes 18 NFP (I), 10 NSP (I) and two CASP (I) licences. The number of Individual licences approved in 2022 was lower by 20 compared to the year 2021.

Figure 1.1 shows the licences issued from 2013-2022.

CMA LICENCES (INDIVIDUAL) 2013 – 2022



Source: MCMC
Figure 1.1 CMA Licences (Individual) 2013 – 2022

Details of the infrastructure and services offered by new and renewed licensed service providers in 2022 are shown in Figure 1.2.

NEW AND RENEWED LICENCES IN 2022

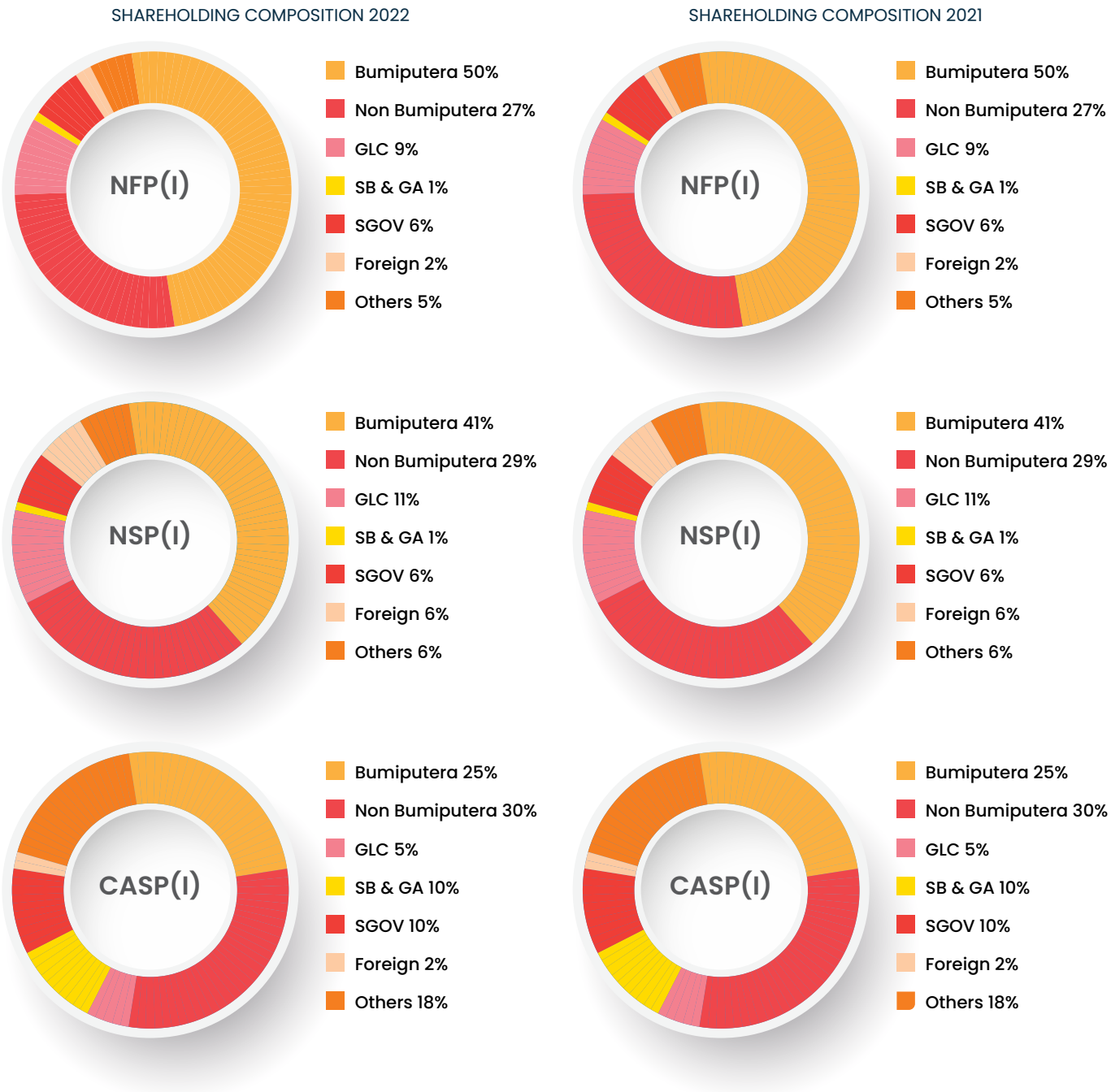
Infrastructure and Services	Company
Deployment of communications infrastructure to support cellular and broadband services as well as provision of bandwidth services	Transgreen Structure Sdn Bhd
	Cahaya Etika Sdn Bhd
	Melewar TE Sdn Bhd
	Digital Infra Group Sdn Bhd
	Olyrin Technology Sdn Bhd
Deployment of communications infrastructure to support cellular and broadband services	BH Network Sdn Bhd
	Demanlink Connexion Sdn Bhd
	Three-OPP (M) Sdn Bhd
	Excel Commerce Solutions Sdn Bhd
	Manik Teratai Sdn Bhd
	Samdo Smart Solar (M) Sdn Bhd
	SCMI Sdn Bhd
	Turcomp Engineering Services Sdn Bhd
	Handal Digital Sdn Bhd
Deployment of communications infrastructure to support broadband services, bandwidth services and the provisioning of subscription and non-subscription content applications services	MEASAT Broadcast Network Systems Sdn Bhd
Provision of bandwidth services / access application services and switching services	Omnitel Network Sdn Bhd
Deployment of communications infrastructure to support satellite broadband services and the provisioning of bandwidth services.	AngkasaX Innovation Sdn Bhd
	Measat Satellite Systems Sdn Bhd
	Satcom Gateway Services Sdn Bhd
Provisioning of terrestrial radio broadcasting	BFM Media Sdn Bhd
Grand Total	

New (N)/ Renewed (R)	NFP (I)	NSP (I)	CASP (I)
N	/	/	
N	/	/	
N	/	/	
N	/	/	
N	/	/	
N	/		
N	/		
N	/		
N	/		
N	/		
N	/		
N	/		
N	/		
N	/		
R	/	/	/
N		/	
N	/	/	
R	/	/	
N	/	/	
R			/
	18	10	2

Source: MCMC Figure 1.2 New and Renewed Licences in 2022

An analysis of the shareholding composition of Individual licensees under the CMA 1998 showed that 47% of total Individual licences in 2022 are Bumiputera-owned companies, representing a 2% increase compared to the previous year. The shareholding composition by types of licences is shown in Figure 1.3 below:

INDIVIDUAL LICENCE – SHAREHOLDING COMPOSITION BY TYPES OF LICENCES 2021 AND 2022



Note:
Bumiputera-owned – Company that has 51% or more Bumiputera shares
Non-Bumiputera-owned – Company that has 51% or more non-Bumiputera shares
GLC – Government-linked company that has a primary commercial objective, and in which the Malaysian Government has a direct controlling stake. Controlling stake refers to the Government's ability (not just percentage ownership) to appoint Board of Director members, senior management, make major decisions (e.g. contract awards, strategy, restructuring and financing, acquisitions and divestments etc.) for GLCs either directly or through GLICs (Source: www.khazanah.com.my)
SB & GA – Ownership held directly or indirectly (51% or biggest equity stake) by a Statutory Body or Government Agency
SGOV – Ownership held directly or indirectly (51% or biggest equity stake) by a State Government
Foreign-Owned – Company that has 51% or more shares held by foreign entities or individuals
Others – Mixed shareholding, with no particular type of shareholder having a controlling interest in the company

Source: MCMC
Figure 1.3 Individual Licence – Shareholding Composition by Types of Licences 2021 and 2022.

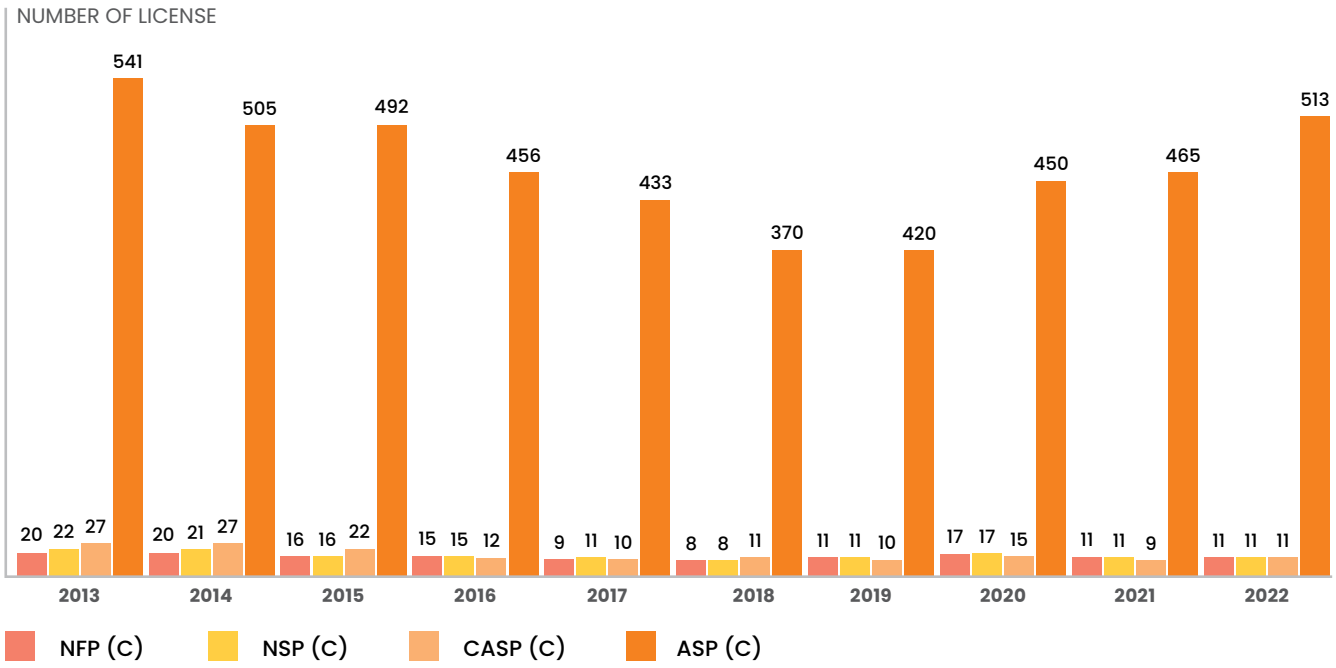
A total of 546 Class licences were registered by MCMC in 2022

Class licence is a relatively light-handed form of regulation, which is designed to promote industry growth and development by providing easier market access. Based on the continuum of more to less regulation and the nature of business landscape developing in Malaysia, the ASP (C) licences outnumbered all other categories. The number of Class licence is expected to increase much faster over the years in view of such services making full use of available networked infrastructure as well as hitting thresholds in terms of user connections and usage conditions.

A total of 546 Class licences were registered by MCMC in 2022, comprising 11 NFP (C), 11 NSP (C), 11 CASP (C) and 513 ASP (C). The registration of a Class licence is valid for one calendar year, thus existing licensees are required to submit a new license application should they intent to continue providing services before the expiry of the licence.

Overall, there was an increase of 50 licences to 546 in 2022 (2021:496 licences). Number of Class licences for all categories from 2013 until 2022 are shown in Figure 1.4 below.

NUMBER OF CLASS LICENCES REGISTERED BY MCMC FROM 2013 – 2022



Source: MCMC
Figure 1.4 Number of Class Licences Registered by MCMC from 2013 – 2022

ROLL OUT STATUS IN 2022

Individual licences granted to companies under the Communications and Multimedia Act 1998 are monitored for compliance with special licence condition – Commencement of Deployment/Service (s) - Part B 1.2 of their licences. The compliance requirements include:

a) The licensee to commence the provision of facilities or services within required timelines stated (either 12 or 24 months) from the date of licence issued;

b) If the service provider is unable to comply with the special licence condition in their respective Individual licence to roll out facilities and/or services within the required timeframe, they must apply for extension of time to MCMC, which is subject to the approval from the Minister. The Minister may grant an extension of time to the licensee upon appeal and genuine progress being made towards the provision of facilities and/or services.

The service provider is given a specific timeline (either 12 or 24 months) to roll out their facilities and/or services according to the detailed business plan, which among others, comprise of list of facilities and/or services, targeted number of customer and coverage area. For example, Measat Communication Systems Sdn Bhd was given 24 months as they are providing satellite services which requires a longer period to roll out due to the complexity of such services, large-scale infrastructure and huge investment.

As at end of 2022, 15 licensees have complied with special licence condition – Commencement of Deployment/ Service(s), to roll out their facilities and/or services within required timelines from date of licence issued. The service and/or facilities providers, type of licence and facilities and/or services deployed are as follows:

FACILITIES/SERVICES DEPLOYED WITHIN REQUIRED TIMELINES

No	Licensee	Type of Licence	Facilities/Services Deployed
1	Measat Communication Systems Sdn Bhd	NFP(I)	Tower/Poles, FLC, Earth Stations, Satellite Control Station, Satellite Hubs & Space Station
		NSP(I)	Bandwidth Services
2	Global Net Initiatives Sdn Bhd	NFP(I)	Tower/Poles & RTL
3	Areno Resources Sdn Bhd	NFP(I)	Towers/Poles
4	Skai Network (M) Sdn Bhd	NFP(I)	Towers/Poles
5	HRSB Holdings Sdn Bhd	NFP(I)	Towers/Poles
6	XS Solutions Sdn Bhd	NSP(I)	Point of Presence (PoP)
7	Sarawak Digital Economy Corporation Berhad	NFP(I)	Tower/Poles, FLC, Earth Stations & RTL
		NSP(I)	Bandwidth Services
8	Sinarkom Sdn Bhd	NFP(I)	Towers/Poles
9	Weber Mayer Sdn Bhd	NFP(I)	Tower/Poles, FLC & RTL
		NSP(I)	Bandwidth Services
10	Stealth Communication Sdn Bhd	NFP(I)	Towers/Poles
11	Dess Digital Sdn Bhd	NFP(I)	Towers/Poles
12	Borneo Tower Technologies Sdn Bhd	NFP(I)	Towers/Poles
13	Serba Dinamik Group Berhad	NFP(I)	Earth Stations & Satellite Hub
		NSP(I)	Bandwidth Services
14	Semcobina Sdn Bhd	NFP(I)	Towers/Poles
15	Karya Ehsan Sdn Bhd	NFP(I)	Towers/Poles

Note: Radio Telecommunication Link (RTL), Fixed Links and Cable (FLC)

Source: MCMC
Figure 1.5 Facilities/Services Deployed Within Required Timelines

Application for Extension of Time (EOT) to comply with Special Licence Condition

There were new individual licence holders who applied for an EOT due to failure to roll out services and/or deploy facilities within 12 months from the date the licence was granted. A total of three applications were considered, of which only two applications were approved based on the following reasons:

a) The lengthy process of obtaining permit approval from local authorities;

b) The time-consuming process of management structure re-organisation subsequently caused delays in the conversion of the business plan;

c) Delays in funding for commencement of facilities/services from parent company or shareholders;

d) The current economic situation due to COVID-19 endemic stage and financial constraints have forced them to change their business plan and delay the launch of their services.

LICENSEES WITH APPROVED EOT FOR DEPLOYMENT OF FACILITIES AND/OR SERVICES

No	Licensee	Type of Licence
1	Akar Titanium Sdn Bhd	NFP(I)
2	Qew Communications Sdn Bhd	NFP(I) & NSP(I)

Source: MCMC
Figure 1.6 Licensees with approved EOT for commencement of deployment/services

ECONOMIC PERFORMANCE

02

This chapter reports on the economic performance of the C&M industry, mainly on the market capitalisation including Bursa Malaysia market capitalisation by sector; telecommunications, broadcasting, postal and courier. This chapter also analyses the financial performance, including industry revenue by sector, capital expenditure and ARPU. In addition, it also provides an overview and performance of the ACE Market.

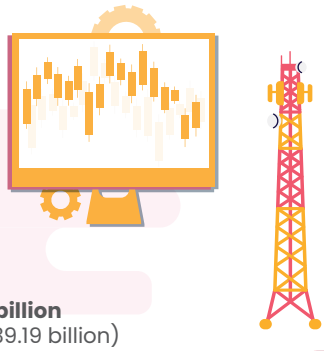
KEY HIGHLIGHT
2022

MARKET CAPITALISATION

4.5%

RM140.38 billion
(2021: RM146.93 billion)

8.1% of Bursa Malaysia market capitalisation of RM1,736.21 billion (2021: 8.2%)



TELECOMMUNICATIONS SECTOR

3.0% **RM134.99 billion**
(2021: RM139.19 billion)

BROADCASTING SECTOR

27.7% **RM4.08 billion**
(2020: RM5.64 billion)

POSTAL & COURIER SECTOR

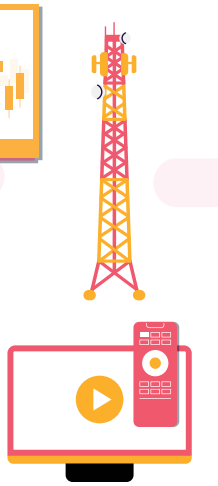
37.6% **RM1.31 billion**
(2021: RM2.10 billion)

Source: Bloomberg

REVENUE

3.1%

RM49.69 billion
(2021: RM48.20 billion)



TELECOMMUNICATIONS SECTOR

5.6% **RM42.56 billion**
(2021: RM40.31 billion)

BROADCASTING SECTOR

9.3% **RM4.79 billion**
(2021: RM5.28 billion)

POSTAL & COURIER SECTOR

10.3% **RM2.34 billion**
(2021: RM2.61 billion)

Source: Industry

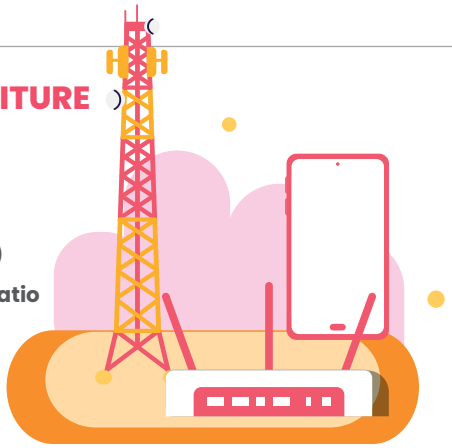
CAPITAL EXPENDITURE

8.8%

RM5.42 billion
(2021: RM4.98 billion)

15.0% capex to revenue ratio
(2021: 14.2%)

Source: Industry



MOBILE SERVICE PROVIDERS

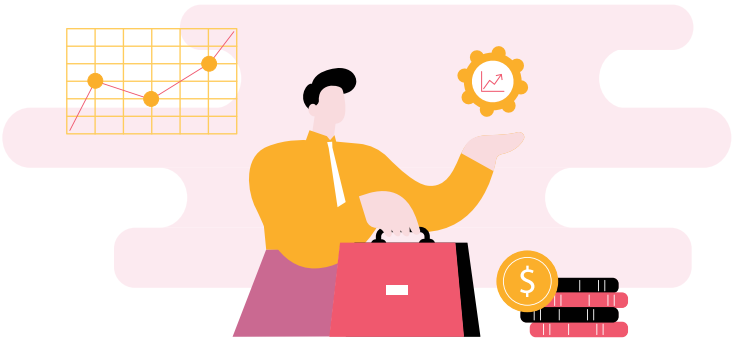
14.9% **RM2.58 billion**
(2021: RM3.03 billion)

11.5% capex to revenue ratio (2021: 13.7%)

FIXED SERVICE PROVIDERS

45.6% **RM2.84 billion**
(2021: RM1.95 billion)

20.7% capex to revenue ratio (2021: 15.1%)



ACE MARKET

12 companies or 7.4% are licensees under the CMA out of the total 163 companies listed on ACE Market.

Source: Bursa Malaysia, Industry, MCMC

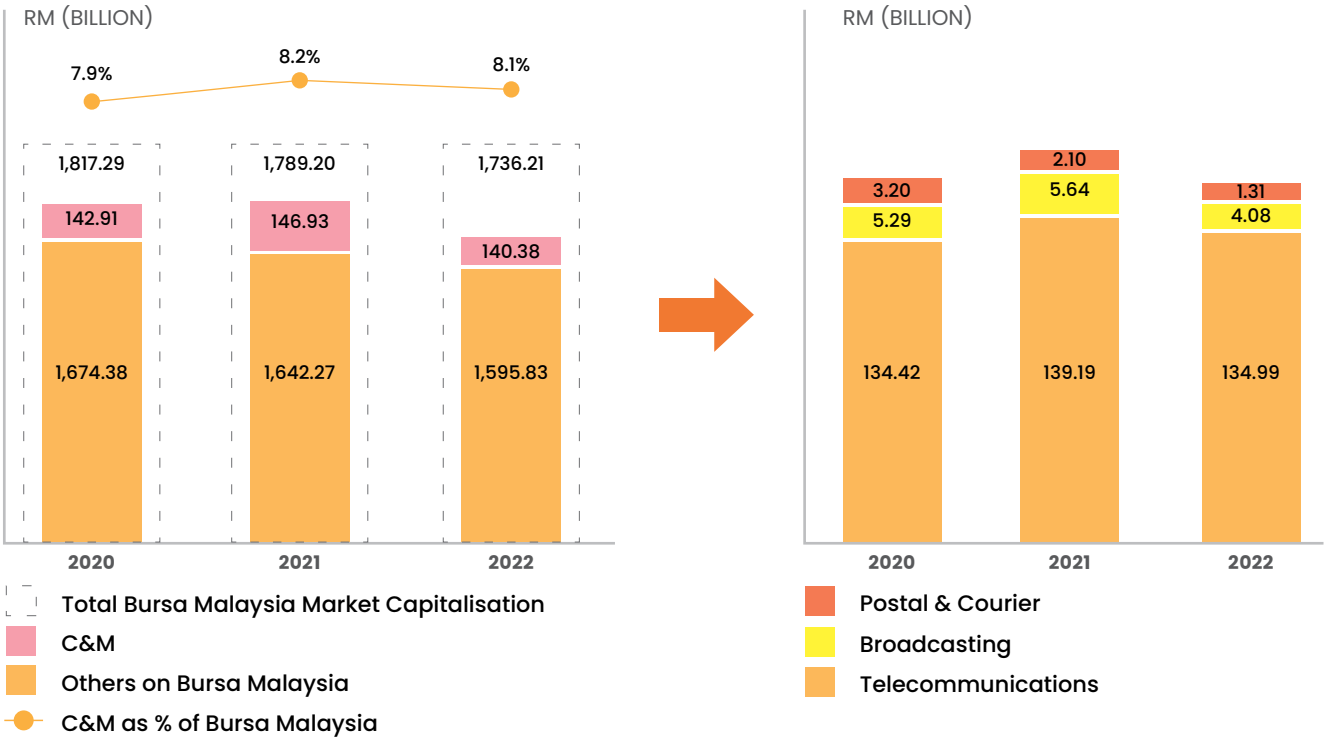
C&M INDUSTRY MARKET PERFORMANCE

The Malaysian economy in 2022 showed a recovery momentum, with Gross Domestic Product (GDP) registering a positive growth contributed mainly by the continued improvement in private consumption and investment. Following the resumption of economic activity from the easing of containment measures, labour market and tourism activities experienced a steady recovery that influenced growth for the year. Overall, Malaysia's economic performance improved by 8.7% in 2022 as compared to 3.1% in the previous year[1].

In line with this, the usage of telecommunication and multimedia services for online transactions, online shopping, entertainment, and remote working arrangements still remain the norm for individuals and businesses, even though at a relatively slower pace compared to the pandemic phase. However, numerous government-led initiative towards the sector continue to build a momentum for domestic C&M industry to remain resilient against external headwinds and global economic turbulences.

The C&M industry represents 8.1% or RM140.38 billion of Bursa Malaysia total market capitalisation of RM1,736.21 billion as at end 2022 (2021: 8.2% or RM146.93 billion). The C&M industry market capitalisation has declined by 4.5%, contributed by 3.0% decrease in telecommunication sector, 27.7% decrease in broadcasting sector, and 37.6% decrease in postal and courier sector.

C&M INDUSTRY MARKET CAPITALISATION BY SECTOR 2020 – 2022

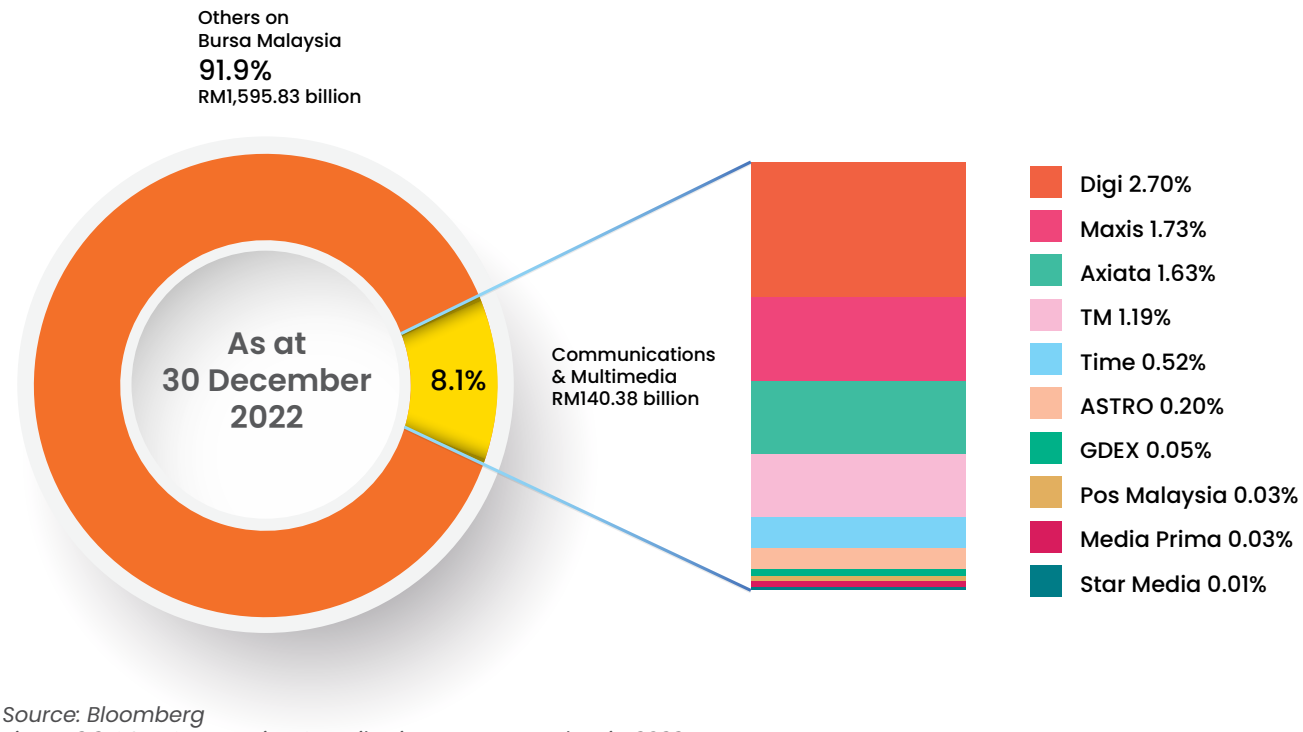


Source: Bloomberg
Figure 2.1 C&M Industry Market Capitalisation by Sector 2020 – 2022

[1] Bank Negara Malaysia

C&M INDUSTRY MARKET CAPITALISATION BY SECTOR 2020 – 2022

BURSA MALAYSIA = RM1,736.21 BILLION



Source: Bloomberg
Figure 2.2 C&M Companies Contribution to Bursa Malaysia 2022

C&M COMPANIES MARKET CAPITALISATION 2020 – 2022

Company	Market Capitalisation (RM billion)			Change (%)	
	2022	2021	2020	2022 – 2021	2021 – 2020
Digi	46.93	33.90	32.19	*38.4%*	*5.3%*
Maxis	30.07	37.96	39.51	*-20.8%*	*-3.9%*
Axiata	28.36	38.17	34.29	*-25.7%*	*11.3%*
TM	20.63	20.76	20.42	*-0.6%*	*1.7%*
TIME	9.00	8.40	8.01	*7.1%*	*4.9%*
Telecommunications	**134.99**	**139.19**	**134.42**	***-3.0%***	***3.5%***
ASTRO	3.39	4.95	4.72	*-31.5%*	*4.9%*
Media Prima	0.47	0.46	0.32	*2.2%*	*43.8%*
Star Media	0.22	0.23	0.25	*-4.3%*	*-8.0%*
Broadcasting	**4.08**	**5.64**	**5.29**	***-27.7%***	***6.6%***
GDEX	0.84	1.59	2.25	*-47.2%*	*-29.3%*
Pos Malaysia	0.47	0.51	0.95	*-7.8%*	*-46.3%*
Postal and Courier	**1.31**	**2.10**	**3.20**	***-37.6%***	***-34.4%***
TOTAL C&M	**140.38**	**146.93**	**142.91**	***-4.5%***	***2.8%***

Note: Axiata Group Bhd (Axiata), Maxis Bhd (Maxis), Digi.Com Bhd (Digi), Telekom Malaysia Bhd (TM), TIME dotCom Bhd (TIME), Astro Malaysia Holdings Bhd (ASTRO), Media Prima Bhd (Media Prima), Star Media Group Bhd (Star Media), Pos Malaysia Bhd (Pos Malaysia), GDEX Bhd (GDEX).

Source: Bloomberg
Figure 2.3 C&M Companies Market Capitalisation 2020 – 2022

The market capitalisation for the telecommunications sector has declined by 3.0% to RM134.99 billion in 2022 (2021: RM139.19 billion), which originates from some reservations in investor sentiment over this sector outlook due to the challenging global macroeconomic conditions with high inflation, increasing interest rates and slowdown in economic growth. However, the domestic outlook remains cautiously optimistic considering that economic activity has resumed, in addition to the high national vaccination rate. The COVID-19 pandemic has accelerated the pace of digital transformation across various industries in Malaysia. Many businesses have had to shift their operations online to comply with lockdown and social distancing measures, and this has led to a significant increase in demand for digital technologies and telecommunications services.

Telecommunications companies in Malaysia are well-positioned to benefit from this trend, as they are responsible for providing the infrastructure and services needed to support digitalisation efforts. The expansion of 5G technology, for instance, will enable faster and more reliable connectivity, which is critical for supporting emerging technologies such as the Internet of Things (IoT), artificial intelligence (AI) and cloud computing. As digitalisation is becoming the key to business growth and sustainability, an increasing adoption of digital technologies by Malaysian businesses is expected to fuel the growth of the telecommunications sector in the country.

The top performer was Digi, registering the sharpest growth compared to its peers, with market capitalisation improving by 38.4% to RM46.93 billion in 2022 (2021: RM33.90 billion). Digi has experienced sustained growth in its core products and segments, including post-paid plans and home fibre services. This growth has contributed to the company's robust financial position for the year. Additionally, Digi is working continuously for industry consolidation in strengthening its market position across the continent.

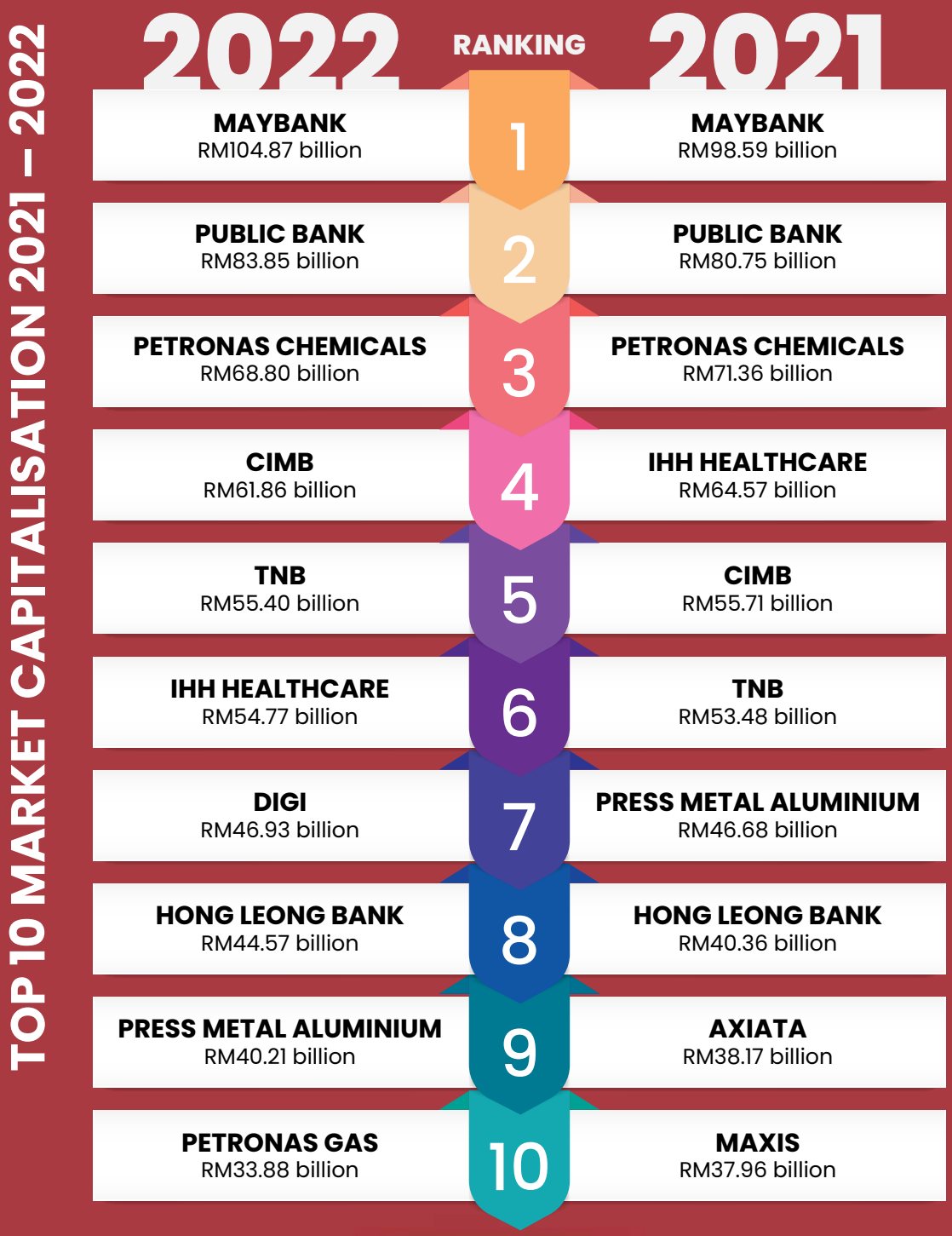
Time recorded a market capitalisation growth by 7.1%, RM9.00 billion in 2022 (2021: RM8.40 billion). The company experienced a significant increase in revenue, which was largely driven by data and data centre products. All core customer groups, including retail, wholesale, and enterprise contributed positively to the overall revenue growth. This indicates that the company's strategy of targeting multiple customer segments is paying off and that their products and services are meeting the needs of a diverse set of customers.

The broadcasting sector recorded a decrease in market capitalisation by 27.7%, RM4.08 billion in 2022 (2021: RM5.64 billion). Media Prima registered an improvement in market capitalisation by 2.2%, RM0.47 billion in 2022 (2021: RM0.46 billion), driven by revenue growth in advertising and content sales which contributed to positive operational profitability. Media Prima's focus on producing top quality content and effective advertising strategies enabled the company to stand out in a challenging market environment.

The postal and courier sector posted a decline in market capitalisation by 37.6% to RM1.31 billion in 2022 (2021: RM2.10 billion). Courier business is facing intense competition from multiple players, including established logistics companies and newer startups. This competition may put pressure on profit margins and make it challenging for courier companies to maintain their market share. Additionally, the rise of digitalisation has led to a decline in the traditional mail business. As more people communicate and send information electronically, the demand for physical mail has decreased, leading to a reduction in revenue for mail-focused businesses.

DIGI AMONG TOP 10 IN MARKET CAPITALISATION

As shown in Figure 2.4, while the financial and utilities sectors continue to lead the market capitalisation ranking, the telecommunications sector is led by Digi. In 2022, Digi has improved its position to 7th place from 12th place in the previous year, while Maxis and Axiata have moved down to 14th and 15th place respectively.



Note:
1. *Top 10 largest stocks were from the largest 30 companies on FTSE Bursa Malaysia KLCI Index by market capitalisation*
2. *Malayan Banking Bhd (Maybank), Public Bank Bhd (Public Bank), Tenaga Nasional Bhd (TNB), Petronas Chemicals Group Bhd (Petronas Chemicals), Top Glove Corp Bhd (Top Glove), IHH Healthcare Bhd (IHH Healthcare), CIMB Group Holdings Bhd (CIMB) Hartalega Holdings Bhd (Hartalega), Maxis Bhd (Maxis), Hong Leong Bank Bhd (Hong Leong Bank)*

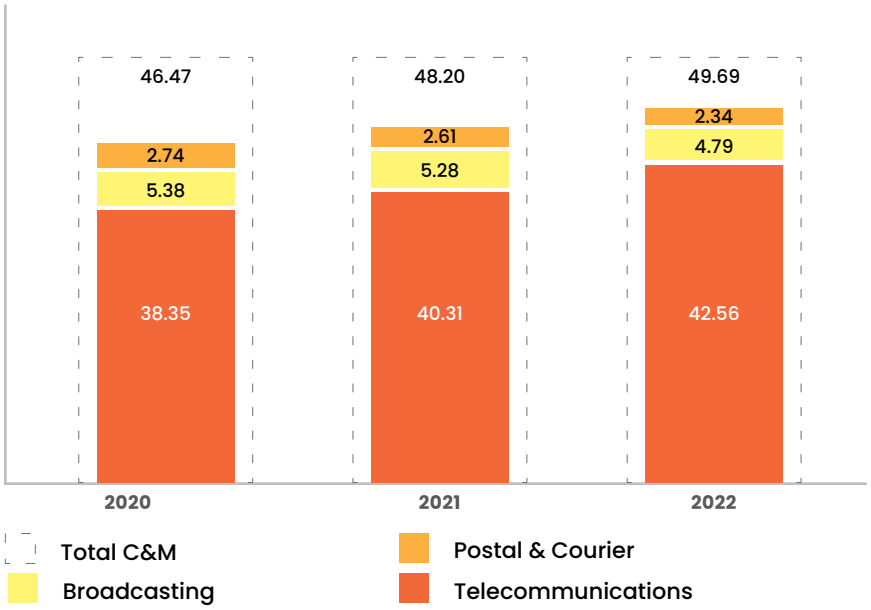
Source: Bloomberg
Figure 2.4 Top 10 Market Capitalisation 2021 – 2022

C&M INDUSTRY FINANCIAL PERFORMANCE

The C&M industry in Malaysia managed to deliver a steady performance in 2022 despite continuous challenges posed by the pandemic. During this challenging time, the Government's stimulus programmes and economic reopening have helped boost consumer demand and business activity. The C&M industry revenue witnessed an increase of 3.1% to RM49.69 billion in 2022 from RM48.20 billion in 2021. The growth in revenue is a positive sign suggesting a gradual recovery for the industry.

The telecommunications sector began regenerating steadily in 2022, following the rising trend in 2021. The sector growth is mainly driven by significant increase in demand for connectivity services such as internet, video conferencing, and streaming services. The work-from-home policies have created a need for reliable and fast internet services as more people require internet access for remote work and online meetings. Although the country is reaching the endemic phase, work-from-home culture is expected to continue as remote working and online activities have become part of the new normal for organisations. In addition, incentives from the Government through continuous initiatives boosted demand for connectivity. These developments led to an increase in the telecommunications sector revenue by 5.6% to RM42.56 billion in 2022 (2021: RM40.31 billion).

DOMESTIC C&M INDUSTRY REVENUE 2020 – 2022



Source: Industry
Figure 2.5 Domestic C&M Industry Revenue 2020 – 2022

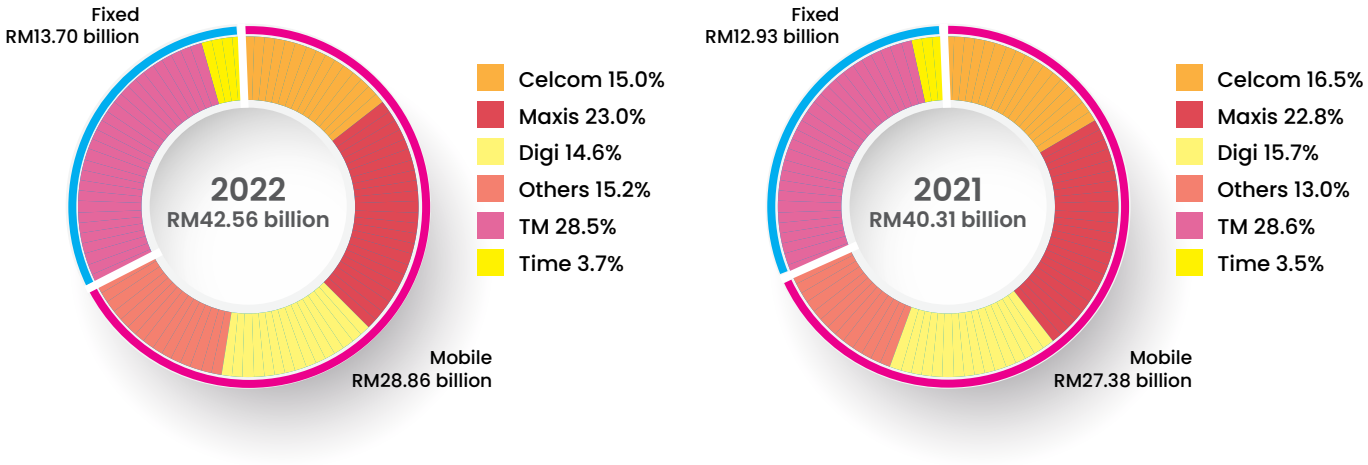
Meanwhile, broadcasting sector revenue declined due to lower Pay TV subscriptions and home shopping. One of the lessons that many subscribers learned from the COVID-19 pandemic was the importance of adopting cost-cutting measures. As people were forced to stay at home and adapt to new financial challenges, subscribers began to reduce their expenses by terminating their Pay TV subscriptions or downgrading their subscription packages. In addition, the reopening of the economy has driven consumers' shopping trend back to physical stores along with cautious spending causing TV home shopping to decline. These situations led broadcasting sector revenue to decline by 9.3% to RM4.79 billion in 2022 (2021: RM5.28 billion).

The postal and courier sector also witnessed a decline in revenue during 2022. Despite the growing demand for e-commerce and the need for courier services to deliver online purchases, the sector continues to face intense competition from other service providers on top of decreasing demand for traditional mail services. As a result, postal and courier sector revenue saw a decline of 10.3% to RM2.34 billion in 2022 (2021: RM2.61 billion).

TELECOMMUNICATIONS SECTOR

The reopening of the economy after periods of movement control contributed to the revenue growth for the telecommunications sector in 2022. The sector has faced several challenges, such as increased demand for bandwidth, supply chain disruptions, and workforce management issues. However, service providers have been able to adapt and overcome these challenges to ensure that their networks remain reliable and accessible to their customers. In addition, incentives from the *Jaringan Prihatin* Programme, *Pakej PerantiSiswa Keluarga Malaysia* and *Pakej Peranti Keluarga Malaysia* subsidised consumers to own a smartphone and migrate to higher-tier rate data plans which eventually boosted subscriber growth in 2022. These developments fuelled the telecommunications sector's growth, with revenue increasing 5.6% to RM42.56 billion in 2022 (2021: RM40.31 billion). From the total, 68% were contributed by mobile service providers, while the remaining 32% were contributed by fixed service providers. Mobile service providers recorded an increase of 5.4% in revenue to RM28.86 billion in 2022 (2021: RM27.38 billion), while fixed service providers revenue grew 6.0% to RM13.70 billion (2021: RM12.93 billion).

TELECOMMUNICATIONS SECTOR REVENUE 2021 – 2022



Note: Others comprise non-public listed mobile operators and MVNOs. Revenue inclusive retail and wholesale revenue

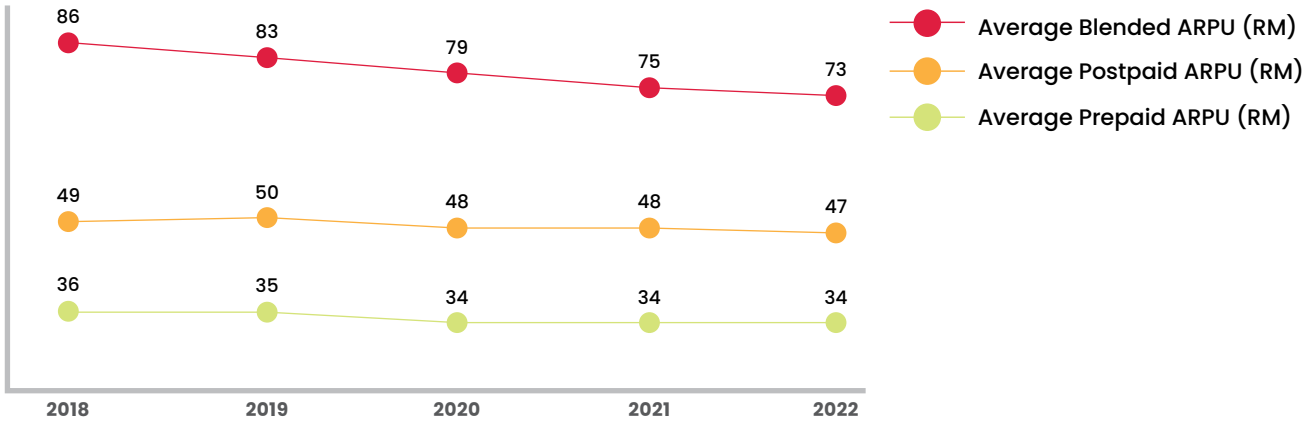
Source: Industry
Figure 2.6 Telecommunications Sector Revenue 2021 – 2022

Average Revenue Per User (ARPU)

Prepaid ARPU for three mobile service providers remained unchanged from last year, averaged at RM34 per month in 2022. This shows a steady recovery particularly in the migrant segment driven by higher internet passes.

Meanwhile, postpaid ARPU has declined by RM2 to RM73 in 2022. In the effort to attract new subscribers and grow the subscriber base, service providers offered generous data allowances and competitive mobile packages to their customers. This has eroded the ARPU since customers are paying less for their subscriptions.

AVERAGE MOBILE ARPU 2018 – 2022



Note: ARPU from major public listed companies only

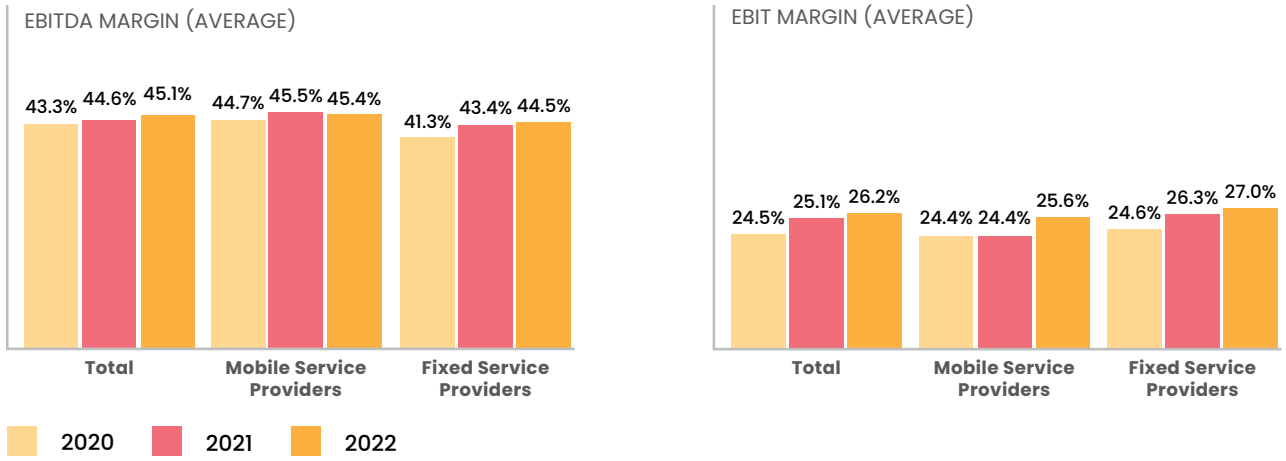
Source: Industry
Figure 2.7 Average Mobile ARPU 2018 – 2022

EBITDA and EBIT Margins

Service providers continued to implement cost optimisation strategy in 2022, which is critical for maintaining a healthy financial performance. This involves closely monitoring expenses, identifying areas where costs can be reduced without compromising quality or service and implementing cost-saving measures where appropriate. Furthermore, modernisation initiatives also contribute to an improvement in EBITDA by enabling industry players to streamline its operations and improves productivity. These resulted in a better position to achieve cost efficiencies and navigate the uncertainty of a post-COVID-19 environment, as shown in solid EBITDA and EBIT trends.

In 2022, the telecommunications sector's total EBITDA[2] and EBIT[3] margins saw improvement, with EBITDA margin averaging 45.1% (2021: 44.6%) and EBIT margin averaging 26.2% (2021: 25.1%). Both mobile and fixed service providers' EBITDA margins were above 40% level in 2022. On the EBIT front, mobile service providers' EBIT margin increased to 25.6% while fixed service providers' EBIT margin improved to 27.0% in 2022.

EBITDA AND EBIT MARGIN 2020 – 2022



Note: Margins from major public listed companies only

Source: Industry
Figure 2.8 EBITDA and EBIT Margin 2020 – 2022

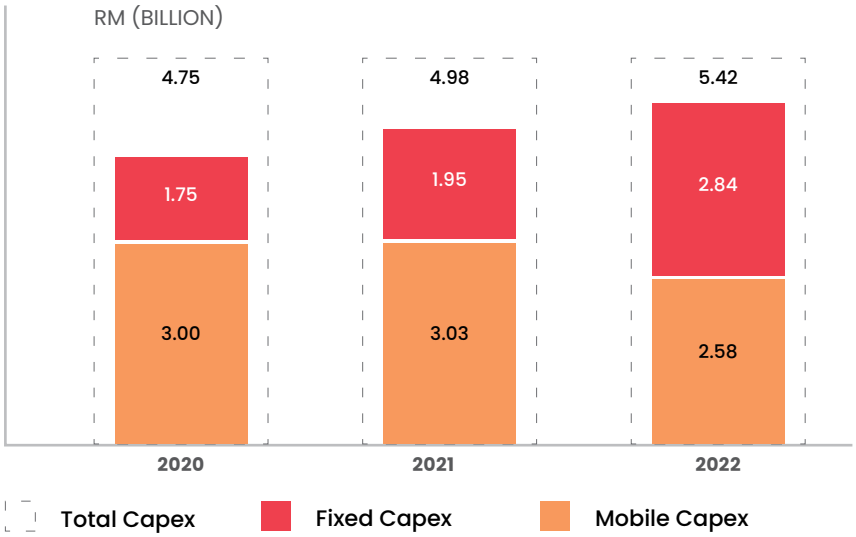
[2] EBITDA refers to Earnings Before Interest, Tax, Depreciation and Amortisation.
[3] EBIT refers to Earnings Before Interest and Tax, also known as operating profit.

Capital Expenditure (Capex)

The COVID-19 pandemic has significantly increased the demand for telecommunications services, particularly for remote work and online education. This has driven a consistent capex investment by industry players to improve and expand their infrastructure, network coverage and service offerings which are necessary to keep up with the constantly evolving technology landscape while fulfilling growing customer demands. Furthermore, the need for more advanced technologies such as 5G networks requires a significant capex investment in the infrastructure and technology which will enable more advanced and reliable service offerings to customers in the future.

In 2022, the telecommunications sector capex saw an increase of 8.8% to RM5.42 billion (2021: RM4.98 billion), translating into capex to revenue ratio of 15.0% (2021: 14.2%). From the total capex, 48% (RM2.58 billion) was from mobile service providers. The remaining 52% (RM2.84 billion) was from fixed service providers. Capex investments would be utilised to support the increasing demand for data consumption, in line with the rise of data-intensive applications such as video streaming, online gaming and cloud computing in the near term. Also, the expansion of capex will escalate broadband coverage and increase network capacity in support of the Malaysian government's JENDELA initiative which aims to improve the country's telecommunications infrastructure.

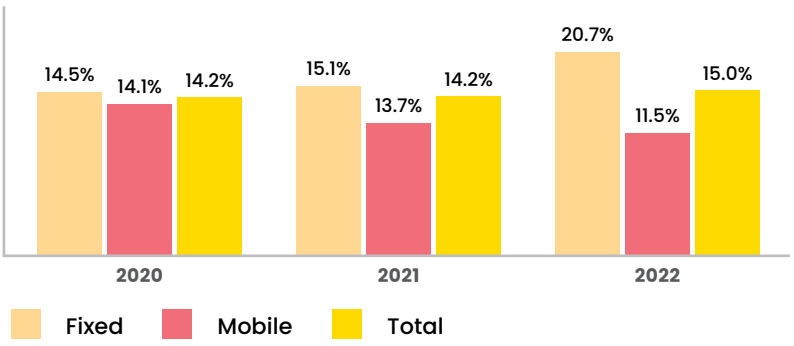
CAPEX 2020 – 2022



Note: Capex from major public listed companies only

Source: Industry
Figure 2.9 Capex 2020 – 2022

CAPEX TO REVENUE RATIO (CAPITAL INTENSITY)



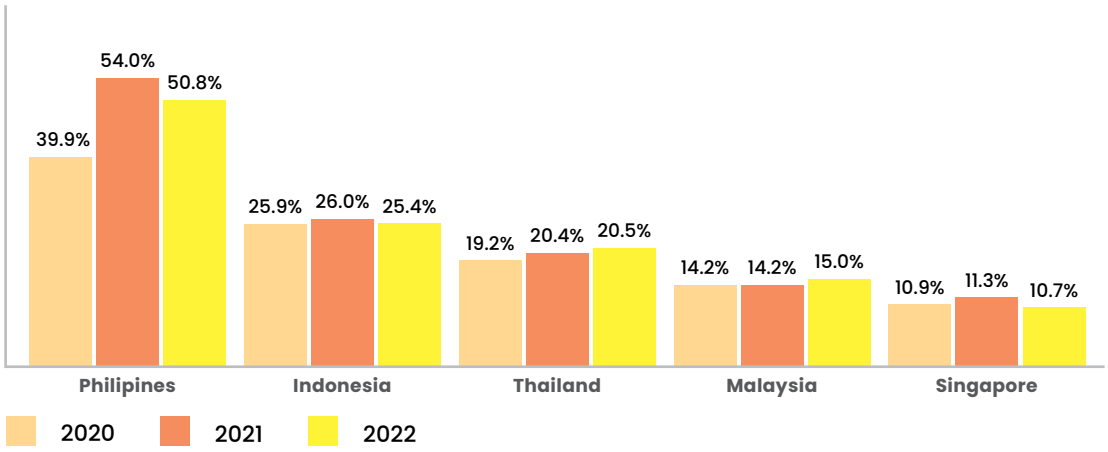
Note: Capital intensity from major public listed companies only

Source: Industry
Figure 2.10 Capex to Revenue Ratio (Capital Intensity)

Malaysia telecommunications sector spending which was 15.0% of revenue for 2022, was below the 17.5%[4] global average. In other countries such as the Philippines, their telecommunications sector capital intensity reached a record high of 54.0% in 2021 before plunging to 50.8% in 2022, influenced by the shift of focus towards capital efficiency and optimisation on existing fibre assets. Indonesia, Thailand and Singapore allocated 25.4%, 20.5% and 10.7% of their revenue respectively into capex over the same period, as shown in Figure 2.11.

The telecommunications sector in Asia Pacific (APAC) has experienced significant changes in recent years, accelerated by the COVID-19 pandemic. Despite the challenges, the industry saw a growth in capex investments in 2021, encouraged by the need to upgrade infrastructure to support increased demand for data connectivity and to prepare for the rollout of 5G networks. In 2022, the capital intensity for most Southeast Asian countries were relatively lower compared to the previous year as service providers has taken a more cautious approach in response to the ongoing disruption caused by the pandemic. The need to maintain a stable cash flow in facing economic uncertainties has led service providers to prioritise cost-cutting measures, which include reducing their investment in capital expenditures. However, a lower capital intensity may reflect a more prudent approach to investment which could lead to a sustainable growth in the long term.

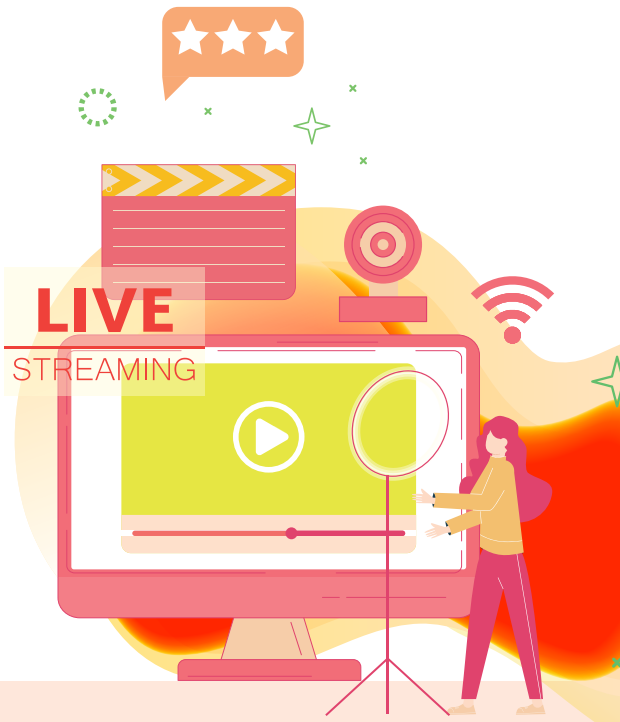
TELECOMMUNICATIONS CAPITAL INTENSITY IN SOUTHEAST ASIA 2020 – 2022



Source: Malaysia – Industry, MCMC; Other countries – Bloomberg
Figure 2.11 Telecommunications Capital Intensity in Southeast Asia 2020 – 2022

BROADCASTING SECTOR

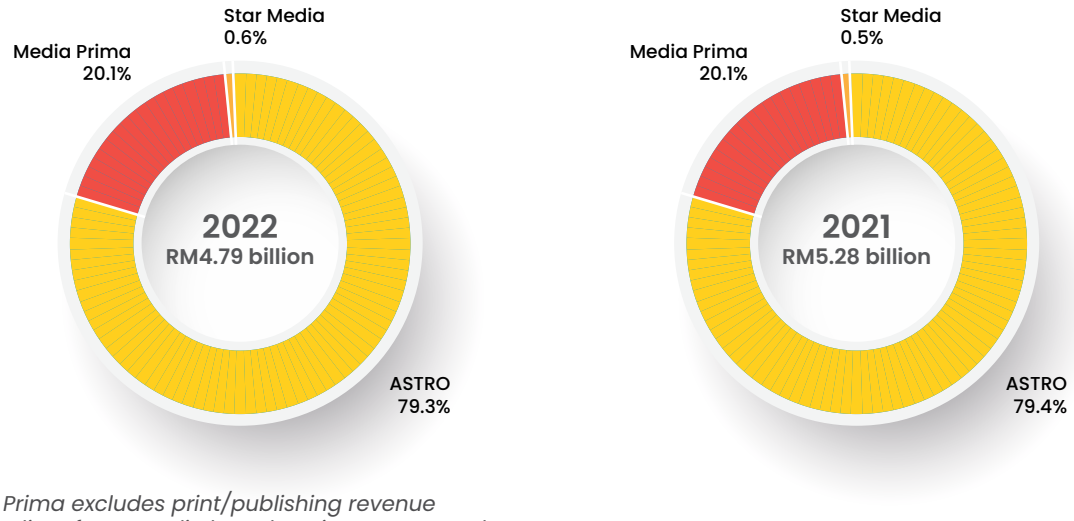
The broadcasting industry witnessed a shift in media consumption since the COVID-19 pandemic, with many people staying at home and consuming more media than before. Online video subscriptions saw a surge in demand as people looked for ways to stay entertained while staying indoors. This trend was driven by several factors, including the increased availability and affordability of high-speed internet connections, the proliferation of connected devices such as smartphones and smart TVs and the expansion of streaming platforms and services. In Malaysia, the Subscription Video on Demand (SVoD) is estimated to increase at a CAGR of 19.1% over the forecast period 2021-2026[5].



The growing cord cutting trend among the traditional pay-TV viewers, on top of the competitive pricing strategies adopted by OTT service providers and their investments in premium local content continued to post pressure to broadcasters. In addition, the reopening of the economy led to a decline in TV home shopping as consumers' shopping trend has shifted back to physical stores. As a result, broadcasting sector revenue in 2022 experienced a contraction of 9.3% to RM4.79 billion compared with RM5.28 billion in 2021.

[4] OMDIA, Global Telecoms Capex Trends – 2022, March 2023.
[5] GlobalData, Malaysia Subscription Video on Demand (SVoD) Forecast, Q2 2022

BROADCASTING SECTOR REVENUE 2021 – 2022



Note
1. *Media Prima excludes print/publishing revenue*
2. *Star Media refers to radio broadcasting revenue only*

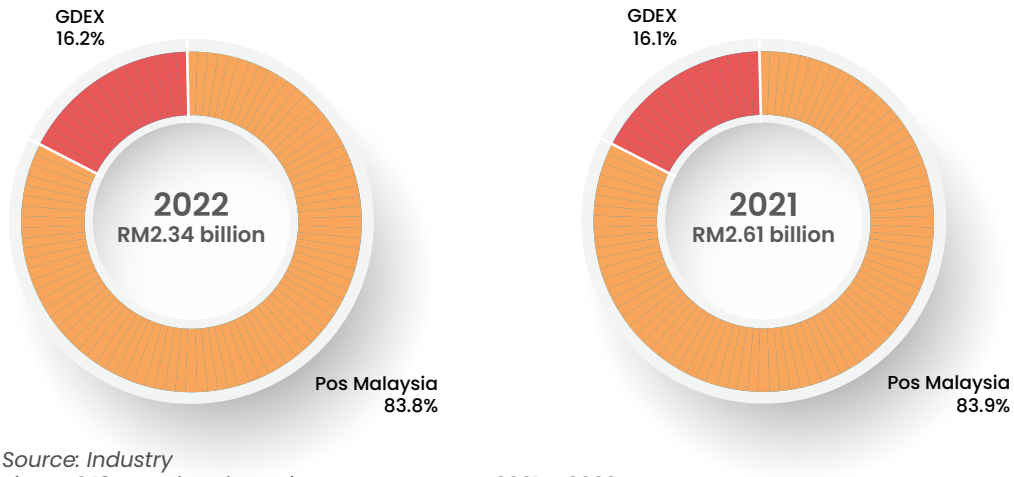
Source: Industry
Figure 2.12 Broadcasting Sector Revenue 2021 – 2022

POSTAL AND COURIER SECTOR

The COVID-19 pandemic has led to a surge in e-commerce in Malaysia, as it has in many other countries. The need for physical distancing has caused many consumers to turn to online shopping for their daily needs. However, the surge in e-commerce has also highlighted the challenges and limitations of online shopping as the increased demand has put pressure on logistics and supply chains which leads to potential shortages or delays in delivery.

The postal and courier sector is a highly competitive sector with numerous players fighting for a higher market share. This fierce competition has driven the price and cost to increase for service providers despite the surge in demand for e-commerce services. Furthermore, the two-year moratorium on the issuance of courier service licence which has ended in September 2022 provided an avenue for more courier companies to enter the overly congested market. As a result, the postal and courier sector witnessed a decline of 10.3% in revenue to RM2.34 billion in 2022 (2021: RM2.61 billion).

POSTAL AND COURIER SECTOR REVENUE 2021 – 2022



Source: Industry
Figure 2.13 Postal and Courier Sector Revenue 2021 – 2022

ACE MARKET OVERVIEW AND PERFORMANCE

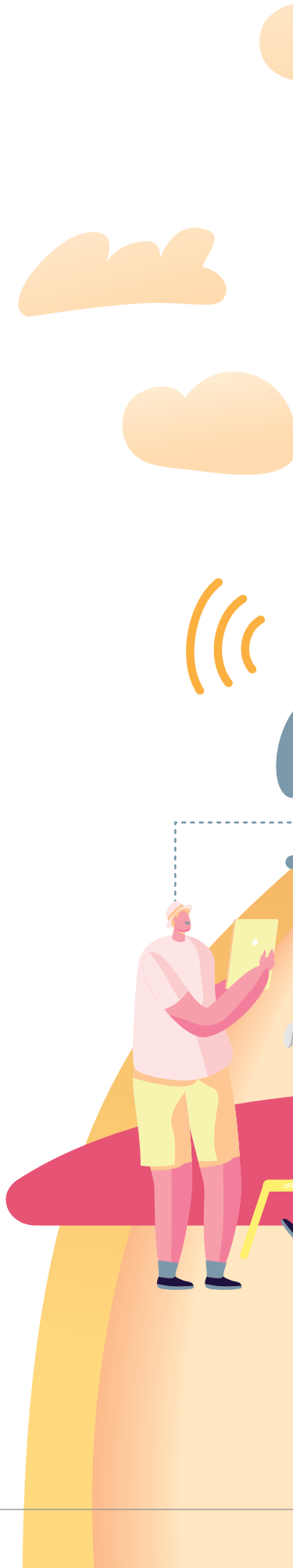
The ACE Market stands for "Access, Certainty, Efficiency." The ACE Market is an alternative capital-raising market for small and medium-sized companies with growth prospects, and are looking to push for more capital through public listing exercises. Prior to 2009, it was known as MESDAQ (Malaysian Exchange of Securities Dealing and Automated Quotation) Market.

In 2022, there were 163 companies listed on ACE Market. From the total, 12 companies or 7.4% are licensees under the CMA. The Individual and Class licensees listed on ACE Market for year 2022 are shown below.

Company (ACE-Listed)	Licensee (The company or subsidiary of ACE-listed company)	Type of Licences*
XOX Technology Berhad (formerly known as M3 Technologies (Asia) Berhad)	XOX Technology Berhad (formerly known as M3 Technologies (Asia) Berhad)	ASP (C)
ManagePay Systems Berhad	MPay Mobile Sdn Bhd	ASP (C)
M N C Wireless Berhad	M N C Wireless Bhd Moblife.TV Sdn Bhd	ASP (C)
MTouche Technology Berhad	Mtouche International Sdn Bhd	ASP (C)
N2N Connect Berhad	N2N Global Solutions Sdn Bhd NGN Connection Sdn Bhd	ASP (C)
Privasia Technology Berhad	Privanet Sdn Bhd Privasat Sdn Bhd	ASP(C), NFP (I) & NSP (I)
REDtone Digital Berhad (formerly known as Redtone International Berhad)	Redtone Engineering and Network Services Sdn Bhd Redtone Telecommunications Sdn Bhd Redtone Data Centre Sdn Bhd Redtone Mytel Sdn Bhd Sea Telco Engineering Services Sdn Bhd	NFP (I), NSP (I) & ASP (C)
XOX Berhad	XOX Com Sdn Bhd XOX Technology Berhad (formerly known as M3 Technologies (Asia) Berhad)	NSP (I) & ASP (C)
Diversified Gateway Solution Berhad	Diversified Gateway Berhad	ASP (C)
SMRT Holdings Berhad	N'osairis Technology Solutions Sdn Bhd	ASP (C)
Binasat Communications Berhad	Satellite NOC Sdn Bhd	NFP (I) & NSP (I)
SNS Network Technology Berhad	SNS Network (M) Sdn Bhd	ASP (C)

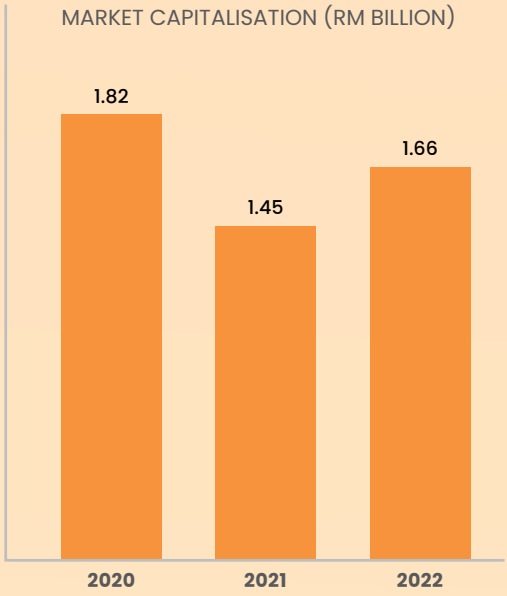
**ASP – Applications Service Provider; NSP – Network Service Provider; NFP – Network Facilities Provider; I – Individual; C – Class*

Source: Bursa Malaysia ACE Market, Industry, MCMC
Figure 2.14 Licensees on ACE Market 2022



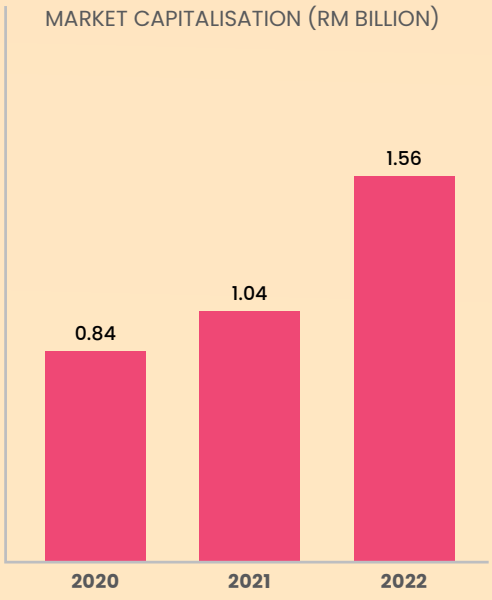
In 2022, market capitalisation for the 12 CMA licensees listed on ACE Market was RM1.66 billion (an increase of 14.2%) with revenue of RM1.56 billion (a growth of 49.6%). ACE-listed licensees market capitalisation recorded a surge from the previous year due to improved investor sentiment, fuelled by the increase in revenue for these licensees. This commendable performance was heavily influenced by the country's transition into COVID-19 endemic phase, and its impact on domestic economic recovery.

LICENSEES ON ACE MARKET MARKET CAPITALISATION 2020 – 2022



Source: Bloomberg
Figure 2.15 Licensees on ACE Market: Market Capitalisation 2020 – 2022

LICENSEES ON ACE MARKET REVENUE 2020 – 2022



Source: Industry
Figure 2.16 Licensees on ACE Market: Revenue 2020 – 2022

SERVICES AND CONNECTIVITY

This chapter reports on connectivity services in Malaysia, namely broadband, fixed, and cellular services including MVNO services. With a focus on the development of these services, it details the number of subscriptions and market share by service providers as well as penetration rate. This chapter also highlights Government initiatives on high-speed broadband for digital connectivity, particularly JENDELA.

KEY HIGHLIGHTS
2022

BROADBAND SUBSCRIPTIONS

3.8% **47.46 million** (2021: 45.75 million)

MOBILE BROADBAND

2.9% **43.24 million** (2021: 42.02 million)

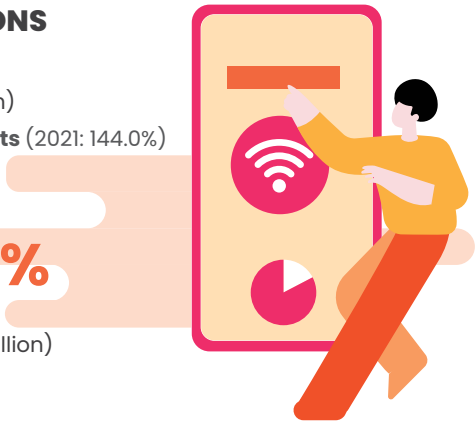
FIXED BROADBAND

13.2% **4.22 million** (2021: 3.73 million)

MOBILE CELLULAR SUBSCRIPTIONS

1.6% **47.95 million** (2021: 47.20 million)

145.4% penetration rate per 100 inhabitants (2021: 144.0%)



PREPAID

1.9%

33.66 million (2021: 33.02 million)

POSTPAID

0.8%

14.29 million (2021: 14.18 million)

5G DEVELOPMENT

MACRO SITES

3,906 have been built

2,576 were onboarded

SPEED

5G speeds were between

14.8 – 21.5 times faster than 4G

POPULATION COVERAGE

47.1% population coverage in populated areas

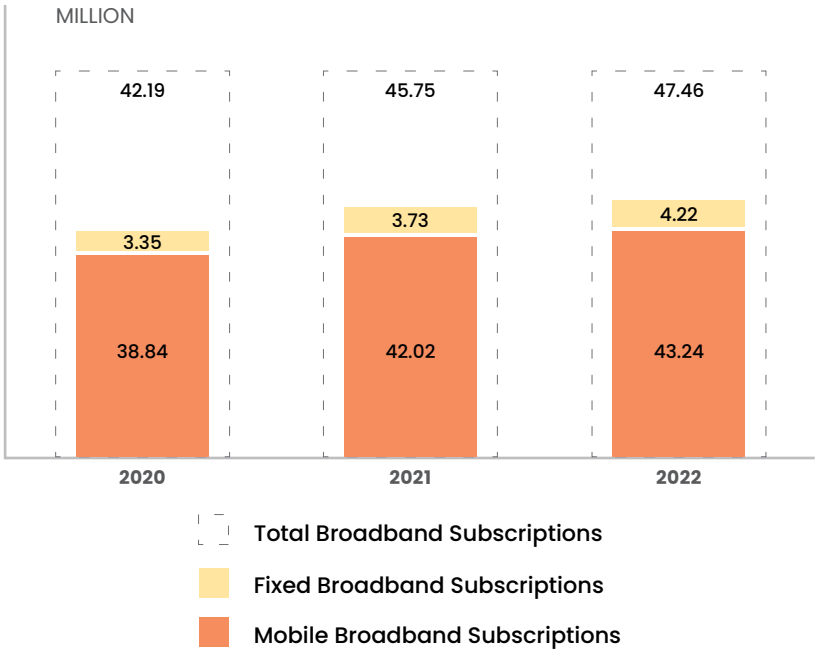
BROADBAND IN MALAYSIA

The COVID-19 pandemic has accelerated digital transformation around the world. The Internet has become a vital necessity for working, learning, communication and accessing basic services. It has provided people with key means to keep in touch and access important information, services, and opportunities to support their lives and livelihoods, particularly during lockdowns.

As the country transitioned into endemic stage in April 2022, there is a robust growth in domestic economy driven by rising demand as economic activities normalised with the easing of containment measures and high national vaccination rate. In this digital age, the telecommunication sector possesses a natural resiliency given the essential nature of connectivity as a public utility.

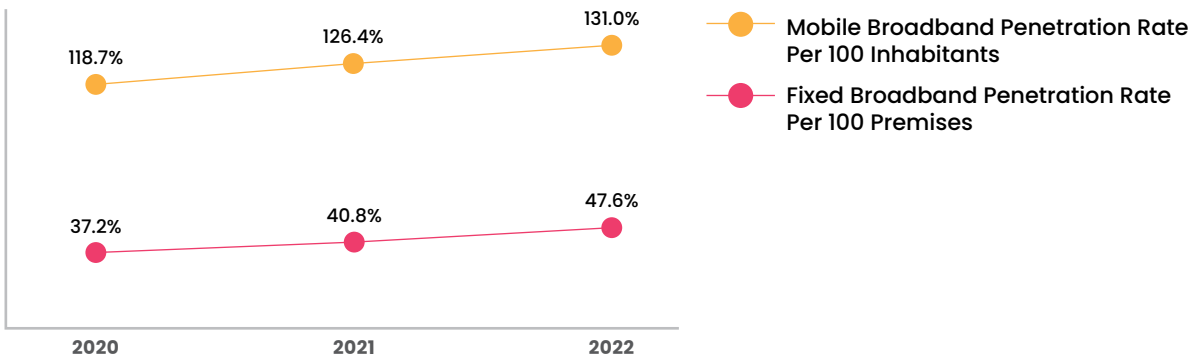
Demand for broadband services rose even higher in 2022. Following a rising trend in 2021, broadband subscriptions continued growing further in 2022, with total broadband subscriptions increasing by 3.8% to 47.46 million and growing at a CAGR of 6.1% over 2020 - 2022. Mobile broadband subscriptions saw an increase of 2.9% to 43.24 million, with penetration rate per 100 inhabitants recorded at 131.0% in 2022. Meanwhile, fixed broadband subscriptions grew 13.2% to 4.22 million, with penetration rate per 100 premises recorded at 47.6% in 2022.

BROADBAND SUBSCRIPTIONS 2020 – 2022



Source: MCMC
Figure 3.1 Broadband Subscriptions 2020 – 2022

BROADBAND PENETRATION RATES 2020 – 2022



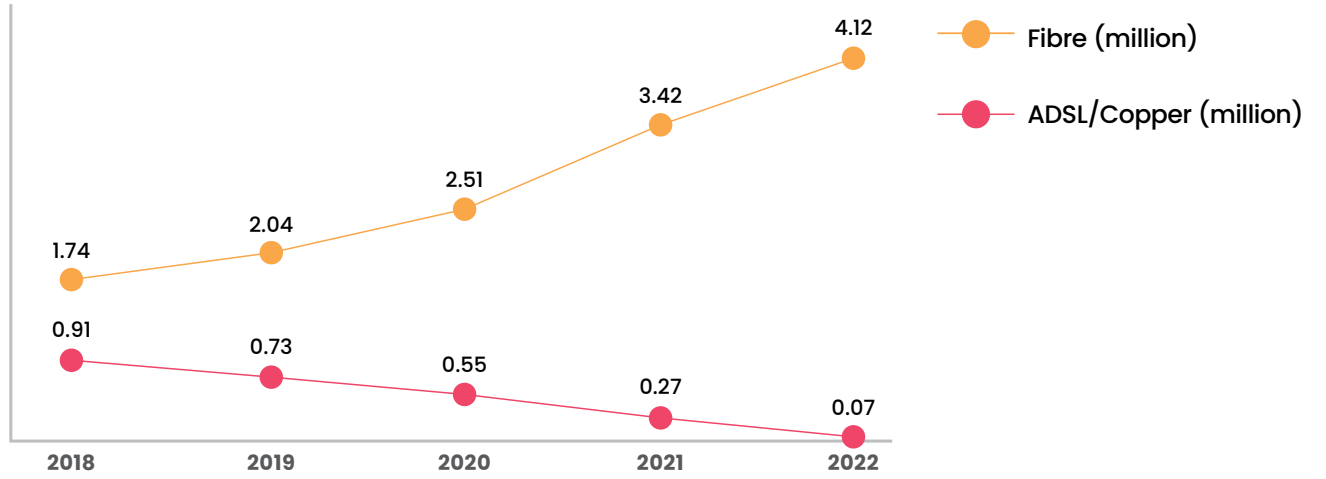
Source: MCMC
Figure 3.2 Broadband Penetration Rates 2020 – 2022

FIXED BROADBAND

Fibre broadband subscriptions continued to grow in 2022 as digital lifestyles increasingly become the norm. Additionally, wider coverage of fibre infrastructure, hybrid workplace trends that require stable and reliable internet connection at home and various government-led initiatives drive the adoption. JENDELA, which was introduced back in 2020 has successfully improved the country's broadband infrastructure and related technologies. Fibre coverage has been strengthened and made widely available across populated areas, encouraging consumers to migrate to fibre. As a result, fibre subscriptions posted a growth of 20.5% to 4.12 million subscriptions in 2022, growing at a CAGR of 24.0% over 2018 – 2022.

Asymmetric Digital Subscriber Line (ADSL) or copper subscription has declined 74.1% to 0.07 million due to lower take up by consumers. Compared to fibre, ADSL/copper has higher latency and slower speed.

ADSL AND FIBRE SUBSCRIPTIONS 2018 – 2022



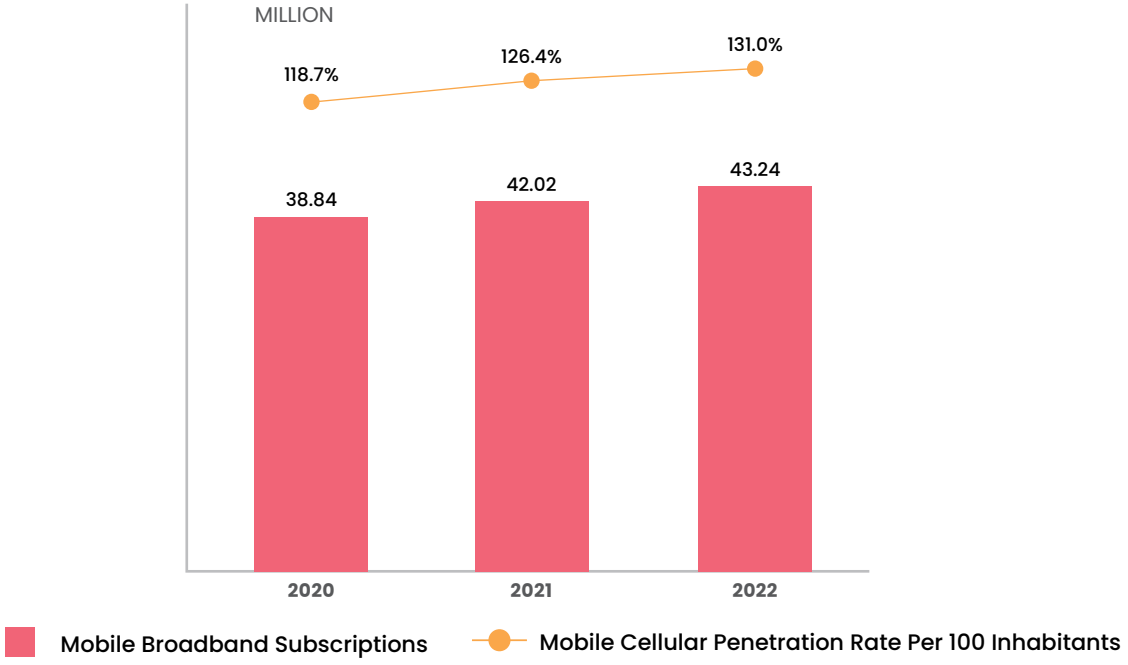
Source: MCMC
Figure 3.3 ADSL and Fibre Subscriptions 2018 – 2022

MOBILE BROADBAND

Internet connectivity continues to play a critical role for countries, communities and individuals. Even with the reopening of economic activities and restrictions being lessened, remote-based engagements remain the norm for businesses and personal usage. Since the beginning of the pandemic, the telecommunications sector has collaborated closely with the Government to guarantee that every Malaysian has access to the Internet. Realising the importance of providing affordable digital access to society, the Government provided support through numerous programmes. The *Pakej Peranti Siswa Keluarga Malaysia*, *Pakej Remaja Keluarga Malaysia* and *Pakej Peranti Keluarga Malaysia* offer subsidised prices on smartphone devices and mobile broadband subscription plans particularly for the B40 community. Additionally, service providers continued to innovate their product portfolio and introduced offerings that are flexible, affordable, and targeted for different customer segments in the market. These developments inevitably boosted the growth of mobile broadband subscriptions.

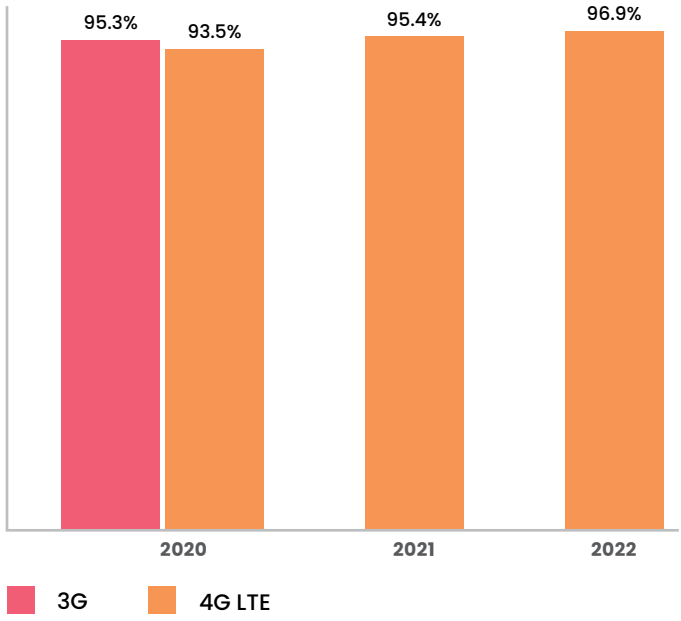
In 2022, mobile broadband subscriptions increased by 2.9% to 43.24 million. It grew at a CAGR of 5.5% over 2020 – 2022. The upward trend in mobile broadband subscriptions were in line with the growth in mobile cellular subscriptions, which showed an improvement compared to the previous year.

MOBILE BROADBAND SUBSCRIPTIONS AND PENETRATION RATE 2020 – 2022



Source: MCMC
Figure 3.4 Mobile Broadband Subscriptions and Penetration Rate 2020 – 2022

3G AND 4G LTE COVERAGE IN POPULATED AREAS 2020 – 2022



Note: Since 2021, data on 3G coverage in populated areas have not been monitored due to the shutdown of the 3G network.

Source: MCMC
Figure 3.5 3G and 4G LTE Coverage in Populated Areas 2020 – 2022

THE DEVELOPMENT AND ACHIEVEMENT OF PELAN JALINAN DIGITAL NEGARA (JENDELA) FOR THE YEAR 2022

Malaysia Digital Economy Blueprint (MyDIGITAL) has outlined a holistic action plan to drive digitalisation across the country. By the end of 2025, Malaysia's digital economy is expected to contribute 22.6% to Gross Domestic Product (GDP) and to create 500,000 new jobs. *Pelan Jalinan Digital Negara* (JENDELA) is one of the key enablers for Malaysia to achieve the Digital Economy strategy by improving communication services. Commenced in September 2020, JENDELA was formulated to improve the connectivity and quality of communication experience nationwide through sustainable and comprehensive digital infrastructure development.

JENDELA is implemented in phases with Phase 1 from 2020 to 2022 and Phase 2 from 2023 to 2025. Phase 1 focuses on maximising the use of existing resources and infrastructure to achieve 7.5 million premises passed with fibre connectivity, 96.9% 4G coverage at populated areas and 35 Mbps average mobile broadband speed.

JENDELA Phase 2 aspires to continue benefitting all Malaysians by achieving the targets under the 12th Malaysia Plan (RMK-12) which are 9 million premises passed with fibre connectivity, 100% internet coverage in populated areas and 100 Mbps average mobile broadband speed.

Implementation and Achievement of Jendela Phase 1 (2020-2022)

JENDELA Phase 1 focused on the development of digital infrastructure to increase access capacity to gigabit access with fibre optic and to enhance 4G coverage and quality of experience nationwide. A few main projects were included in Phase 1 as illustrated in Figure 3.6 below:

MAIN PROJECTS UNDER JENDELA PHASE 1

Premises Passed

New 4G Tower

3G Sunset

Base Station Upgrade

Broadband Wireless Access

Point of Presence (PoP)

5G Rollout

Source: MCMC
Figure 3.6 Main Projects Under JENDELA Phase 1

Overall, JENDELA Phase 1 was on the right track to achieve RMK-12 targets. With the progressive development of digital infrastructure and good collaboration from industry players, JENDELA Phase 1 succeeded in expanding the coverage and improving the quality of experience as outlined below:

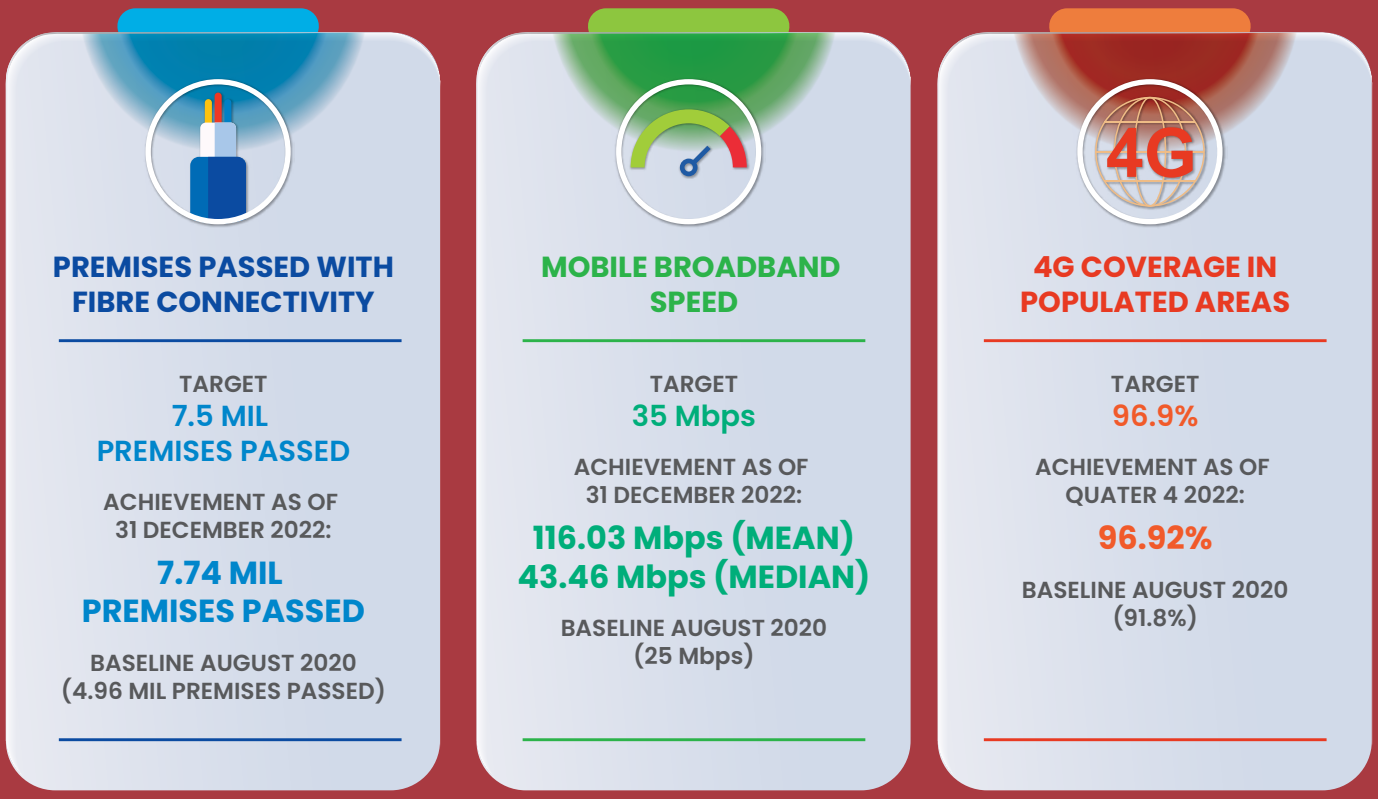
a) An additional 2,780,580 premises nationwide have access to fibre optic;

b) A total of 37,977 existing base stations have been upgraded to improve the speed and quality of 4G services;

c) A total of 1,778 new 4G towers have been built to enhance 4G coverage in populated areas; and

d) A total of 839 locations have access to wireless broadband via satellite to provide internet coverage in rural areas.

JENDELA PHASE 1 OVERALL ACHIEVEMENT



Note: Mean download speed refers to the average speed at which data is downloaded from the internet to a device. It provides an indication of the overall performance of the internet connection for downloading data.

The median is the middle value in a set of data when ordered from least to greatest. When measuring the performance of a network, the median value captures the typical user's experience.

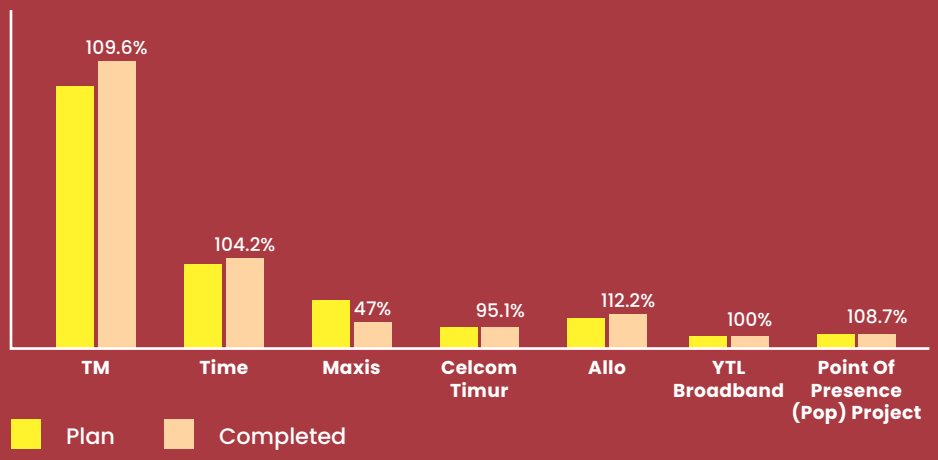
Source: MCMC
Figure 3.7 JENDELA Phase 1 Overall Achievement

The industry has shown commendable efforts towards accelerating the network rollout and providing good coverage and improved quality to ensure the public will reap the benefits from JENDELA. The performance of the industry in JENDELA Phase 1 is summarised in Figure 3.8 below:

YEAR 2022 OVERALL ACHIEVEMENT OF JENDELA PROJECT BY INDUSTRY PLAYERS

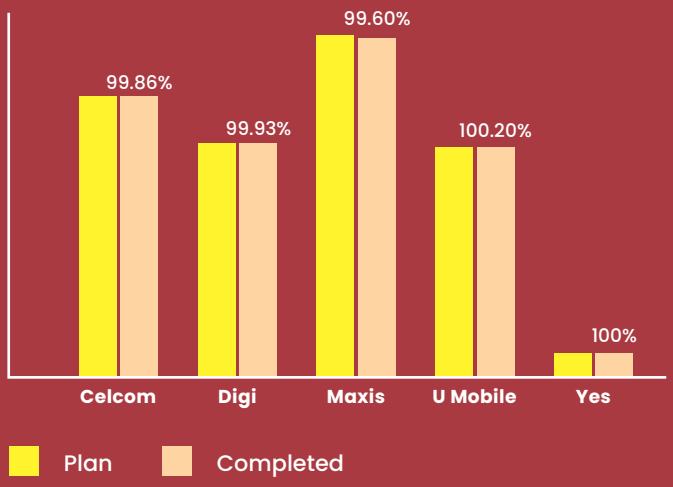
JENDELA PHASE 1 COMPLETED

2,780,580 (102.67%) PREMISES PASSED
(Target: 2,708,345)



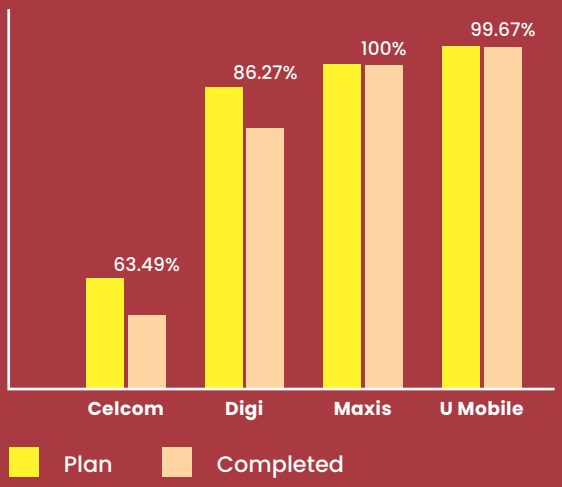
JENDELA PHASE 1 COMPLETED

37,997 (99.86%) SITES UPGRADED
(Target: 38,029)



JENDELA PHASE 1 COMPLETED

1,778 (92.46%) NEW 4G SITES
(Target: 1,923)



Source: MCMC
Figure 3.8 Overall 2022 Achievement of JENDELA Project by the Industry Players

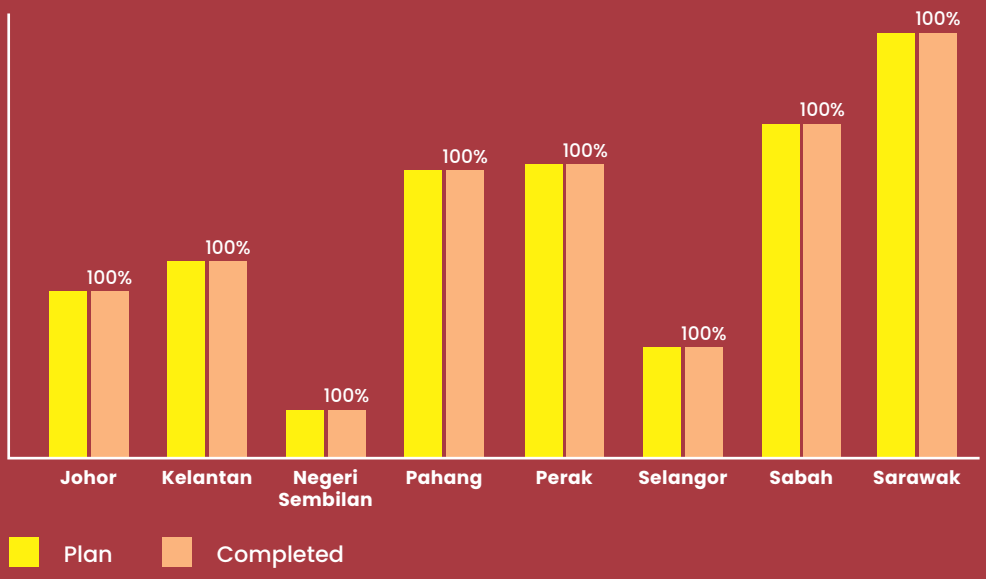
The overall industry performance has been satisfactory and achieved the targets set under JENDELA Phase 1. However, there were shortfalls in a few areas as shown in the figure above. Several issues and challenges were highlighted by the industry as causes for delays and most of these issues occurred in rural areas, as listed below:

a. Major issues for premises passed were due to the lengthy processes and delays in getting permit approval from local authorities;
b. Service providers highlighted that the major issues in completing upgrades to base stations were due to delays in tower fiberisation rollout and the inability to access the locations due to bad weather conditions during monsoon season; and
c. The challenges in constructing 4G new towers by service providers; among others, were delays in getting permit approval from local authorities, and site relocations due to issues with landlords.

Under JENDELA Phase 1, the broadband wireless access (BWA) project via satellite has been completed and is currently operating in 839 locations nationwide covering 178 locations in Orang Asli settlements in Peninsular Malaysia, and 661 locations in remote areas of Sabah and Sarawak. The BWA project is estimated to cover 260,000 residents with an average speed of 35 Mbps per user. Achievements of BWAs by state are as stated below:

ACHIEVEMENT OF BROADBAND WIRELESS ACCESS PROJECT

BWA
100%
Target: 839
Completed: 839



Source: MCMC
Figure 3.9 Achievement of Broadband Wireless Access Project

Besides the digital infrastructure development, 3G shut down is also one of the action plans under JENDELA Phase 1. The shutdown of 3G aims to repurpose the existing spectrum to further enhance quality of service to the consumers with wider 4G coverage as well as better quality of experience. As of 31 December 2022, 100% of 3G network was shut down.

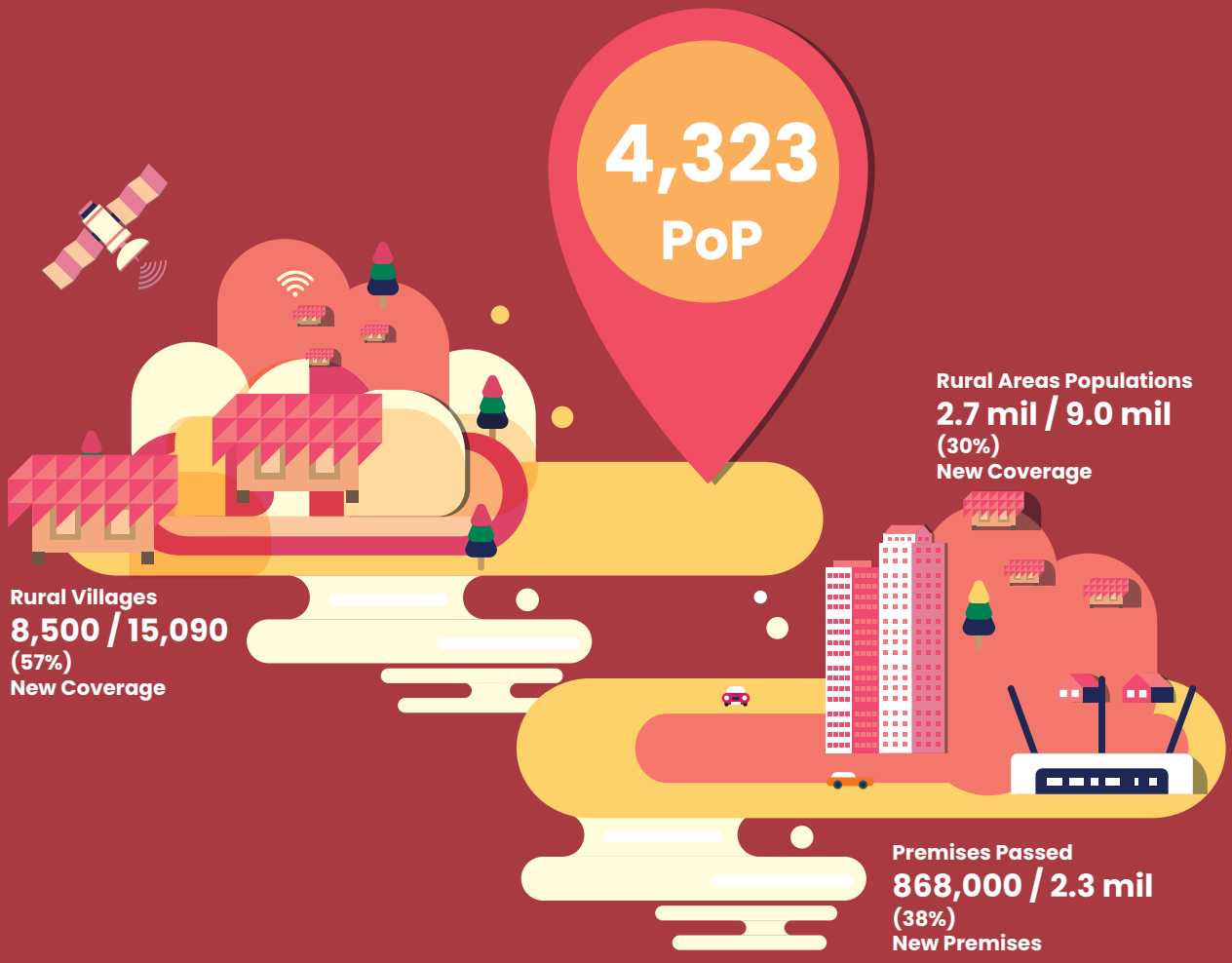
The migration of 3G subscribers to 4G as at 31 December 2022 has achieved 92.84%. The remaining 7.16% subscribers that have yet to migrate because of lack of awareness about the benefits of 4G and still using low data which can still be served with 2G. However, industry players have taken proactive measures and are continuously encouraging customers to migrate to 4G technology by directly communicating with subscribers and providing information on the benefits of 4G. Aside from that, new packages such as *Pakej Peranti*, *Pakej Remaja Keluarga Malaysia*, and *Jaringan Prihatin*, as well as various other awareness campaigns, were introduced to entice subscribers to migrate to 4G.

School as a Fibre Optic Hub (Point of Presence) to Connect the Community

Another sector that is also very important is education. Schools need to have good internet connection to ensure teaching and learning through virtual platforms as well as other online learning activities can be carried out smoothly. Therefore, the Malaysian Government through the Ministry of Communications and Digital (KKD) has commenced the fibre optic network hub at schools through a project called Point of Presence (PoP) involving 4,323 schools nationwide, to be completed by the end of 2025.

The project will also benefit surrounding communities and premises giving them access to gigabit broadband. As of 31 December 2022, a total of 274 PoPs have been completed.

POINT OF PRESENCE PROJECT IN RURAL AND REMOTE AREAS UNTIL 2025



Source: MCMC
Figure 3.10 Point of Presence Project in Rural and Remote Areas until 2025

5G Development

In addition, the implementation of 5G is also part of the main projects under JENDELA in line with the goals for the Malaysian Digital Economy Blueprint to drive digitalisation across the country. Digital Nasional Berhad (DNB), a wholly owned subsidiary of the Finance Ministry, was mandated to implement 5G infrastructure and networks nationwide. DNB will provide 5G services wholesale to service providers at a transparent and competitive rate.

The 5G rollout which was initially scheduled to commence under JENDELA Phase 2, has been accelerated 1 year earlier to Q4 2021 and as of 31 December 2022, a total of 3,906 sites have been completed with 5G infrastructure and 2,576 sites have started 5G operations. The DNB is on track to achieving 80% 5G coverage in populated areas by the end of 2023.

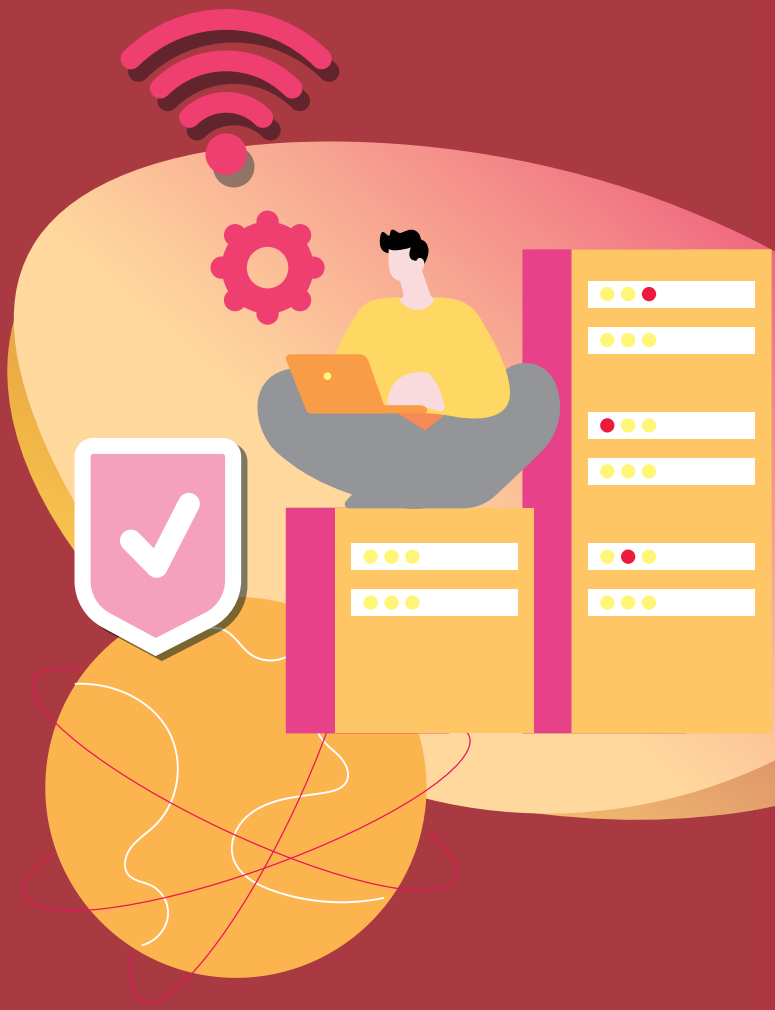
The adoption of 5G technology will be a key driver of economic growth in Malaysia. With an estimated RM150 billion[1] GDP impact and 750,000 high skilled jobs created in 2030, 5G will drive efficiencies, increase productivity, and create new opportunities throughout the entire economy. Further details on 5G developments in year 2022 are available in the box article at the end of this chapter.

JENDELA Map: A Comprehensive View of all Existing and Planned Infrastructure

In addition, the MCMC launched JENDELA Map Portal (https://jendela.my) on 9 July 2021. The primary goal of JENDELA Map is to allow the public to obtain information about telecommunication services in their respective areas. Furthermore, JENDELA Map serves as a medium for the public to request services in their area, as well as help service providers in resolving connectivity issues and improving their planning. Feedback received through JENDELA Map is channelled directly to the service providers to enable them to plan for services as well as better connectivity for the Rakyat.

Other features available in JENDELA Map include AIDA chatbot as well as other information on *Pusat Digital Ekonomi* (PEDi), Post Offices and *Menarik Di* to promote micro-entrepreneurs' businesses.

This platform has been well received by the public. As of 31 December 2022, a total of 96,796 people has visited and used the JENDELA map as a one-stop centre to obtain information on the availability of infrastructure either fixed or mobile broadband services in their respective areas and locations.



[1] Source: Official DNB's website (https://www.digital-nasional.com.my/interactive-map#map)

MAIN FEATURES AVAILABLE IN JENDELA MAP

MAIN FOCUS

Coverage

Feedback

JENDELA News

Menarik Di

PEDi

JENDELA Info

Integration with Complaint System

Source: MCMC
Figure 3.11 Main Features Available in JENDELA Map

A Collaborative Effort Aspires to Deliver Connectivity to All

MCMC with cooperation from KKD and *Kementerian Pembangunan Kerajaan Tempatan* (KPKT) are playing a pertinent role in raising policy recommendations on various platforms at national level to support and expedite the deployment of digital infrastructure. Among the achievements and approvals are:

a. Approval of *Garis Panduan Perancangan Infrastruktur Komunikasi* (GPP-I)[2] at *Mesyuarat Majlis Negara dan Kerajaan Tempatan* (MNKT) on 3 March 2021. GPP-I has been widely used by the local authorities to ensure communications infrastructure are factored into any new development plan. GPP-I has been enhanced by including guidelines for small-scale infrastructure such as micro cells to facilitate the rollout of mobile network especially 5G. The revised document is called GPP-I 2022 which supersedes the earlier version of GPP-I and was published on MCMC website on 30 November 2022.

b. The establishment of a *Jawatankuasa Khas Penyeragaman Kos Caj dan Yuran Pembangunan Infrastruktur Komunikasi* at the state level was approved by the *Mesyuarat Menteri Besar dan Ketua Menteri* (MBKM) on 28 June 2022. This committee will study and propose a mechanism to standardise the cost of charges and fees imposed for the development of communications infrastructure throughout the country; and

c. The establishment of an Infrastructure Committee or Digital Council at the state level to discuss issues related to digital infrastructure. All states have established State Digital Councils or State Digital Infrastructure Committees chaired by the *YAB Menteri Besar* or the respective state ICT EXCO.

Apart from that, various other initiatives have also been undertaken by MCMC and service providers to ensure the coverage and quality of services are in a good condition. Among them are as follows:

a. Periodic network quality checks where the results are shared with service providers for improvement;

b. Analysis of complaints related to unsatisfactory service quality and coverage;

c. Continuous monitoring of network's traffic utilisation and capacity;

d. Establishment of *Jawatankuasa Penyelaras Pembangunan Infrastruktur Komunikasi* (JaPIK) to facilitate issues related to the development of communication infrastructure; and

e. Infrastructure planning based on user feedback through the JENDELA Map.

Updated information on JENDELA is also available via https://myjendela.my

JENDELA+: Supporting the Implementation of JENDELA and MyDIGITAL

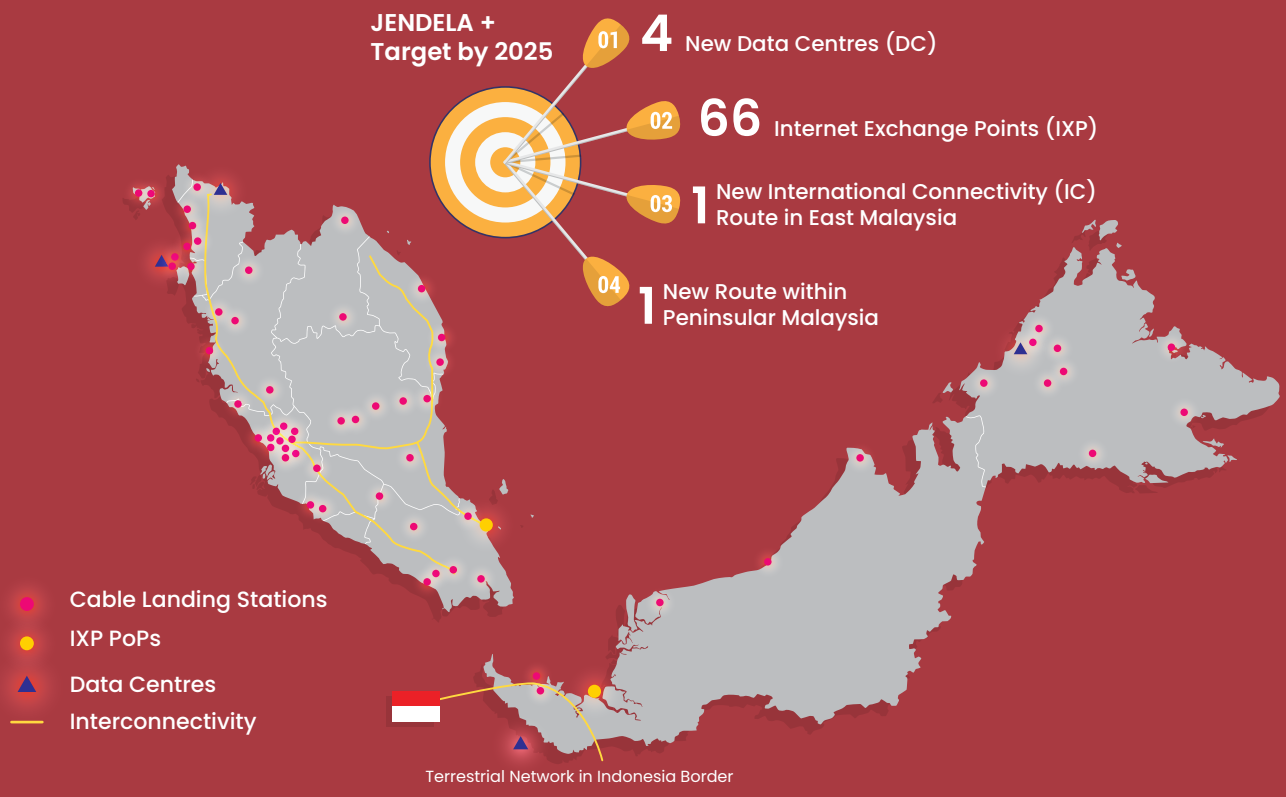
With the aim of ensuring that Malaysia continues to remain a competitive and attractive business destination for investment especially to international content providers, MCMC as the regulator has taken proactive steps in its role. The MCMC organised the National Interconnectivity and Ecosystem Lab (NIEL) from 24 April to 25 June 2021 involving industry players as well as relevant ministries and government agencies, jointly addressing the importance of having a robust and future-proof connectivity ecosystem in Malaysia.

NIEL has formulated JENDELA+ with a strategic plan for the new development of High-Scale Data Centres (DCs), Internet Exchange Points (IXPs) and new International Connectivity (ICs) in Malaysia that also includes policy recommendations in making Malaysia competitive in the region while improving the internet experience between users in East Malaysia and Peninsular Malaysia. JENDELA+ is also targeted to complement JENDELA's journey as well as to support MyDIGITAL.

[2] As of 31 December 2021, all States in Peninsular Malaysia have adopted GPP-I, whilst Sabah and Sarawak are subjected to its own legislative ordinance in adopting a similar approach to GPP-I.

JENDELA+ has been incorporated within the existing JENDELA governance structure which will reflect the entire connectivity ecosystem that includes submarine cables, data centres and broadband services. By the end of 2025, the overall targets outlined under JENDELA+ are as shown in the figure below:

OVERALL TARGET UNDER JENDELA+ BY 2025



Source: MCMC
Figure 3.12 Overall Target under JENDELA+ by 2025

Several important milestones have been recorded in 2022 for JENDELA+ as outlined below:

a. Two new DCs are ready for service in Penang and Sarawak;

b. Availability of 62 IXPs; and

c. One new International Connectivity[3] in East Malaysia is ready for service.

On IXPs, Telekom Malaysia has successfully deployed 30 Internet Exchange Points in addition to 32 points in the previous year, bringing the total to 62 points nationwide. The 2022 Internet Exchange Points are as follows:

1. Taman Tun Dr Ismail
2. Kinrara
3. Damansara
4. Bintang
5. Bukit Kemuning
6. Gong Badak
7. Raub
8. Pekan
9. Seremban
10. Sg Way
11. Kuala Berang
12. Manir
13. Jelutong
14. Gelugor
15. Ipoh
16. Kampar
17. Kg Gajah
18. Inanam
19. Kinarut
20. Menggatal
21. Putatan
22. Kuala Baram
23. Tabuan Jaya
24. Bintulu
25. Miri
26. Petra Jaya
27. Alor Gajah
28. Tampin
29. Malim
30. Senawang

[3] The Batam Sarawak Internet Cable System (BaSICS) is a submarine cable connecting Sarawak (Malaysia) and Batam (Indonesia) spanning 700km, ready for service on 1 June 2022

MALAYSIA INTERNET EXCHANGE (MyIX)

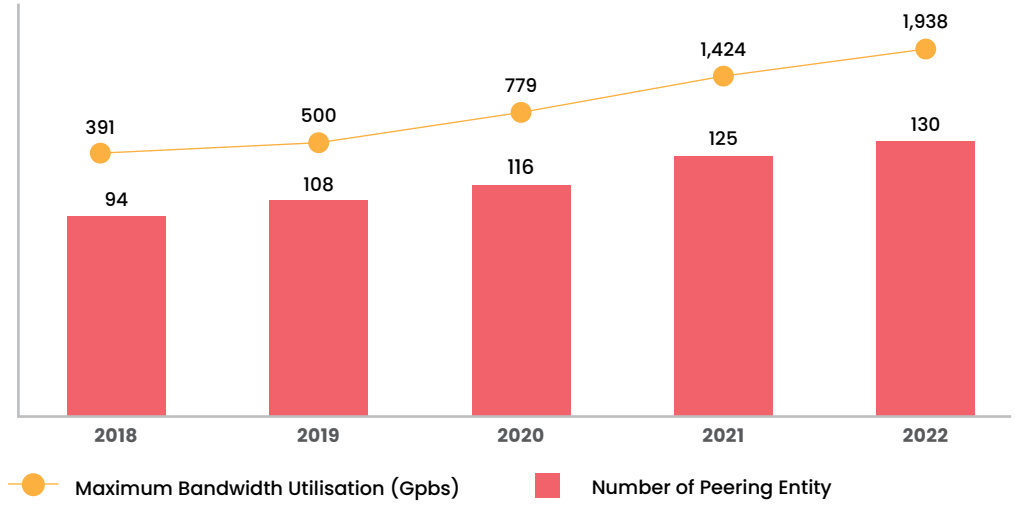
MyIX is a non-profit and neutral Internet Exchange platform established in 2006, aiming at keeping domestic Internet traffic and promoting the exchange of global Internet traffic exchange by reducing the boomerang effect – a scenario whereby domestic Internet traffic is routed through multiple international hops, via exchanges overseas, and back to Malaysia. With MyIX, Internet Service Providers (ISPs) and content providers connect and peer to exchange domestic Internet traffic, bringing Internet content closer to end users in Malaysia. This enables significant cost reduction and foreign exchange savings while boosting local Internet speed, resilience, and efficiency.

Over the years, MyIX bandwidth utilisation and peering entities have increased. As at December 2022, there were 130 peering entities compared with 125 entities as of December 2021. In terms of exchanged domestic Internet traffic, the year 2022 recorded the highest maximum bandwidth utilisation since 2015 at 1,938Gbps, a 36.1% traffic growth from 2021.

The growth witnessed in 2022 comes from the ongoing digitalisation and shift in user behaviour since the pandemic, such as the use of new and more Internet services, including cloud storage, games, e-learning, video-conferencing and streaming services. Throughout 2022, MyIX has welcomed the following new members:

1. MEASAT Satellite Systems Sdn Bhd
2. Mootech Pte Ltd
3. Infinity Consulting Technology Sdn Bhd
4. Kaopu Cloud HK Ltd
5. BasicBrix Sdn Bhd
6. Anexia Internetdienstleistungs GmbH
7. Smart Axiata Co. Ltd
8. Edge Centres (M) Sdn Bhd
9. ServerFreak Technologies Sdn Bhd

MyIX MAXIMUM BANDWIDTH UTILISATION AND PEERING TREND 2018 – 2022



Source: MyIX, MCMC
Figure 3.13 MyIX Maximum Bandwidth Utilisation and Peering Trend 2018 – 2022

MOBILE CELLULAR SERVICES

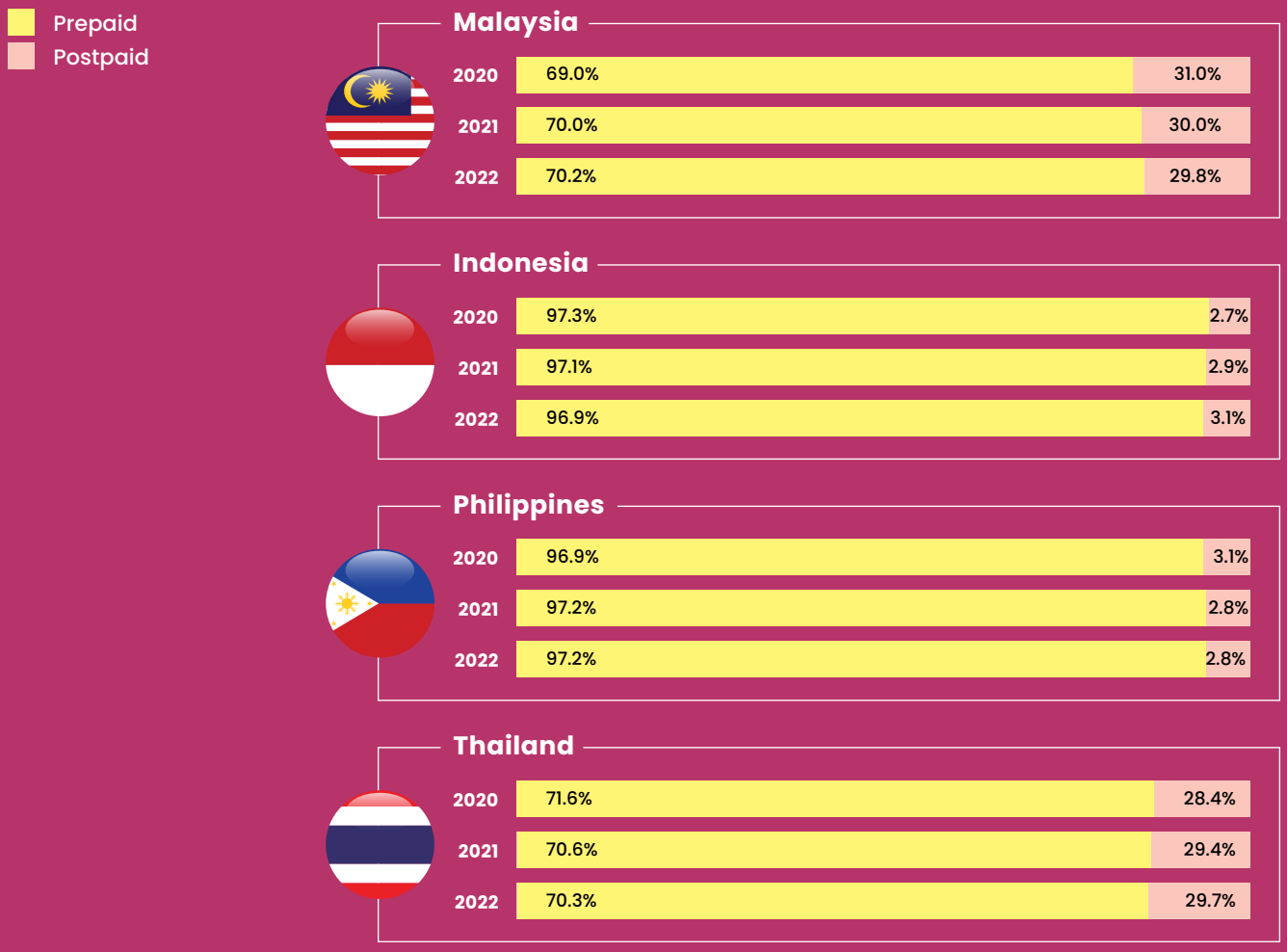
The pandemic has accelerated consumers' data consumption on mobile devices where network utilisation increased tremendously driven by growth in social, video and productivity applications. Despite the country's transition to endemic stage, the patterns remain the same. As economies reopened and restrictions eased, mobile became even more pertinent to the way people live and operate businesses. This further promotes acceleration of digital adoption in the country especially among Malaysian businesses, realising that digitalisation is key to business growth and sustainability.

The total mobile cellular subscriptions increased 1.6% to 47.95 million in 2022. This is driven by the improved nationwide connectivity, affordable product offerings and the Government programme-led demand which provides better access to internet and smartphone devices. From 2020 – 2022, mobile cellular subscriptions grew at a CAGR of 4.7%.

In 2022, postpaid subscriptions grew 0.8% to 14.29 million and prepaid subscriptions increased 1.9% to 33.66 million compared to the previous year.

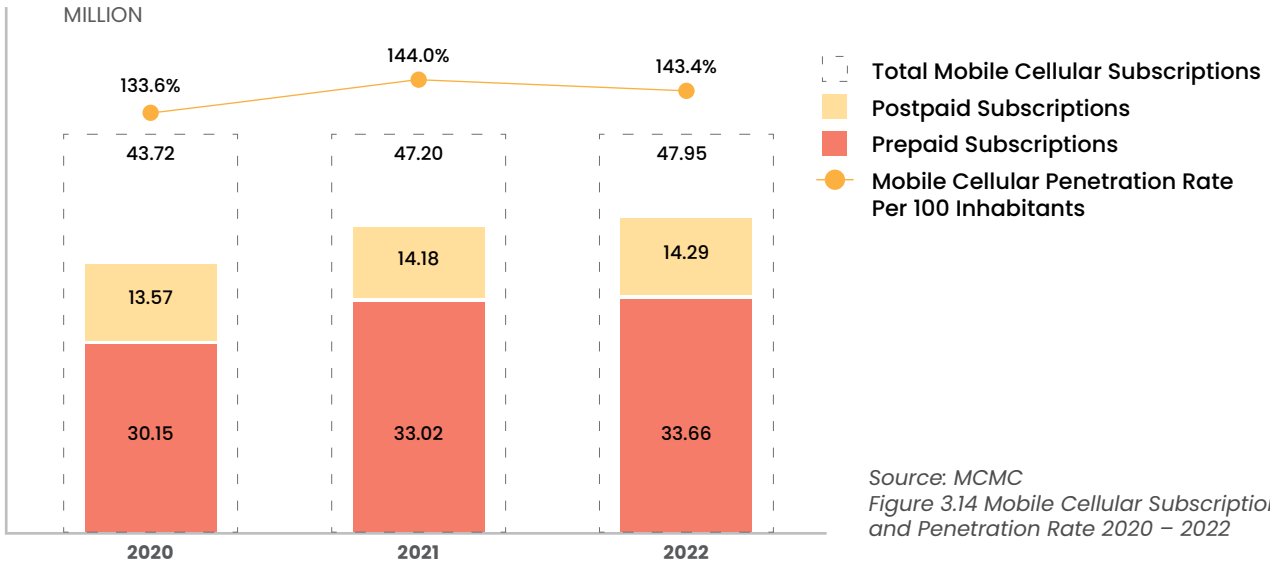
Mobile subscriptions in Malaysia are skewed towards prepaid. In emerging markets, it is observed that prepaid subscriptions dominate over postpaid subscriptions. This is likely due to subscribers from emerging markets having a higher price sensitivity towards mobile package charges.

PREPAID AND POSTPAID SUBSCRIPTIONS MARKET SHARE BY COUNTRY 2020 – 2022

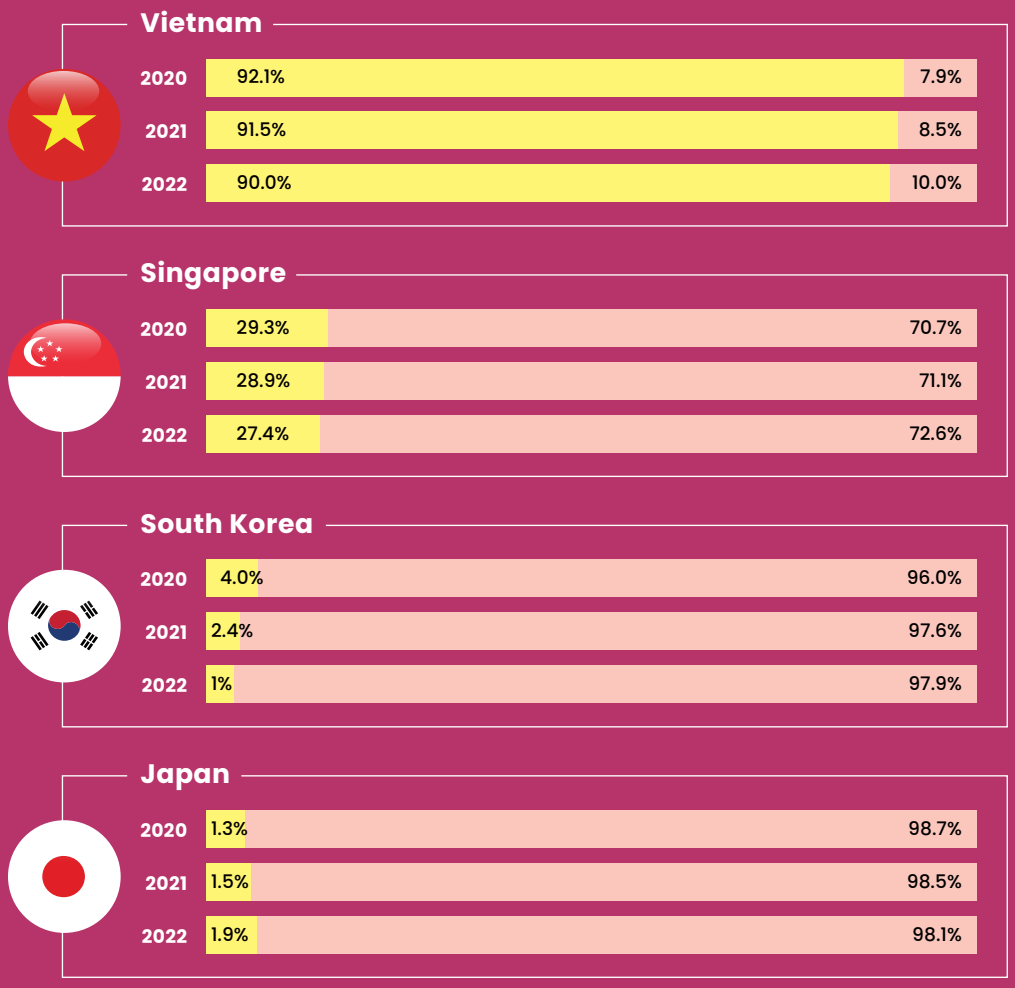


Source: Omdia, MCMC
Figure 3.15 Prepaid and Postpaid Subscriptions Market Share by Country 2020 – 2022

MOBILE CELLULAR SUBSCRIPTIONS AND PENETRATION RATE 2020 – 2022

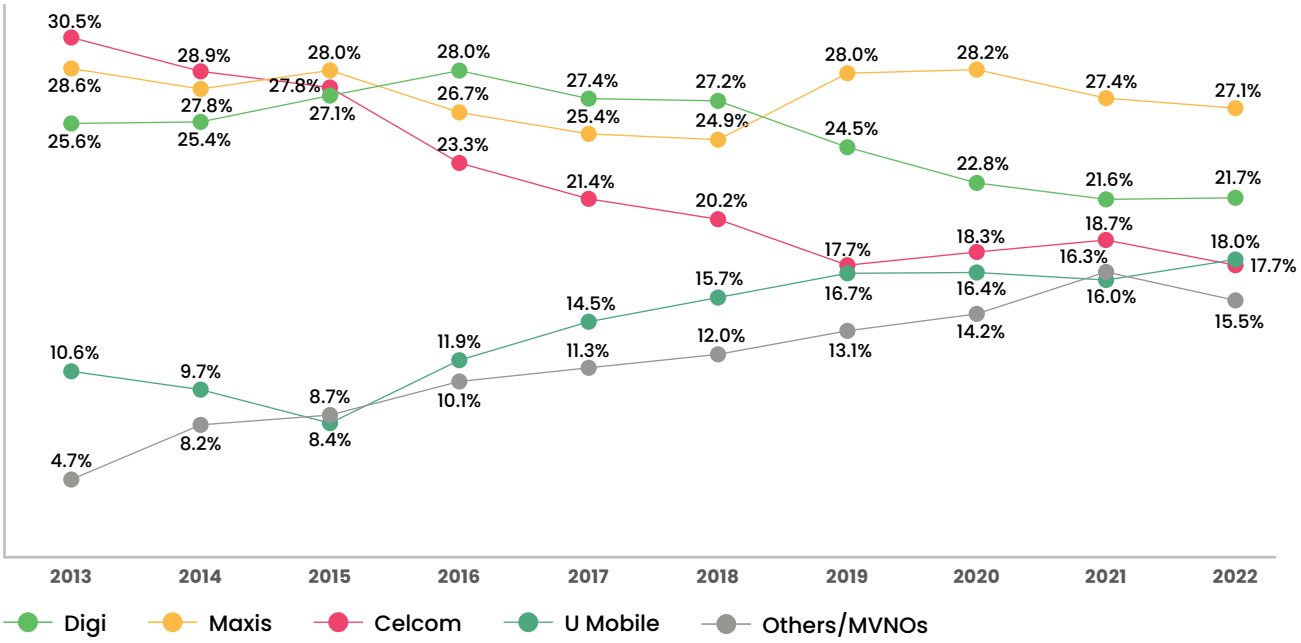


Source: MCMC
Figure 3.14 Mobile Cellular Subscriptions and Penetration Rate 2020 – 2022



For subscriptions market share, Maxis commands the highest share of 27.1%, followed by Digi (21.7%) and U Mobile (18.0%). The remainder is from Celcom and others/MVNOs, with 17.7% and 15.5% share respectively.

MOBILE CELLULAR SUBSCRIPTIONS MARKET SHARE BY SERVICE PROVIDERS 2013 – 2022



Note: Others comprise non-public listed mobile operators

Source: MCMC
Figure 3.16 Mobile Cellular Subscriptions Market Share by Service Providers 2013 – 2022

MVNO SERVICES

Mobile Virtual Network Operator (MVNO) is a wireless communication service operator that provides telecommunications services through the infrastructure and network of existing Mobile Network Operators (MNO). By utilising existing network capacity from MNOs, MVNOs have been able to swiftly rise in the market through a business model that passes these savings down to the consumers.

MVNO subscriptions were at 7.43 million in 2022, a decline of 3.4% compared with 7.69 million subscriptions in 2021. Notably, MVNOs recorded market share of 14.0% out of total mobile subscriptions of 53.07 million.

In 2022, 21 licensees were providing Mobile Virtual Network (MVN) services compared with 13 licensees in 2021. List of active MVNOs in 2022 are as follows:

Thick MVNO[4]

- Red One Network Sdn Bhd
- Tune Talk Sdn Bhd
- Net2One Sdn Bhd
- XOX Com Sdn Bhd

Thin MVNO[5]

- Uni Comms International Sdn Bhd
- Satellite Noc Sdn Bhd
- Asiaspace Broadband Sdn Bhd
- Longvision Broadcasting Sdn Bhd
- KUB Telekomunikasi Sdn Bhd
- Xperanti IOT M Sdn Bhd
- Pavo Communications Sdn Bhd
- Cubic Telecom Malaysia Sdn Bhd
- Altel Communications Sdn Bhd
- BT Systems (Malaysia) Sdn Bhd
- Tone Wow Sdn Bhd
- Tone Excel International Sdn Bhd
- Tone Plus Sdn Bhd
- Redtone Engineering & Network Services Sdn Bhd
- Revenue Safe Nets Sdn Bhd
- Valyou Sdn Bhd
- Mbits Digital Sdn Bhd

Source: MCMC
Figure 3.17 List of MVNOs 2022

[4] Thick MVNO: Service providers who possess ASP (C) and NSP (I) licences.
[5] Thin MVNO: Service providers who possess ASP (C) licence only.

5G DEVELOPMENT IN 2022

In line with the 12th Malaysia Plan, MyDIGITAL Blueprint and JENDELA, 5G is identified as an important facilitator in digitalisation. In 2021, government-owned Digital Nasional Berhad (DNB) was appointed as Malaysia's 5G Single Wholesale Network (SWN) provider. To mitigate potential issues that may arise from the SWN, the MCMC imposed special licence conditions on DNB in their licences. These special licence conditions include obligations on spectrum utilisation, wholesale pricing, reporting requirements, and restricting DNB from participating in retail services. 5G services to users and consumers are provided by MNO who have access to DNB's SWN.

Network Rollout

By way of apparatus assignment, MCMC has granted DNB the right to use the 700MHz, 3.5GHz and 28GHz frequencies for 5G services. 5G network in Malaysia is deployed through outdoor macro sites and In-Building Solutions (IBS) to ensure 5G service is widely available. The total deployment target for macro sites from 2021 to 2029 is 10,167 sites.

The first macro site was completed on 8 October 2021 in Kuala Lumpur, and deployment has since expanded nationwide. As of 31 December 2022, a cumulative total of 3,906 macro sites have been built, while a total of 2,576 macro sites were onboarded[6]. The breakdown of the total number of completed and onboarded macro sites by state is as follows:

COMPLETED AND ONBOARDED MACRO SITES BY STATE

	Completed	Onboarded
SELANGOR	1,198	878
JOHOR	606	434
WILAYAH PERSEKUTUAN KUALA LUMPUR	715	683
SABAH	231	130
PERAK	207	84
SARAWAK	191	60
PULAU PINANG	159	90
NEGERI SEMBILAN	129	70
PAHANG	113	-
MELAKA	89	58
WILAYAH PERSEKUTUAN PUTRAJAYA	88	77
KEDAH	85	9
TERENGGANU	51	-
KELANTAN	36	2
PERLIS	8	1

TOTAL

Completed **3,906**

Onboarded **2,576**

Source: MCMC

Figure 3.18 Completed and Onboarded Macro Sites by State

[6] The term 'Onboarded' refers to macro sites ready to provide 5G commercial services by MNOs

As of 31 December 2022, DNB achieved 47.1% population coverage in populated areas through the completion of 3,906 macro sites. The breakdown of 5G coverage by state is as follows:

BREAKDOWN OF 5G COVERAGE BY STATE

WILAYAH PERSEKUTUAN KUALA LUMPUR 97.5% Coverage in Populated Areas	WILAYAH PERSEKUTUAN PUTRAJAYA 97.1% Coverage in Populated Areas	SELANGOR 89.5% Coverage in Populated Areas	JOHOR 52.3% Coverage in Populated Areas
MELAKA 51.3% Coverage in Populated Areas	NEGERI SEMBILAN 49.7% Coverage in Populated Areas	PULAU PINANG 41.1% Coverage in Populated Areas	PERAK 37.7% Coverage in Populated Areas
SARAWAK 32.4% Coverage in Populated Areas	SABAH 27.9% Coverage in Populated Areas	PAHANG 18.2% Coverage in Populated Areas	KEDAH 13.1% Coverage in Populated Areas
KELANTAN 11.7% Coverage in Populated Areas	TERENGGANU 10.8% Coverage in Populated Areas	PERLIS 9.5% Coverage in Populated Areas	TOTAL 47.1%

Source: MCMC
Figure 3.19 Breakdown of 5G Coverage by State

Commercial 5G Service

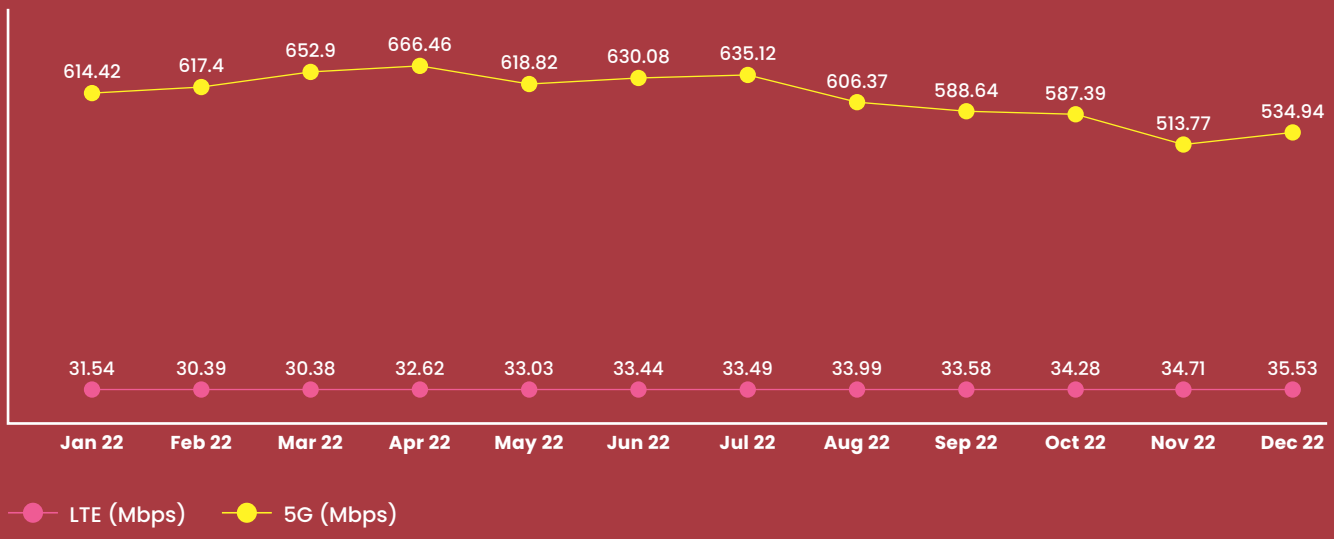
YTL Communications was the first MNO to offer commercial 5G services in December 2021. Four additional MNOs launched their commercial 5G services after signing access agreements with DNB in the fourth quarter of 2022, namely Telekom Malaysia, Celcom Axiata[7], U Mobile, and Digi Telecommunications with date of commercial 5G service launch on 31 October 2022, 1 November 2022, 3 November 2022, and 10 November 2022 respectively.

5G-available packages vary in terms of price, as well as available capacity. However, packages remain relatively affordable and are offered in combination with already available 4G packages. Package prices for 5G-available plans start from RM20 a month with varying data allotment.

[7] The Celcom and Digi merger came into effect on 1 December 2022, after their respective commercial 5G launches. For the purpose of this report, both Celcom and DiGi will be referred to as separate entities.

SPEED

COMPARISON OF MEAN DOWNLOAD SPEED

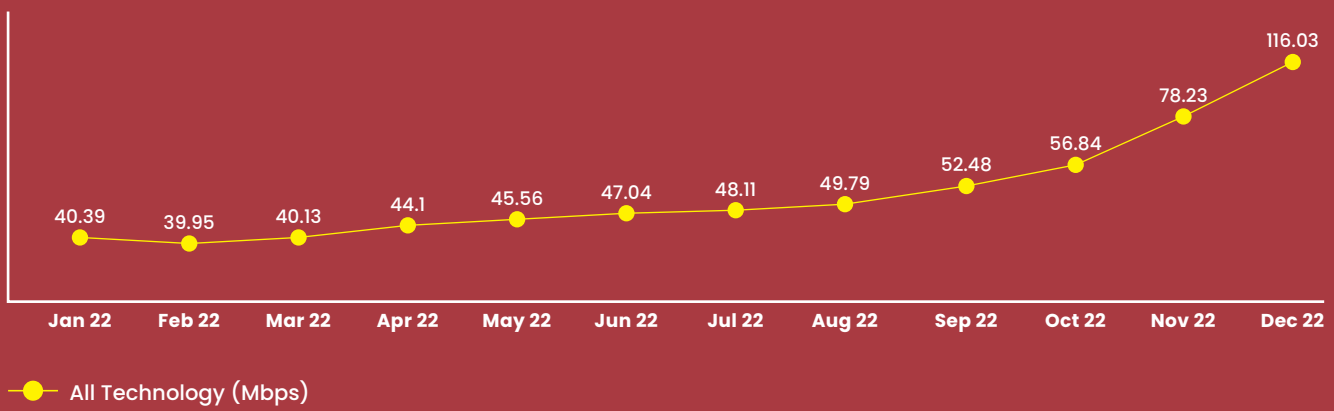


Source: Ookla, MCMC
Figure 3.20 Comparison of Mean Download Speed

According to data collected by Ookla, mean download speeds[8] for 4G have stayed generally consistent from January to December 2022. While, mean 5G download speeds showed a slight increase from 614.42Mbps in January 2022 to 666.46Mbps in April 2022. This upward trend shifted and started to gradually decrease to 513.77Mbps in November 2022, before increasing slightly to 534.94Mbps in December 2022.

The dip in 5G download speeds in November 2022 was due to a surge in daily 5G traffic following the launch of commercial 5G services by the MNOs. The pickup in download speeds in December 2022 was attributed to the improved capacity following the increase in onboarded 5G macro sites. The number of onboarded macro sites increased from 1,472 on 6 November 2022, to 2,576 sites on 31 December 2022.

MEAN DOWNLOAD SPEED FOR ALL TECHNOLOGY



Source: Ookla, MCMC
Figure 3.21 Mean Download Speed for All Technology

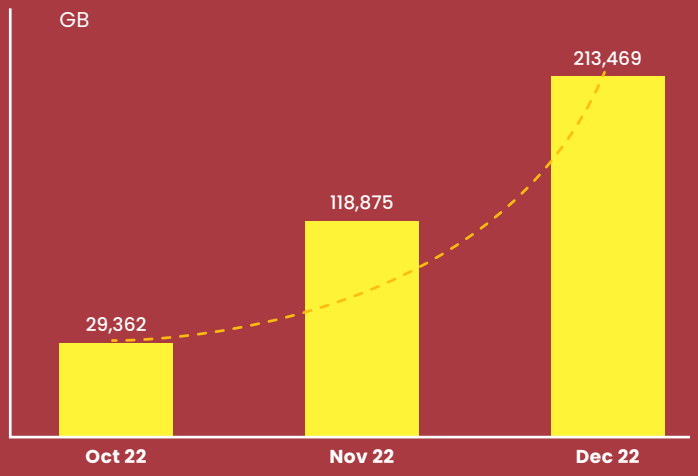
[8] Mean download speed refers to the average speed at which data is downloaded from the internet to a device. It provides an indication of the overall performance of the internet connection for downloading data.

The mean download speeds for all technologies increased significantly from 52.48Mbps to 116.03Mbps, from September – December 2022. This increase can also be credited to the launch of commercial 5G services by an additional four MNOs around early November 2022. As evidenced from the mean download speeds in 2022, 5G is significantly faster compared to 4G. Comparing mean download speeds throughout 2022, it was recorded that 5G speeds were between 14.8 – 21.5 times faster than 4G. With increased speeds and lower latency, user experience also improved. From 1 August until 29 October 2022, Malaysian users rated their 5G gaming experience as 81.8% out of 100%, while only rating their gaming experience 66.7% with 4G[9]. Similarly, Malaysian users rated their 5G video experience as 71% out of 100%, and only 42.6% with 4G.

Traffic

The DNB reported an increase in daily traffic volume of 627% and a peak in concurrent users of 401.9% from October 2022 to December 2022 as shown below. Since the launch by the MNOs in early November 2022, daily 5G traffic has increased approximately 10 times, from 29TB to 213TB with approximately 76,000 concurrent users in December 2022.

AVERAGE DAILY DATA VOLUME

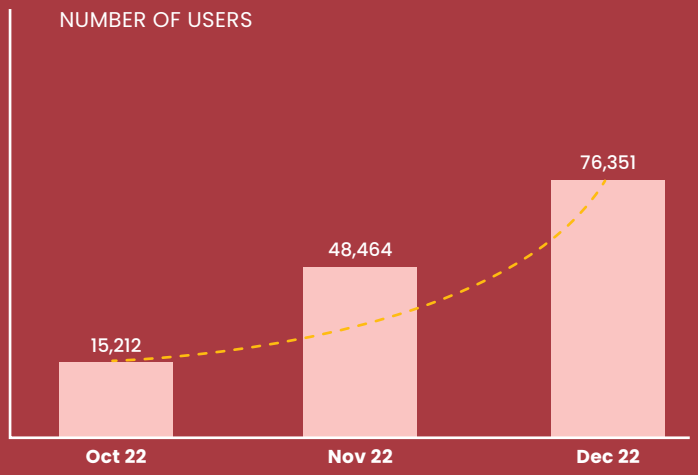


Note: A terabyte (TB) is a unit of digital information storage and data capacity. It is equivalent to 1,000 gigabytes, or 1,000,000,000,000 bytes, using the International System of Units (SI) standard.

Source: DNB
Figure 3.22 Average Daily Data Volume

[9] Source: Opensignal (Link: https://www.opensignal.com/2022/11/10/malaysian-users-see-clear-increases-in-speed-and-experience-in-5g-over-4g)

MAXIMUM CONNECTED USERS



Source: DNB
Figure 3.23 Maximum Connected Users

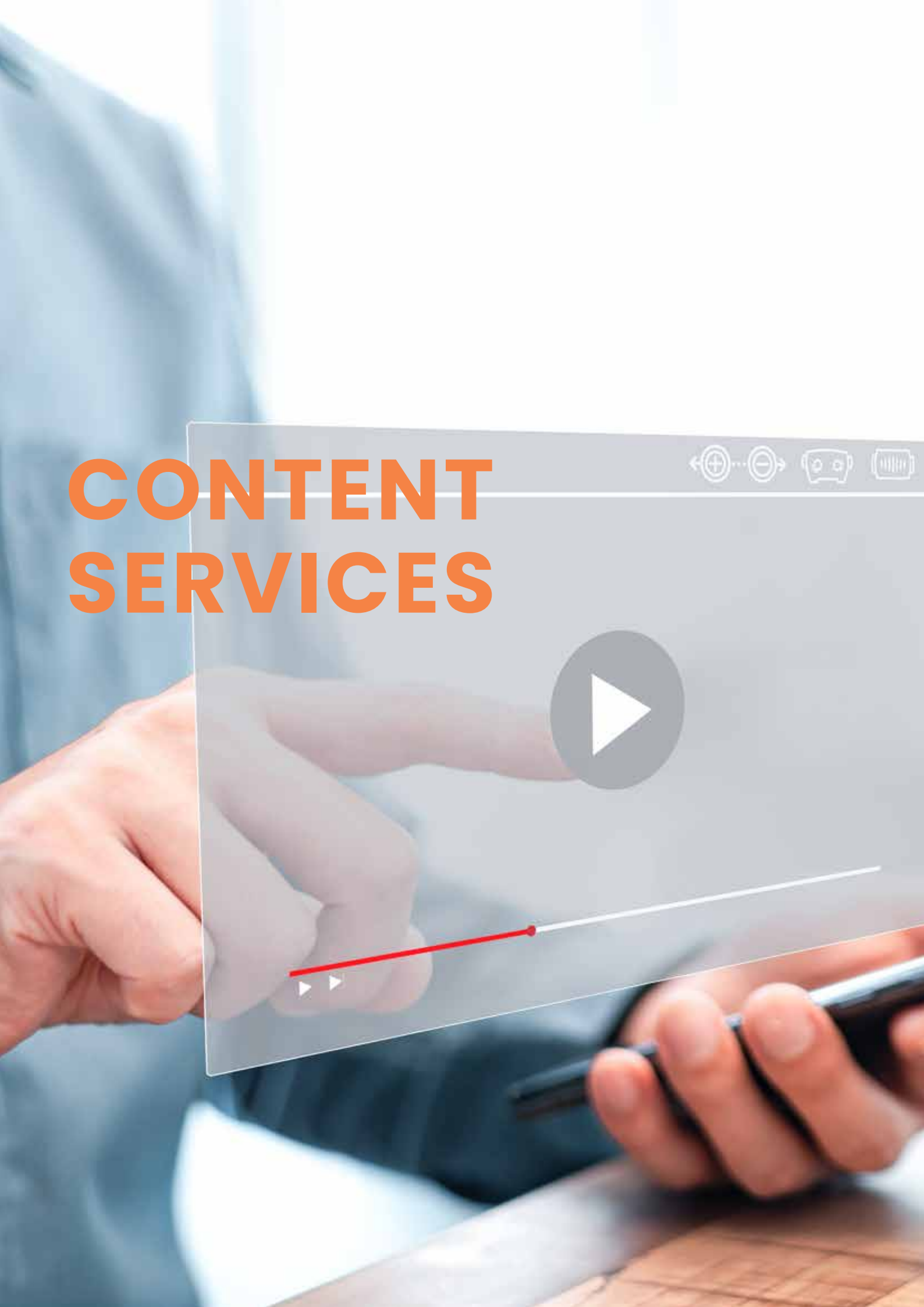
Additionally, 5G subscriptions are also expected to increase with greater awareness, with more sites onboarded, with 5G-enabled devices validated, and 5G subscription packages accessed. Considering the increase in 5G subscriptions and data usage, the DNB needs to ensure that its network is reliable and capable of handling the increased traffic.

Enterprise 5G

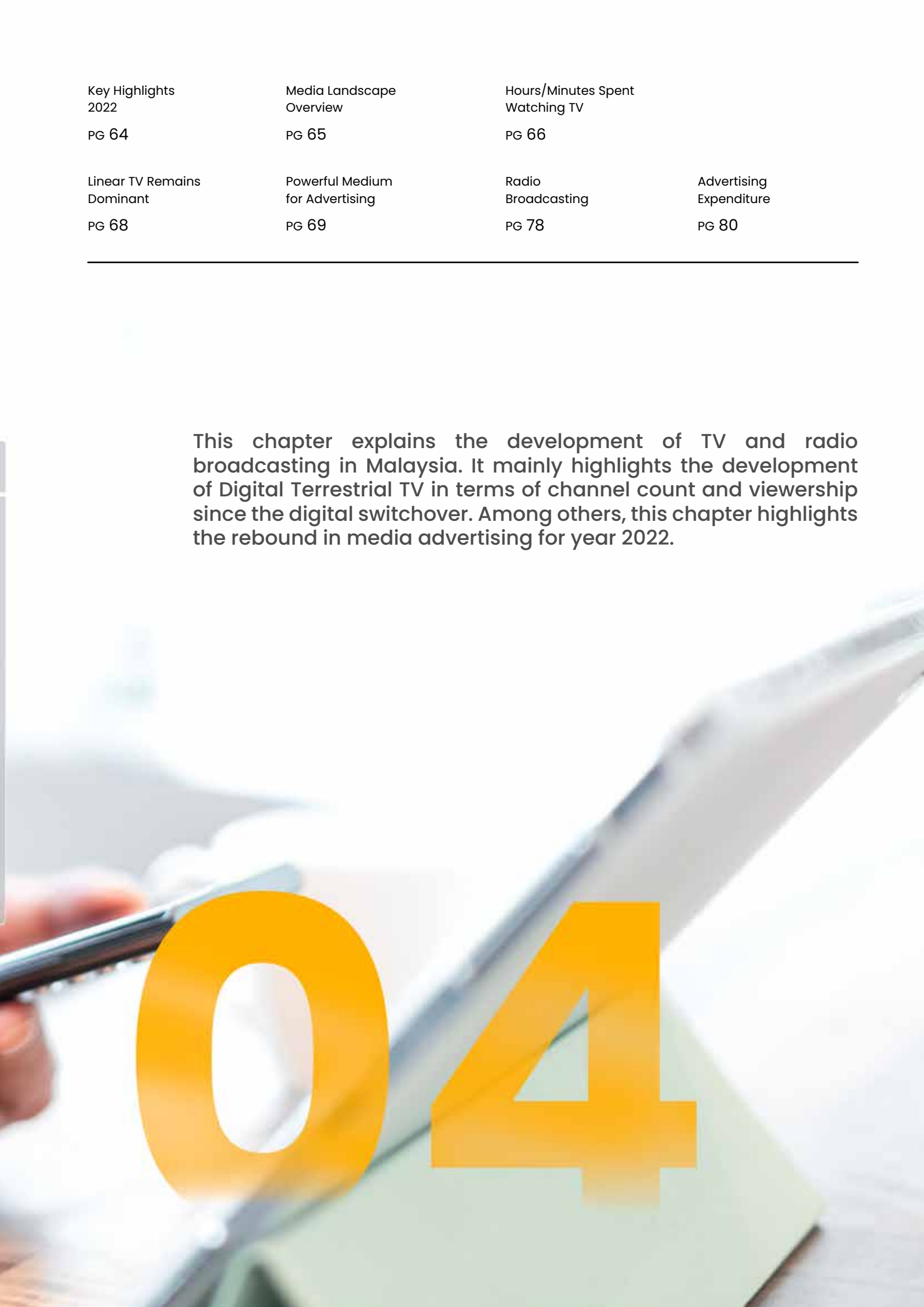
Significant characteristics of 5G are its ultra-reliable low latency, high-speed connectivity and support for massive machine type communication. These characteristics make 5G the optimal option to facilitate enterprise-use cases.

In 2022, private 5G networks for enterprises have been making inroads especially in the energy and manufacturing sectors. These private 5G network deployments are expected to pick up in 2023 as the 5G network availability expands, and awareness on 5G benefits are more widespread.

CONTENT SERVICES



This chapter explains the development of TV and radio broadcasting in Malaysia. It mainly highlights the development of Digital Terrestrial TV in terms of channel count and viewership since the digital switchover. Among others, this chapter highlights the rebound in media advertising for year 2022.



KEY HIGHLIGHTS
2022

TIME SPENT ON TV

Average time spent

5 hours 18 minutes

(2021: 5 hours 45 minutes)

Source: Nielsen

DIGITAL TERRESTRIAL TV (DTT) PLATFORM

16 TV channels & 11 radio stations

NEW TV AND RADIO CHANNELS ON DTT PLATFORM

Suke TV

Bernama Radio

PAY TV SUBSCRIPTIONS

3%

6.5 million

(2021: 6.7 million)

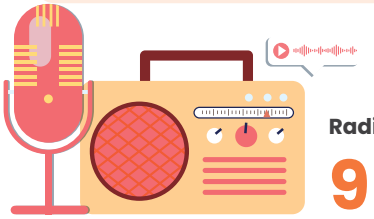
USER SURVEY

79% watched any terrestrial FTA TV channels

60% watched any ASTRO channels

72% streamed video

Source: Nielsen



Radio reached

96% **of Peninsular Malaysia population**

Source: GfK

MEDIA LANDSCAPE OVERVIEW

In this digital age, we consume more media than at any point in time in the last decade. Technological advancements have paved the way for greater access to online content and social media, driving connectivity to an all-time high. Additionally, the power of smartphones to provide 'on-the-go' and interactive solutions has totally changed how the broadcast industry is perceived. These developments have urged traditional media companies such as TV broadcasters to discover new opportunities and harness new media platforms over the course of time.

The past few years have seen broadcasters embracing online platforms and adopting advanced technology that make the most sense to them as businesses seek ways to effectively target audiences' evolving demographics. The trend is anticipated to continue, reshaping the broadcasting ecosystem, other than being driven by the combination of emerging technologies and growing budget efficiencies. Audiences seek content that is more interactive, personalised and well connected across platforms, despite being spoilt for choice from the wide array of content.

Service providers continue to explore cutting-edge technologies to improve services and enhance consumer experience. For instance, the broadcast industry is a substantial market for artificial intelligence (AI)[1]. This situation is due to the growing popularity of high-definition visuals and real-time virtual worlds, while AI-powered personalised technology is assisting service providers in expanding their audience. Another advancement is the adoption of cloud technology, allowing a wider device reach, improved advertisement insertion capability and increased scalability[2]. Such technologies are rapidly adopted because of significant cost and efficiency advantages.

Streaming services are now prevalent[3]. People watch their favourite programmes and series on smart TVs, computers, laptops, mobile phones and gaming consoles. In a similar vein, business models incorporating online services are anticipated to expand further across the TV and video value chain.

TV AND VIDEO SERVICES

FTA TV

PAY TV

Online and Mobile

Note: FTA TV refers to Free to Air TV

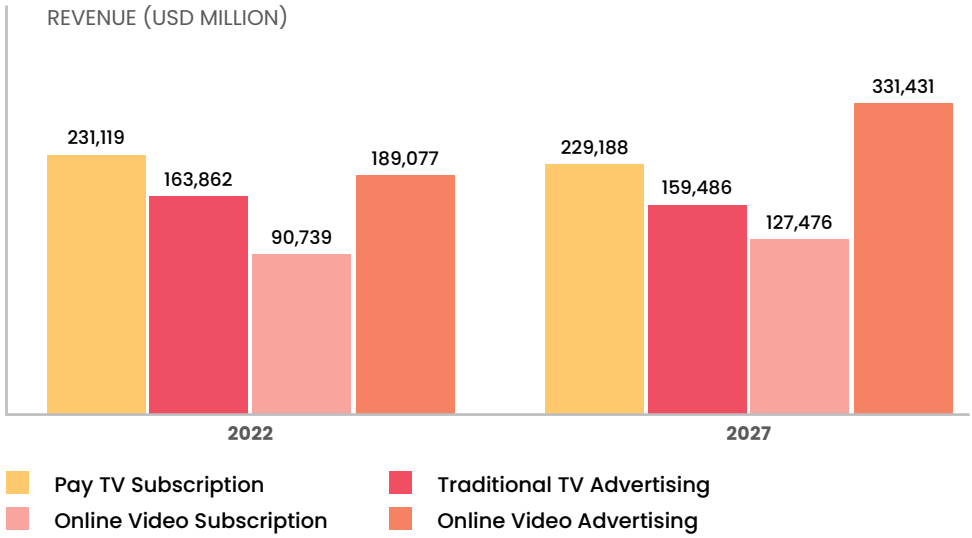
Source: MCMC
Figure 4.1 TV and Video Services

[1] ibc.org, AI in Broadcast: Accelerated Adoption, August 2022.
[2] ibc.org, Cloud distribution: "Standard and specific" broadcast workflows starting to emerge, October 2022.
[3] Streaming service is a service that sends video, music, etc., over the Internet so that people can watch or listen to it immediately rather than having to download it.

Figure 4.2 depicts total TV and video revenues on a global scale by business model in 2022 and forecasts for 2027. Traditional business model revenue comprising TV advertising and Pay TV subscriptions is anticipated to decline steadily, partially offset by gains in online video advertising and subscriptions. Online video advertising leads the pack, growing 75% from USD189 billion in 2022 to USD331 billion in five years.

Traditional TV providers namely FTA and Pay TV focus on digital innovation and producing high-quality content, as well as expanding their reach through partnerships with streaming platforms and technological giants. Leading subscription video-on-demand (SVoD) players are migrating to hybrid business models and offering consumers flexibility, and hence, competing for the traditional TV advertising market.

GLOBAL: TOTAL TV AND VIDEO REVENUE BY BUSINESS MODEL 2022 - 2027



Source: Omdia
Figure 4.2 Global: Total TV and Video Revenue by Business Model 2022 - 2027

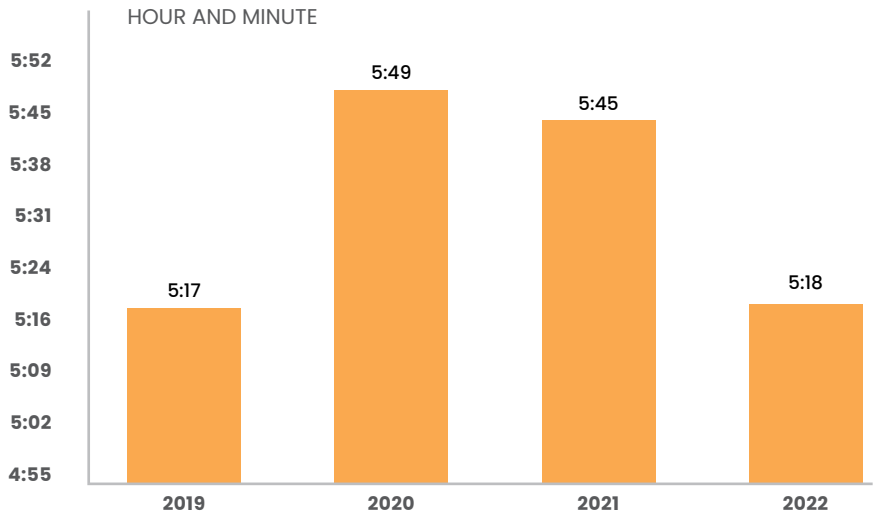
There will be a flood of free services funded by advertisements in the future, including advertisement video on demand (AVoD) and free ad-supported streaming TV (FAST) services. FAST combines advertising and scheduled TV via a subscription-free streaming option and is well established in the US, although it is still in its infancy on a global scale. These services are anticipated to disrupt real-time traditional TV broadcasts of scheduled programmes or commonly referred to as linear TV. To stay relevant in the industry, service providers are adapting to changes to better prepare for the future.

HOURS/MINUTES SPENT WATCHING TV

Malaysians spent 5 hours and 18 minutes watching TV a day in 2022, 27 minutes lower compared to 2021. As depicted in Figure 4.3, the average time spent on TV in 2022 returned to its pre-COVID-19 level and reported about the same time spent in 2019.

The year 2020 in particular, was an exception in which people spent more time watching TV news about the pandemic when they were isolated at home due to COVID-19.

AVERAGE TIME SPENT WATCHING TV PER DAY 2019 - 2022



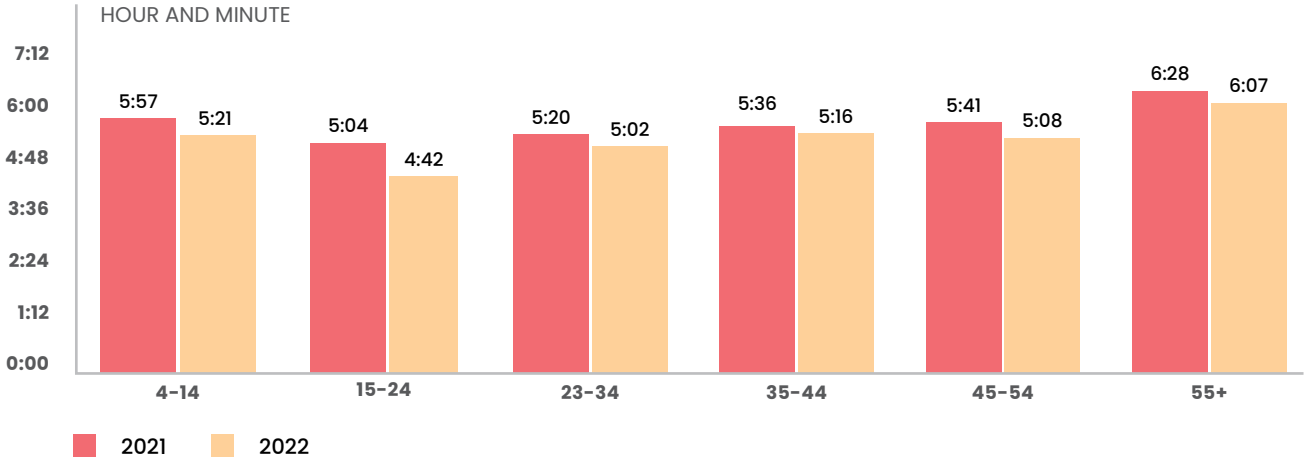
Note: Figure shows time spent on traditional TV per day in Peninsular Malaysia

Source: Nielsen
Figure 4.3 Average time spent watching TV per day 2019 - 2022

Even though viewers are said to be moving away from TV, the medium remains robust as a source of news, events and entertainment with viewers spending more than 5 hours a day watching TV.

By age group, teenagers and adult aged 15 to 34 spent less time watching TV, compared to other age groups. The trend has been consistent over the past two years, indicating that younger generations are more inclined than older generations to adopt connected devices as a substitute for TV.

TIME SPENT ON TV BY DIFFERENT AGE GROUP 2021 - 2022

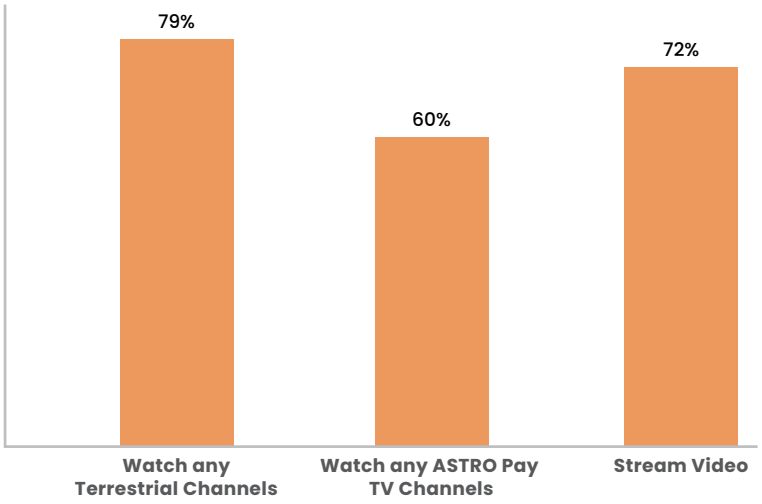


Source: Nielsen
Figure 4.4 Time Spent on TV by Different Age Group 2021 - 2022

LINEAR TV REMAINS DOMINANT

According to data from Nielsen, there are more TV watchers than those who streamed videos in Malaysia. A survey conducted from July 2021 to June 2022 discovers that 79% of respondents watched any terrestrial FTA TV channels, followed by streaming video (72%) and watched any ASTRO Pay TV channels (60%). The survey concludes that linear TV holds strong despite the rise of streaming video.

WATCHED FTA VS ASTRO VS STREAMING VIDEO IN MALAYSIA



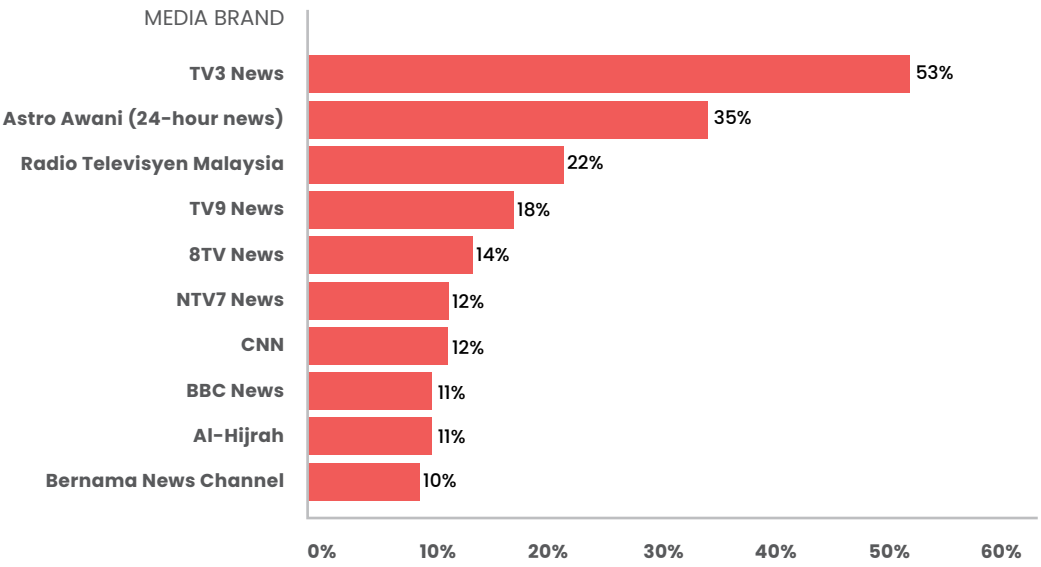
Note: Coverage: Peninsular Malaysia; Base: Individuals aged 15+ years; Number of respondents: 18,500

Source: Nielsen Consumer & Media View
Figure 4.5 Watched FTA vs ASTRO vs Streaming Video in Malaysia

The survey also indicates that a large percentage of the population engages in activities such as watching TV. It is pertinent to note that the most prevalent media can reach a large number of people within a short period of time, thus TV remains one of the most influential mediums to reach a mass audience.

In a study conducted by the Reuters Institute for the Study of Journalism from January to February 2022, it was found that more than half of respondents (53%) watched TV3 news on a weekly basis. This is followed by 35% of respondents who watched Astro Awani (Figure 4.6). The survey shows there is concrete evidence that TV is a popular source of news among the public.

WEEKLY CONSUMPTION OF SELECTED TV CHANNELS/NEWS IN MALAYSIA 2022



Note: Number of respondents: 2,004

Source: Reuters Institute for the Study of Journalism
Figure 4.6 Weekly Consumption of Selected TV Channels/News in Malaysia 2022

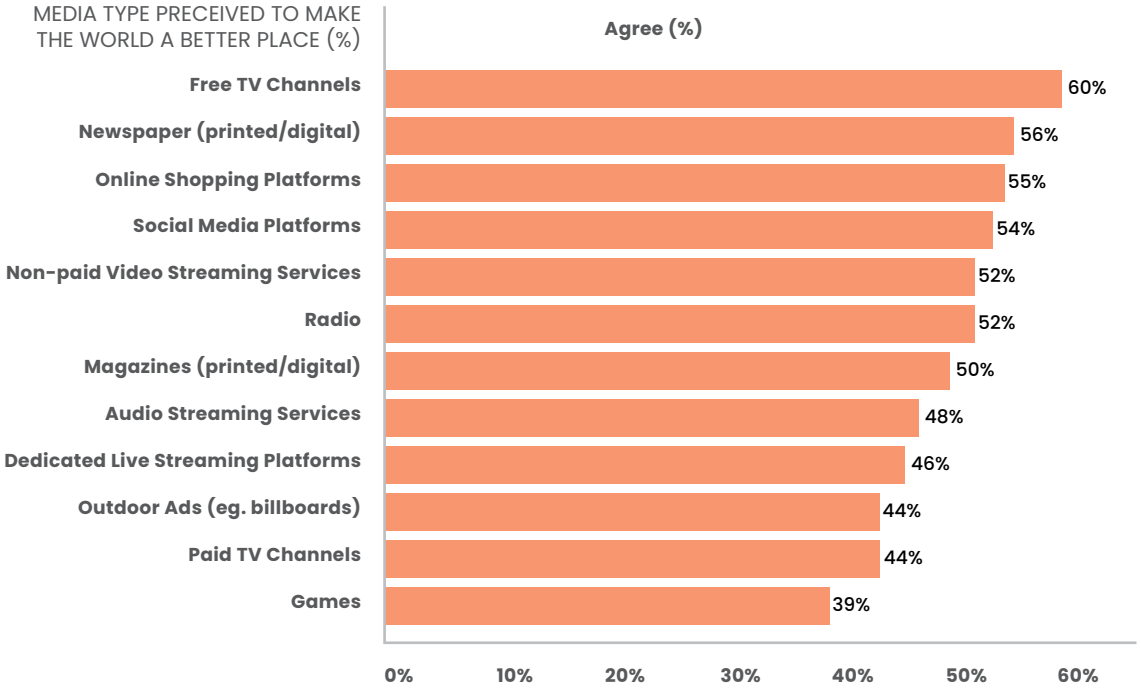
POWERFUL MEDIUM FOR ADVERTISING

In an era before the Internet, TV was the most widely used medium for advertising. Data from Department of Statistics Malaysia revealed that the percentage of individual and household access to TV is 99%, higher than the percentage of access to the Internet at 95.5%. Pervasive access to TV, combined with high-quality audio and visual content, as well as substantial time spent watching TV, makes TV a powerful medium for marketing and advertisement campaigns for businesses. Thus, it influences consumer behaviour and purchasing decisions.

Despite advertising budgets increasingly shifting to digital platforms, TV is still recognised as one of the most effective types of advertising medium due to its massive audience reach particularly during live events. Live sports coverage like football matches and Formula One racings are some of the most widely watched events globally. As a case in point, an estimate by Fédération Internationale De Football Association (FIFA) shows that almost 1.5 billion people watched the live broadcast of the 2022 World Cup Final.

Research on *Consumer Eye* by GroupM shows that TV continues to retain a power that can be leveraged by advertisers. Additionally, the digital extensions of TV have not only given rise to new ways for people to consume content but also created a myriad of opportunities for brands to engage with audiences through TV. Figure 4.7 shows data from the 14 Asia-Pacific markets included in the research.

MEDIA TYPES PERCEIVED TO MAKE THE WORLD A BETTER PLACE



Source: GroupM
Figure 4.7 Media Types Perceived to Make the World a Better Place

According to this survey, more than half of the respondents (60%) agreed that free TV channels make the world a better place. The survey also noted that TV continues to be a powerful medium in influencing mindset and shaping cultural behaviour.

Specifically for Free to Air (FTA) broadcast, the service providers have their content distributed for free to the public and generate revenue from advertising and sponsorship. Hence, captivating content are used to encourage audience loyalty and drives eyeballs for a particular content. It is a key factor in determining their effectiveness as an advertising platform.

DIGITAL TERRESTRIAL TELEVISION BROADCASTING SERVICES

MYTV Broadcasting Sdn Bhd (MYTV) was appointed by the Government in 2014 to develop and operate Digital TV infrastructure and networks to migrate the country's broadcasting system from analogue to digital. The company is responsible for managing and providing free Digital TV broadcast infrastructure services in Malaysia through the MYTV brand that offers TV and radio channels without subscription fees.

In 2022, Malaysians continue to enjoy a variety of content with the addition of two new channels on MYTV platform namely SUKE TV operated by DNF Group Sdn Bhd and Bernama Radio by Malaysian National News Agency (Bernama). In total, 27 channels (16 TV and 11 radio) are made available for free to the public.

16 TV CHANNELS

- 101 TV1
- 102 TV2
- 103 TV3
- 104 Wow Shop
- 107 NTV7
- 108 8TV
- 109 TV9
- 110 TV Okey
- 111 Sukan RTM
- 112 Awesome TV
- 113 TV6
- 114 TV Al-Hijrah
- 116 SUKE TV
- 121 Bernama News Channel
- 122 TVS
- 123 Berita RTM

Note: All TV channels are in HD except for TV9, Wow Shop and NTV7

11 RADIO CHANNELS

- 701 Nasional FM
- 702 Traxx FM
- 703 Minnal FM
- 704 Ai FM
- 705 Klasik FM
- 706 Asyik FM
- 707 Sabah FM
- 708 Sabah VFM
- 709 Sarawak FM
- 710 Wai FM
- 711 Bernama Radio

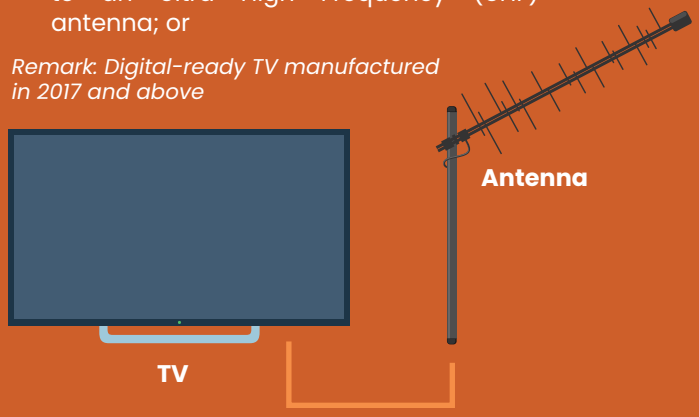
SUKE TV, a new TV channel started broadcasting on MYTV platform on 28 March 2022. The channel airs local shopping programmes featuring celebrities, public figures, influencers, entrepreneurs as well as micro sellers showcasing their products. The viewers can shop in real-time while watching TV, 24 hours a day, seven days a week on TV and mobile devices throughout Malaysia.

Bernama Radio has been onboard MYTV platform since 1 November 2022. The channel delivers news-based content and channeling information to the audience in addition to Bernama TV channel that has already been on air on MYTV platform.

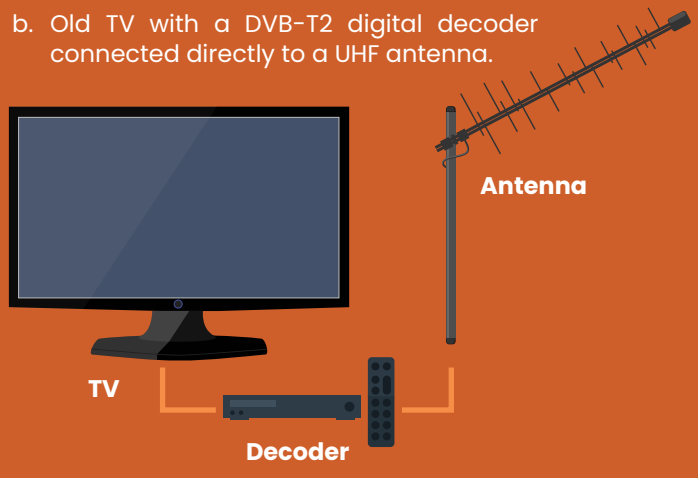
Viewers can access Digital TV broadcast services via the following methods:

a. Digital-ready TV which has a built-in DVB-T2 digital tuner connected directly to an Ultra High Frequency (UHF) antenna; or

Remark: Digital-ready TV manufactured in 2017 and above



b. Old TV with a DVB-T2 digital decoder connected directly to a UHF antenna.

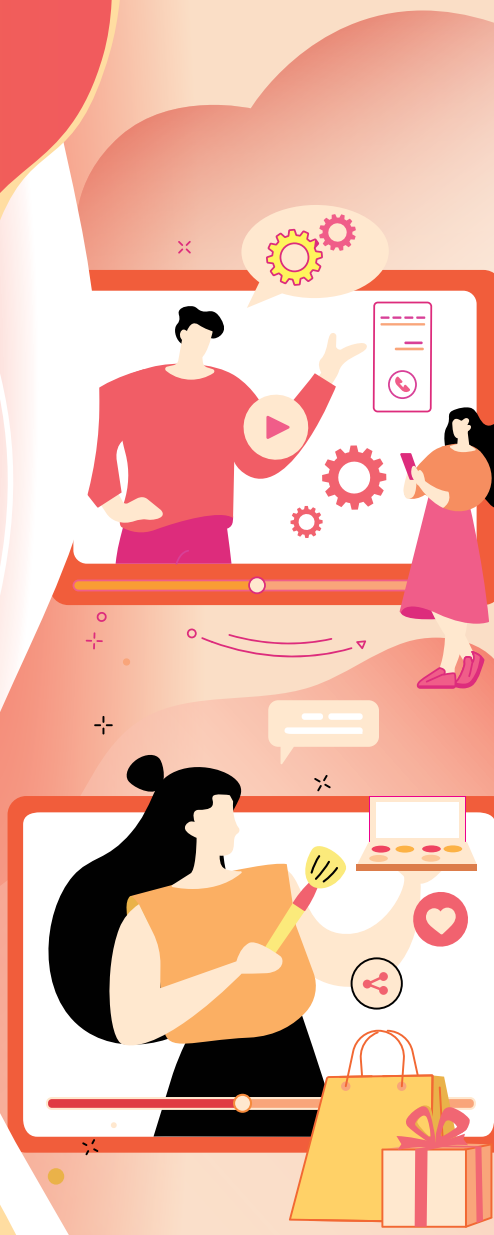


Direct-to-Home (DTH) is an alternative method to receive Digital TV broadcast service, for viewers that reside within an area which Digital Terrestrial Television (DTT) does not cover. Also, DTH require a set of satellite dish and a decoder whereby installation to be done by the MYTV appointed installers.

MYTV signed an agreement with Radio Television Malaysia (RTM) on 10 November 2022 as the official broadcast partner for RTM during the Qatar World Cup 2022 that was held from 21 November to 18 December 2022. RTM broadcasted 41 matches, namely 27 live broadcasts and 14 delayed broadcasts through TV2, TV Okey and Sukan RTM channel on MYTV platform.

In addition to the above, MYTV conducted campaigns with the following activities to promote Malaysians to watch the World Cup 2022 for free through High Definition (HD) broadcasts on MYTV platform.

- Social media postings and content related to the World Cup was promoted on Facebook, Instagram, TikTok and Youtube.
- Airing of TV commercials on TV1, TV2, Okey, Sukan RTM and TV3.
- Bus advertisement deployed in Kuala Lumpur, Pahang, Pulau Pinang, Selangor, Melaka and Johor.
- In addition to bus advertisement, MYTV also advertised through LRT along the Kelana Jaya route.
- Eight digital billboards were deployed in Kuala Lumpur, Pulau Pinang, Johor Bahru, Melaka, Sabah, and Sarawak as well as eight gantries in Selangor, Kedah and Perak highways.
- Print advertisement in major newspapers such as The Star, Utusan Malaysia, New Straits Times (NST) and Borneo Post.
- Collaboration with Persatuan Pengusaha Restoran Muslim Malaysia (PRESMA) and food outlets nationwide to promote MYTV.



Viewership Engagement Activities

In 2022, MYTV appointed The Nielsen Company (Malaysia) Sdn Bhd (Nielsen) to undertake an audience measurement survey on the FTA channels on the MYTV platform. Nielsen has conducted a survey on STB connectivity on a representative sample of a 2.3 million database of recipients comprising the B40 group who received free STB nationwide from MYTV. The survey was conducted through Computer Assisted Telephone Interview (CATI) and face-to-face interviews from October 2022 and completed by Quarter 1 of 2023. The results of the interim report show that 73% of the recipients were connected to the STB as of December 2022.

According to the survey, the number of viewers on MYTV platform have increased between 2019 and 2022, reached more than 6 million since Analogue Switch Off.

MYTV and Nielsen have plans to expand measurement of TV audiences in East Malaysia in 2023, which will provide increased coverage for broadcasters and advertisers and better understand their audiences outside of Peninsular Malaysia, delivering a more comprehensive picture of TV audience measurement.

MYTV OTT Application

MYTV has taken the initiative to deliver FTA linear channels on MYTV platform to an alternative platform by introducing MYTV Over-the-Top (OTT) application. This new service enables viewers to access the FTA linear broadcast content through streaming service from a wide range of devices. This allows ease of access whereby viewers could watch the content on the go at their convenience. In addition to FTA linear content, MYTV is planning to offer on-demand content from various content providers.

The OTT MVP (Minimum Viable Product) version was successfully developed in October 2022 and the commercial application was completed in December 2022. The OTT application has been made available in both web and mobile versions and is available on Google Play Store for Android and Apple IOS in early 2023. MYTV targets to officially launch the OTT Application upon approval of both versions.

PAY TV

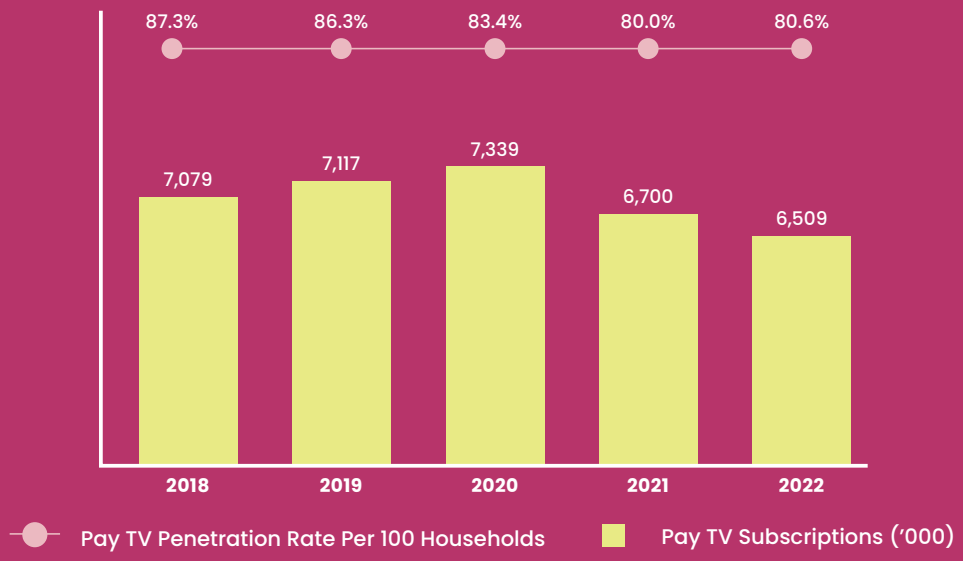
Pay TV market is dominated by ASTRO and Unifi TV. ASTRO is a satellite TV and IPTV provider while Unifi TV is an IPTV provider, owned by TM.

Overall, Pay TV subscriptions stood at 6.5 million in 2022, down 3% compared with 6.7 million in 2021. The number of subscriptions has continued to decline for two consecutive years. Pay TV subscription rate per 100 households was at 80.6% or 6.5 million household subscriptions in 2022.

Subscriptions have been downgraded or terminated repeatedly due to lack of spending, particularly among residential subscribers whose livelihoods have been adversely affected by the pandemic. In addition, the reduction was also due to the unbundling of Unifi services. In previous years, TM offered a bundled triple-play service that included high-speed Internet, Unifi TV and voice services.

Another main reason for low subscription numbers is the shift of consumers to video streaming services, which is discussed in the later section.

PAY TV SUBSCRIPTIONS



Source: MCMC
Figure 4.8 Pay TV Subscriptions

More Streaming Services on Pay TV

Super aggregation is the new normal. It is a model integrating streaming content and linear channels into a consolidated TV experience. In 2022, Pay TV service providers continued to add more streaming video to their offerings, providing subscribers with a great variety of entertainment.

ASTRO expanded its streaming services to eight, namely Astro GO, Netflix, Disney+ Hotstar, HBO GO, iQIYI, TVBAnywhere+, beIN SPORTS CONNECT and BBC Player. All existing streaming apps have been integrated directly into ASTRO Ultra and Ulti Box except for BBC, enabling viewers to stream their favourite programmes seamlessly on bigger screen for the best viewing experience.

Similarly, Unifi TV is working closely with the OTT players to offer most relevant content and entertainment to their customers and this is sync with TM Group convergence strategy as a whole. Unifi TV has become the biggest OTT aggregator in Malaysia by offering seven new streaming services in the year, thus making a total of 17 streaming applications that can be enjoyed through either in hard bundle or ala carte basis. Among the streaming services incorporated with Unifi TV are Disney+ Hotstar, MySing, beIN SPORTS CONNECT and SPOT NOW.

Unifi TV also launched its first own channel known as DEGUP HD, featuring the best action and horror content from the Asian region and more.

Invest in Transformation

ASTRO continues to invest in transformation for long-term and sustainable growth, including the following components:

- Content
- Streaming
- Data
- Technology infrastructure
- Broadband
- Customer experience
- Addressable advertising

Across the globe, some Pay TV providers are switching from satellite providers to include broadband, thus widening their subscription reach and product offerings. ASTRO is no exception, having launched Astro Fibre in March 2022, marking its foray as an Internet service provider, and partnering with TM to expand broadband reach and offerings. This collaboration enables ASTRO to gain access to TM's full suite of infrastructure and connectivity solutions comprising wholesale services including HSBB, bandwidth, backhaul and Internet access.

In June 2022, ASTRO launched addressable advertising on linear TV alongside VoD on Astro GO, Ultra and Ulti boxes. Addressable TV advertising is one of the new revenue streams for Pay TV service provider. By leveraging data and technology, addressable advertising offers advertisers greater performance measurement. It can serve different ads to different household audiences that are watching the same show.

Sports is critical to the future of Pay TV. ASTRO, as Home of Sports, provides comprehensive coverage of the FIFA World Cup Qatar 2022, Asian Games, SEA Games, F1, MotoGP, BWF, Grand Slams, ATP, and many more in high-definition (HD) and 4K UHD with High Dynamic Range (HDR) and also on its streaming platform, Astro GO. ASTRO has also secured Premier League broadcast rights for three more seasons until 2024/25.

CONTENT GOES GLOBAL

Local content is important to the economy. It creates employment opportunities and fosters the development of local talents. Moreover, it can be used to promote national identity on a global scale.

Media Prima, an integrated group with four FTA TV channels on the MYTV platform, remains the most watched TV network in the country. The Group delivers popular content, such as news and drama for its platforms and other major streaming platforms. They believe that as long as they create content that people want to consume, their business proposition will remain strong.

In 2022, Media Prima partnered with Korea's broadcast network, Seoul Broadcasting System (SBS), to produce the Malaysian edition of the Korean hit reality show, *Master in The House*. The programme comprises a one-hour ten-episode, following the journey of Malaysian celebrities. Media Prima also collaborated with Islamic Arts Museum Malaysia and Tokyo National Museum for the programme *Majalah 3 Special, Kapsul Masa: Misi Ke Tokyo*. The production for TV3 channel documented the journey of the Islamic artifacts being transported to Tokyo National Museum to be exhibited. A further collaboration includes Universal International Pictures for Jurassic World Dominion, the movie and Jurassic Park Movie Marathon series on TV3 for TV3's 38th Anniversary. As part of TV3's *Fiesta Bersamamu* celebrations, the Jurassic World Dominion set up was displayed in the Sri Pentas lobby.

Malay drama series, *Bisik-Bisik Gelora* and *7 Hari Mencari Cintaku*, attracted over two million viewers each, while its crime reality TV series show, *999*, attracted over 2.3 million viewers. Media Prima has started monetising its TV series and movies through sales to international streaming giants since 2017. This development is in addition to advertising revenue generated by the group's broadcasting arm. Its content sales revenue increased by 58% to RM45 million in the 9 months ended September 2022.

Media Prima indicated that they are always looking for mutually beneficial and strategic collaborations for creating new Intellectual Properties and discovering new tastemakers, and will continue collaborating with streaming platforms like iQiyi, Disney+ and Netflix. As a result of their strong partnership with these international streaming platforms, they can expand their digital footprint internationally.

Other FTA TV providers also provide their programmes to the international market. Awesome TV, for instance, provides their entertainment show such as *Halim Halima*, *Sally Boss* and *Masak Ni Senang* for the Singapore market. In the meantime, *Tilit-Tilit Cinta*, a Sarawak drama series, became the first series utilising the Sarawak dialect to be streamed on the global streaming platform, Netflix, beginning 16 September 2022. The drama was initially aired on MYTV channel namely TVS (formerly TV Sarawak) and Astro Channel 122 in 2021.

A newcomer to the FTA space, SUKE TV, goes one step further by partnering with iQIYI, a streaming service player. Both parties collaborated to broadcast SUKE TV programmes on the iQIYI platform for viewers in Malaysia and Singapore. Through this collaboration, SUKE TV will be the only TV channel in Malaysia with a dedicated tab on the iQIYI platform. SUKE TV content is available for free and exclusively for iQIYI users.

On the Pay TV platform, ASTRO revealed that 75% of their customers spent time on vernacular content or content disseminated in a local language. ASTRO's flagship programme, *Gegar Vaganza*, an entertainment show, recorded 1.9 million TV viewership and 210,000 on-demand views. ASTRO exports its homegrown content, such as Drama Series *Jangan Menangis Cinta* and *Scammer 2*, and travel and food shows like *Varieties Kembara Chef Wan 2022*, *Axian Small Town Foodcation* and *Behind Each Taste*, to the international market. Additionally, ASTRO's movies can be viewed through streaming platforms.

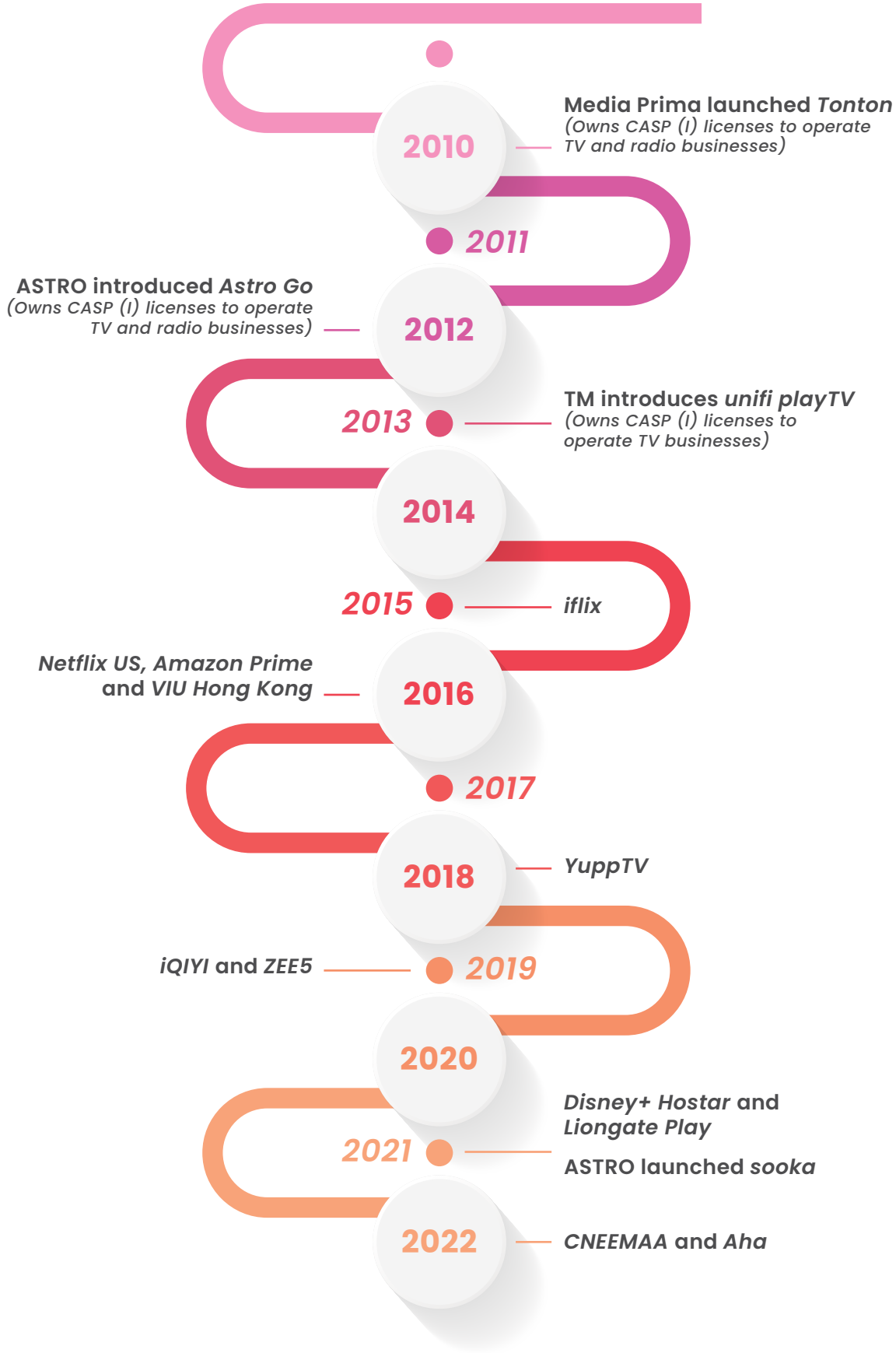
Notably, the Over-the-Top (OTT) space continues to be competitive, opening doors of opportunity for strategic content partnerships and niche content. Furthermore, broadcasters and platform owners are increasingly exploring various Asian languages and cultures to diversify content.

ONLINE VIDEO CONTINUES EXPANDING

Streaming video and audio have dominated global Internet traffic for a couple of years. People are consuming more online video every other day, hence, increasing the demand for Internet bandwidth.

Figure 4.10 shows that there is a new launch of video on demand (VoD) services almost every year in Malaysia. The growing number of VoD services means that there is increasing saturation in the video marketplace. With the proliferation of these services, the OTT space is becoming more fragmented.

LAUNCH OF SELECTED VOD PLATFORMS IN MALAYSIA

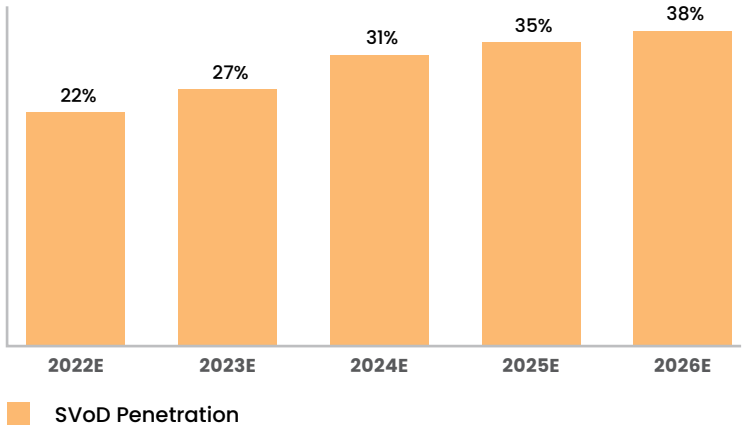


Note: Media Prima and ASTRO are investment holding companies and hold CASP (I) licences through their subsidiaries

Source: MCMC
Figure 4.9 Launch of Selected VoD Platforms in Malaysia

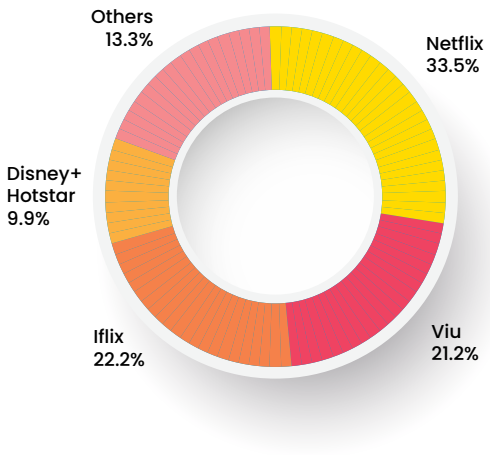
According to GlobalData, Malaysia's subscription video-on-demand (SVoD) household penetration is anticipated to reach 38% in 2026 from 22% in 2022, and the growth will partially offset the decline in Pay TV subscriptions. GlobalData's further research indicates that Malaysia's Pay TV market revenue is projected to decline from USD930 million in 2022 to USD834 million in 2026[4].

MALAYSIA: SVOD PENETRATION OF HOUSEHOLD (%) 2022 - 2026



Source: Global Data
Figure 4.10 Malaysia: SVoD Penetration of Household (%) 2022 - 2026

MALAYSIA: SVOD MARKET SHARE 2022



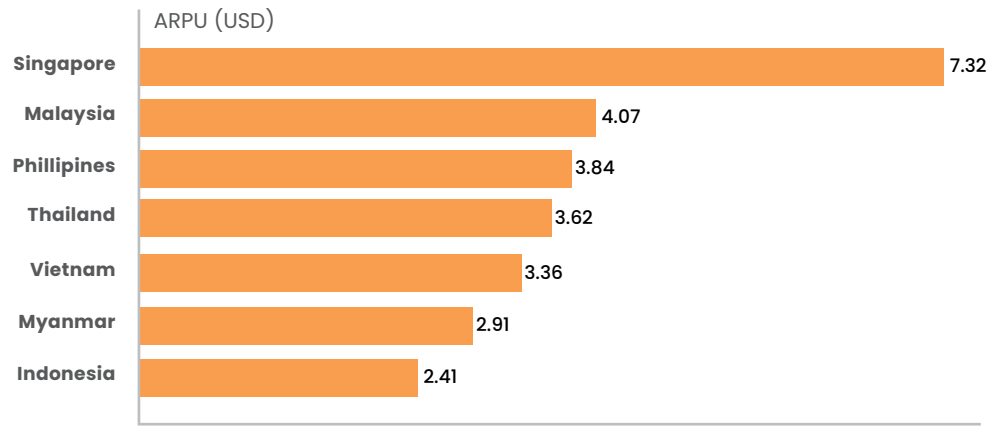
Source: Global Data
Figure 4.11 Malaysia: SVoD Market Share 2022

The increase in SVoD is attributable to several factors, such as competitive pricing strategies, a diverse range of content offerings and its convenience. In addition, SVoD players leverage their considerable investments in exclusive content to retain subscribers and broaden their reach by introducing a free ad-supported tier known as AVoD.

Price is a key battleground for the SVoD market. In Southeast Asia, the average revenue per user (ARPU) for SVoD ranges from USD2 to USD8. Content has always been considered the main battleground for subscribers in the increasingly crowded streaming market, but pricing is becoming increasingly significant in the competition to acquire subscribers.

[4] GlobalData Malaysia Pay-TV Forecast, October 2022.

SVOD PRICING ACROSS SOUTHEAST ASIA



Source: Omdia
Figure 4.12 SVoD Pricing Across Southeast Asia

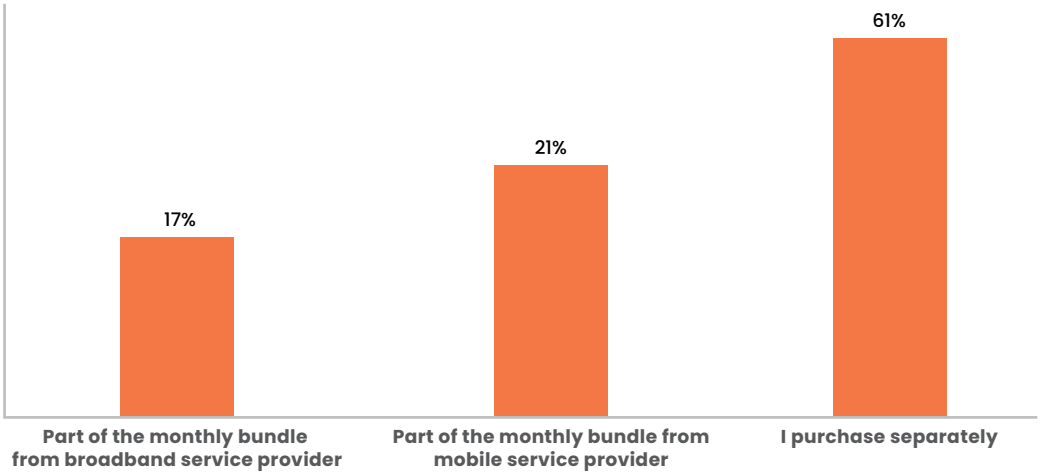
Currently, consumers can access streaming services in several ways as shown in Figure 4.14.

Omdia surveyed Malaysians on their SVoD access in 2022. The survey revealed that 61% of respondents purchased their access separately instead of a bundle from a broadband or mobile service provider. This data suggests that service providers have room for improvement by incorporating streaming services into their subscription packages and promoting them as bundled services to the existing and new subscribers.

HOW TO SUBSCRIBE TO STREAMING SERVICE?

Source: Omdia
Figure 4.13 How to Subscribe to Streaming Service?

CONSUMER SURVEY: HOW DO CUSTOMERS RECEIVE ACCESS TO SVOD?



Source: Omdia
Figure 4.14 Consumer Survey: How Do Customers Receive Access to SVoD?

RADIO BROADCASTING

Radio remains a popular, and widely consumed media among listeners and is still relevant in the current digital age. In Malaysia, radio continues to effectively reach listeners with its unique ability to reach the widest audience by serving diverse communities and offering a wide variety of programmes, viewpoints and content.

Additionally, radio is the most trusted and widely used media in comparison to other media such as TV and social media. Radio provides quick and affordable access to information in real time and widely cover matters of public interest. Radio also acts as a medium for education and entertainment. The European Broadcasting Union (EBU) states that radio continues to capture higher levels of confidence among EU citizens compared to other media. In recent years, public confidence in radio, TV, and the printed media has remained consistent or even risen among EU residents.

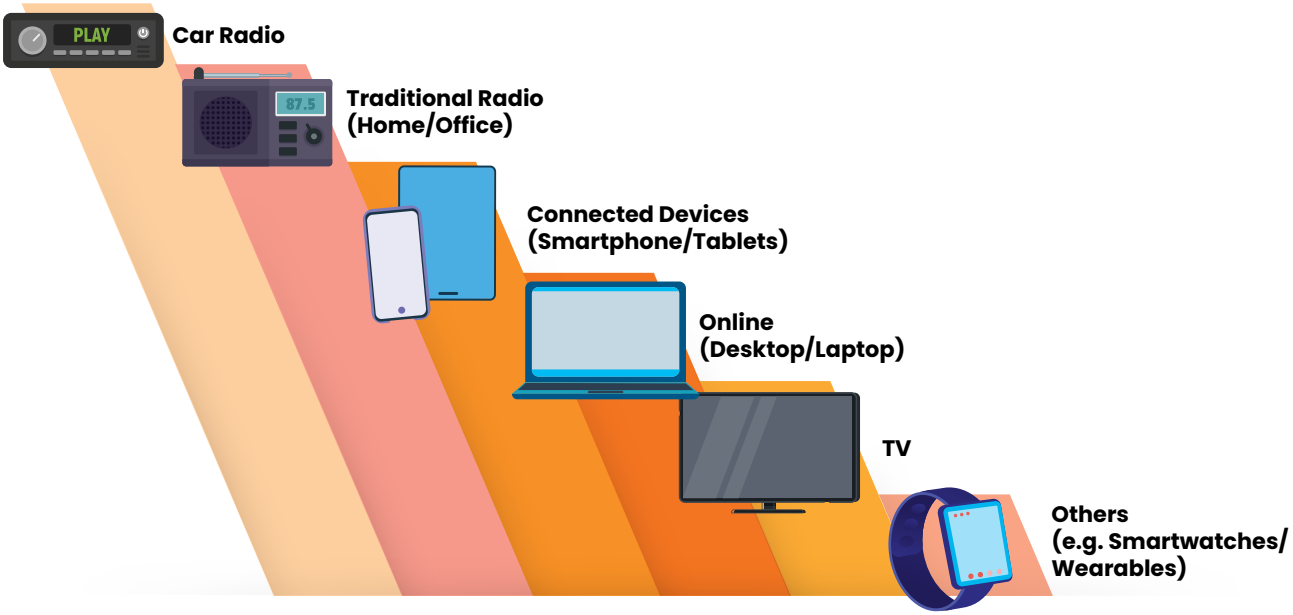
Radio Listenership in Malaysia

According to the Radio Audience Measurement conducted by GfK in the first half of 2022, a total of 96% of people in Peninsular Malaysia or 21,273,000 continue to listen to radio every week with an average time spent of 13 hours and 36 minutes.

According to GfK Radio Audience Measurement Survey (RAM), listenership for Malaysian radio is now up to 97.2% of individuals in Peninsular Malaysia. This is an increase from the 96% reported in Wave 1, 2022, and 94% reported in 2020. By radio broadcaster, Astro Radio remains the top local radio with 16.1 million weekly listeners or 74.6% of 21.6 million available radio listeners and market share of 74.6%.

Radio listening in Malaysia is through several mediums. Through a survey conducted by MCMC, radio listening through vehicle radio device is the most popular medium, especially during peak hours when listeners commute from home to work and vice versa during the morning and evening rush hours, which are from 7 to 10 am and from 4 to 8 pm.

METHOD OF RADIO LISTENERSHIP IN MALAYSIA



Source: MCMC
Figure 4.15 Method of Radio Listenership in Malaysia

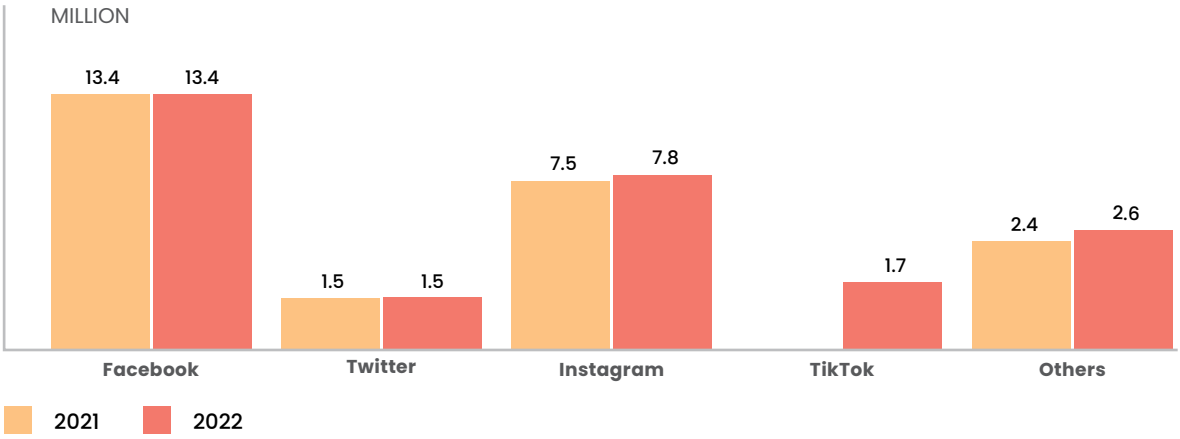
The findings of the study by MCMC also revealed that listening to the radio through connected devices such as a smartphone or tablet continues to gain momentum. Radio became more popular among listeners due to its convenience, especially for listeners who are mobile or always on the move.

Radio Broadcasting in the Digital Era

In parallel with the development of digital services in Malaysia, radio broadcasters also participate in the adaptation of the digitalisation process so as not to fall behind in the current of change. Radio broadcasters continued to strengthen their respective brands by increasing audience engagement through social media.

Astro Radio for example, continued to strengthen its brand by increasing audience engagement through social media. In 2022, ASTRO recorded an increase in the number of followers on its social media platforms such as Facebook, Twitter and Instagram, compared to 2021. In 2022, Astro Radio expanded the reach of listeners through a new medium, TikTok with additional 1.7 million followers.

NUMBER OF FOLLOWERS 2021 - 2022



Source: MCMC
Figure 4.16 Number of Followers 2021 - 2022

With a total of 26.6 million social media followers across all social media platforms, ASTRO Radio recorded a total of 18.4 million average digital radio streams, 177.4 million video views, and 75.1 million monthly average Facebook post reach.

In broadening listener demographics, ASTRO established a partnership with Masti Media Network to meet listener demands, especially those interested in Bollywood music content and latest news from abroad, especially from India and Singapore. These contents can be accessed through the SYOK application which is Astro Radio's digital platform.

Meanwhile in January 2022, Media Prima Audio broadened their reach by launching a new radio station for listeners on the east coast called Molek FM. In the meantime, with an average of 5 million weekly listeners, Media Prima also increased their engagement with listeners through Internet especially via social media such as Facebook and Instagram. Media Prima through their broadcast brands namely Fly FM, Hot FM, One FM and Kool FM managed to capture more than 300 million video views and over 20 million engagements from content that were posted on social media platforms. In addition, Media Prima also succeeded in capturing more than 5 million followers on their social media platform Facebook and Instagram.

Meanwhile, Manis FM radio owned by Husa Network Sdn Bhd is also jumping on the digital bandwagon. Apart from emphasising on the increased engagement through social media platforms where they managed to capture more than 200,000 followers across social media platform namely Facebook, Twitter, Instagram and LinkedIn, Manis FM draws a history of its own with the launch of 'Sweet+'. A self-developed mobile app with a total of 1,000 downloads, 'Sweet+' is an all-in-one platform for live radio, podcasts, videos, and articles. 'Sweet+' had on average, 900,000 average online listenership for year 2022 compared to only 72,000 in 2021.

As a result of the digital shift in radio listening, radio broadcasters have undertaken digital initiatives to stay relevant. For example, they now offer high-quality music streaming services, internet radio, and podcasts via websites and smartphone apps. Radio stations are hoping to boost profitability through these efforts by creating new digital channel revenue streams.

CATS FM for example has been consistently enlisting the aid of digital and social platforms to entice listeners and customers during the endemic period. Meanwhile, BERNAMA Radio is also concentrating on content development for digital and social media platforms; content that is shared or streamed on Facebook Live. In addition, BERNAMA is also broadening their coverage by offering listeners access to BERNAMA Radio broadcasts in regions outside the range of current frequencies through MyTV Channel 711.

Rakita on the other hand adopts a creative approach to reach its listeners. The Anugerah Lagu Indie is a singing competition for which the accompanying music is published independently (own work) without ties to any commercial recording label from the writing process, recording process, right to the publishing process. Rakita managed to attract as many as 808 entries while the event itself documented a total of 1.2 million reach/impressions on social media, a total of 200,000 views, 7,263 engagements and 599 shares.

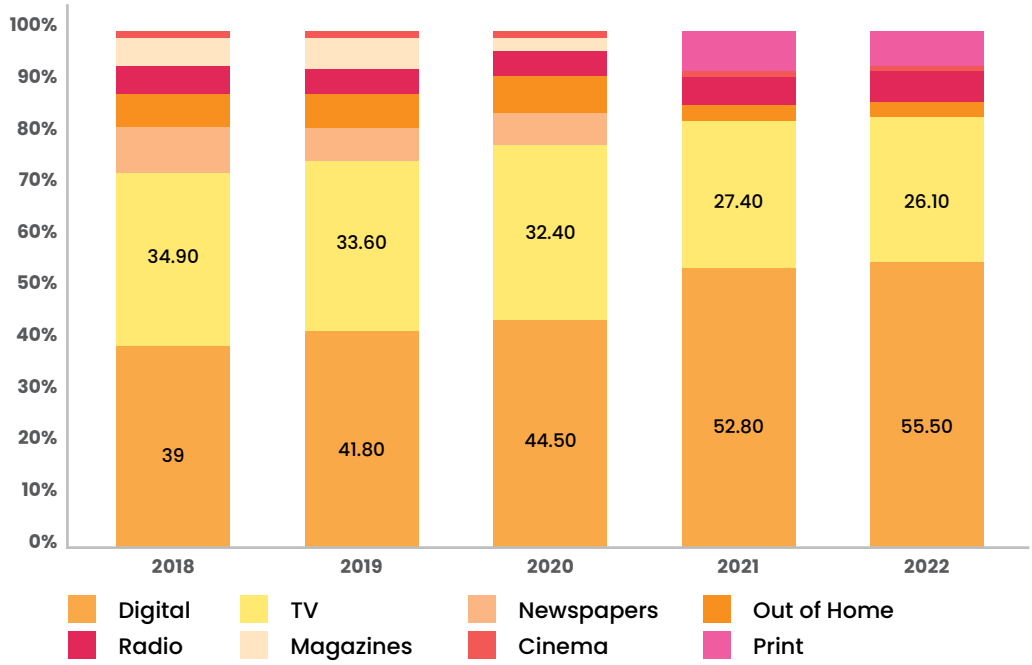
Moving forward, radio broadcasting in Malaysia is expected to remain relevant and important for years to come. Also, radio will remain the most popular way for listeners to access news and other information including public service announcement by the government.

ADVERTISING EXPENDITURE

According to Zenith, global advertising expenditure (ADEX) recorded a total of USD781 billion in year 2022, which is an increase of 8% from USD723 billion in 2021, driven by continued, rapid digital transformation. Apart from that, major ceremonies such as Winter Olympics, mid-term US elections and FIFA World Cup in Qatar also contributed to the increase in ADEX.

By type of media, advertising through digital media continues to be advertisers' top choice. Quoting Statista, in 2022 it is estimated that digital advertising will account for 55.5% of total advertising expenditures worldwide, up from 52.8% a year earlier. TV is calculated to take the second spot, with a 26.1% share of global advertising spending, slightly dropped from 27.4% market share that was recorded in 2021. As opposed to digital media, the market share for TV continues to decline since 2018.

GLOBAL ADVERTISING EXPENDITURE BY TYPE OF MEDIA 2018 – 2022



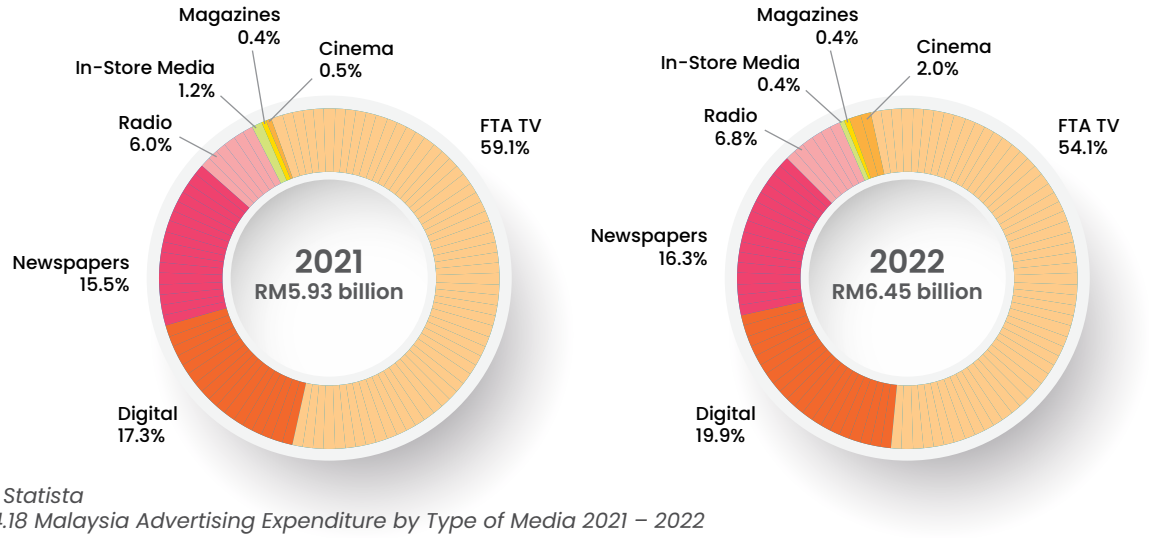
Source: Statista
Figure 4.17 Global Advertising Expenditure by Type of Media 2018 - 2022

Meanwhile in Malaysia, in year 2022 as the country enters post-pandemic stage, most companies began implementing their new working policy by introducing the hybrid working arrangement[5]. Thus, encouraging the increased usage of digital media as mode of communication and boosting digital advertising expenditure.

With the grand total of RM6.45 billion of ADEX in 2022, advertising through digital media in Malaysia recorded an increase in market share to almost 20% with a value of RM1.3 billion compared to total market share of 17.3% (value of RM1 billion) that was recorded in the previous year. FTA TV continues to dominate ADEX market in Malaysia with market share of 54.1% or RM3.49 billion.

[5] Hybrid working is a flexible style of working that categorises the entire workforce into three different groups; those who work from the office, those who work remotely, and those who are allowed to work remotely or from the designated office space.

MALAYSIA ADVERTISING EXPENDITURE BY TYPE OF MEDIA 2021 – 2022

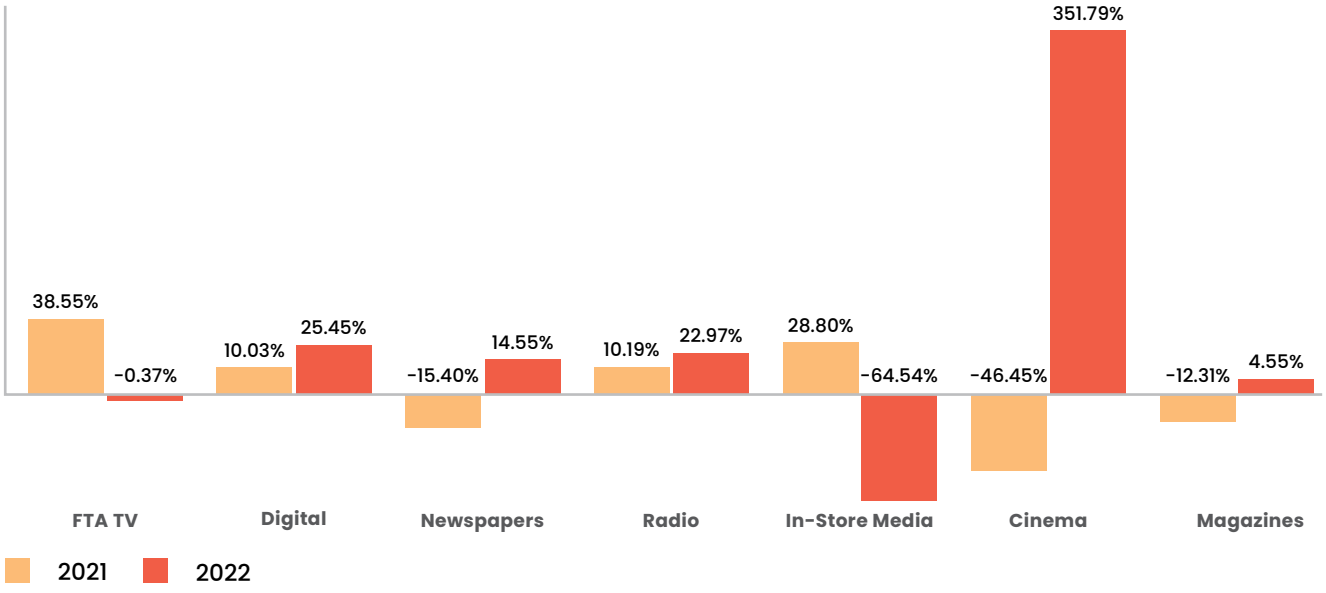


Source: Statista
Figure 4.18 Malaysia Advertising Expenditure by Type of Media 2021 – 2022

Overall, compared to 2021, the ADEX environment in Malaysia significantly improved in 2022. Malaysia ADEX for year 2022 recorded a growth of 8.8%, contributed by significant major events such as increase in advertisers' spending during festive periods including Chinese New Year, Christmas and FIFA World Cup.

Comparing year on year basis, FTA TV recorded a slight decline in total advertising spend in 2022 compared to 2021. FTA TV recorded a market share of 54.1% with a corresponding value of RM3.49 billion (2021: RM3.5 billion). Meanwhile, newspaper and radio market shares for year 2022 did not experience significant changes compared to 2021 where newspaper and radio recorded a total of 16.3% and 6.8% market share for 2022 respectively.

ADVERTISING EXPENDITURE GROWTH BY MEDIUM



Source: Nielsen
Figure 4.19 Advertising Expenditure Growth by Medium

On the contrary, advertising through cinema recorded market share of 2% (2012: 0.5%) and the biggest improvement of 352% is supported by an increase in the total number of cinema goers. The total number of views jumped to 37 million in 2022 compared to only 3 million in 2021[6].

For the 2023 outlook, on a global perspective, Magna predicts worldwide advertising revenue to reach USD833 billion (RM3.7 trillion) in 2023, an increase of 5% in comparison to year 2022. Mediabrands Malaysia projected that Malaysia ADEX optimistic 9% growth to RM6.6bil will largely be driven by digital advertising growth. Advertising through digital media will continue to increase their market share as Malaysian advertisers intensify their strategies to reach a wider audience through engagement on connected platforms.

[6] Perbadanan Kemajuan Filem Nasional Malaysia (FINAS)

DIGITAL SERVICES

This chapter demonstrates the continuous adoption of digital services and our dependency on e-commerce and e-payment services leading to the surge of demand for those services. This chapter also covers the development of Public Key Infrastructure and the increasing number of Digital Certificates issued in 2022. The status update on the progress of *Pusat Ekonomi Digital* (PEDi), formerly known as *Pusat Internet Komuniti* (PIK), is also highlighted in this chapter.

KEY HIGHLIGHTS
2022

Top 3 e-commerce market domination

SHOPEE | PG MALL | LAZADA

(Source: Statista)

MALAYSIA E-COMMERCE VALUE:

⬆ 19.9%

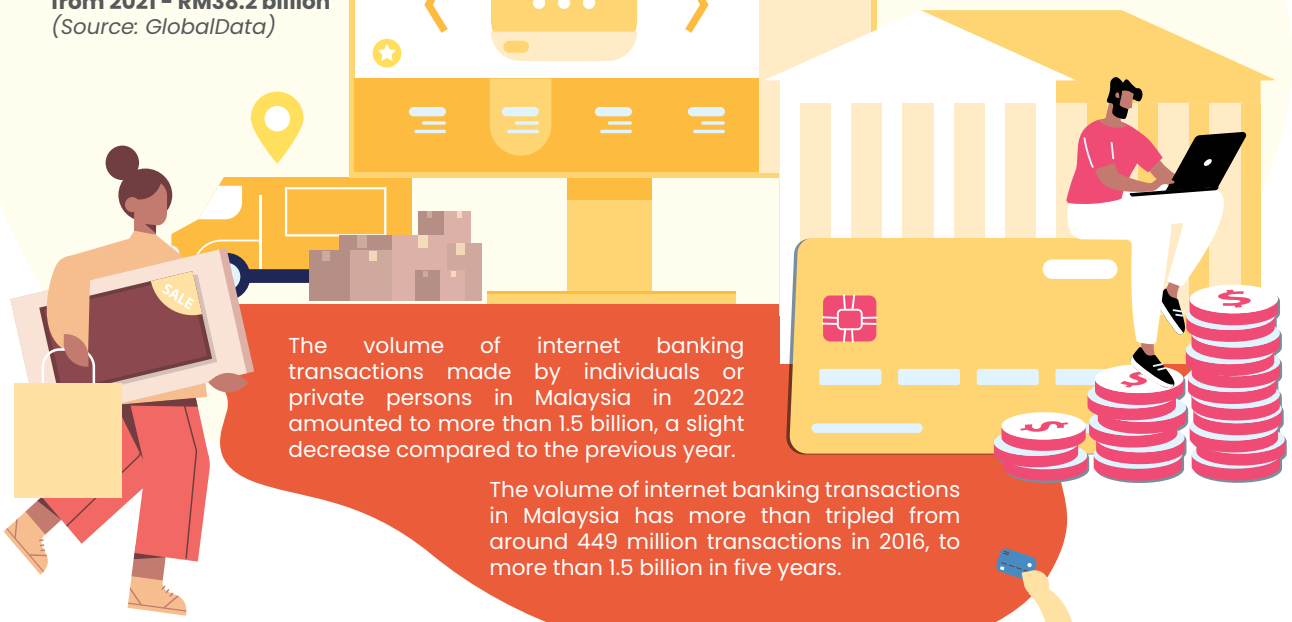
from 2021 - RM38.2 billion
(Source: GlobalData)

Malaysia currently has:

6 **banks**

47 **non-banks electronic money (e-money) issuers serving some**

32 **million of the population**



The volume of internet banking transactions made by individuals or private persons in Malaysia in 2022 amounted to more than 1.5 billion, a slight decrease compared to the previous year.

The volume of internet banking transactions in Malaysia has more than tripled from around 449 million transactions in 2016, to more than 1.5 billion in five years.

POPULAR SPENDING:

- Travel / Vacation / Accommodation
- Clothes and Fashion
- Electronics and Physical Media

DIGITAL SERVICES

A digital service is defined as an automated online service, which is delivered through digital means, typically over the internet or electronic network, with minimal or without human intervention. Services that fall under this category can be in the form of software applications, online platforms, cloud-based services or any other digital offerings available in the market. Digital services that have been widely used nowadays among others are online shopping, social media, online banking, cloud storage and online entertainment.

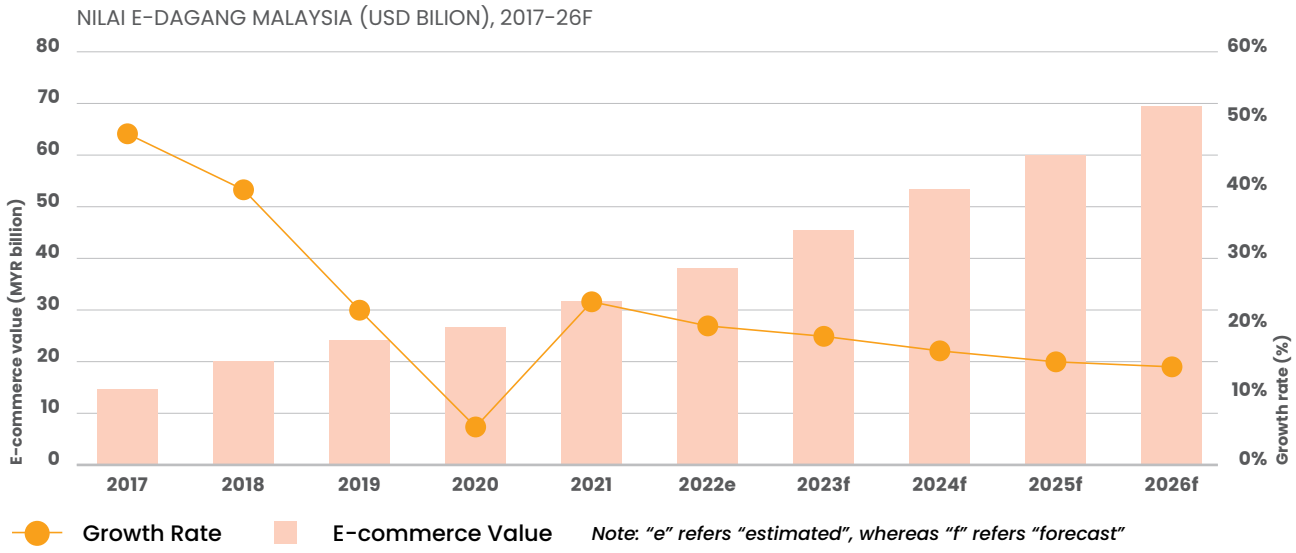
Digital services are supported by e-commerce as a function in trading activities and digital economy as the culture and discipline of people. The COVID-19 pandemic spurred the growth of Malaysia's digital economy. Locally and the world over, the pandemic forced people, businesses, and the governments to transform their activities online.

E-COMMERCE IN MALAYSIA

E-commerce is an activity which involves commercial transaction and trading of goods and services, electronically over the internet. E-commerce began its operation in Malaysia in 2004 and has since become one of the fastest progressing digital services in the country.

Rapid adoption of smartphones, growing internet penetration and the availability of secure online payment systems manifested a great impact on the growth of e-commerce in Malaysia. On that note, the Malaysian e-commerce market is estimated to register a growth of 19.9% to reach RM38.2 billion (USD9.2 billion) in 2022, according to GlobalData. Further, it was revealed that e-commerce sales in Malaysia will increase at a Compound Annual Growth Rate (CAGR) of 16.1% between 2022 and 2026 to reach RM69.3 billion (USD16.6 billion) in 2026. The sales were RM31.9 billion (USD7.6 billion) in 2021, growing at a CAGR of 22.4% between 2017 and 2021.

MALAYSIA E-COMMERCE VALUE

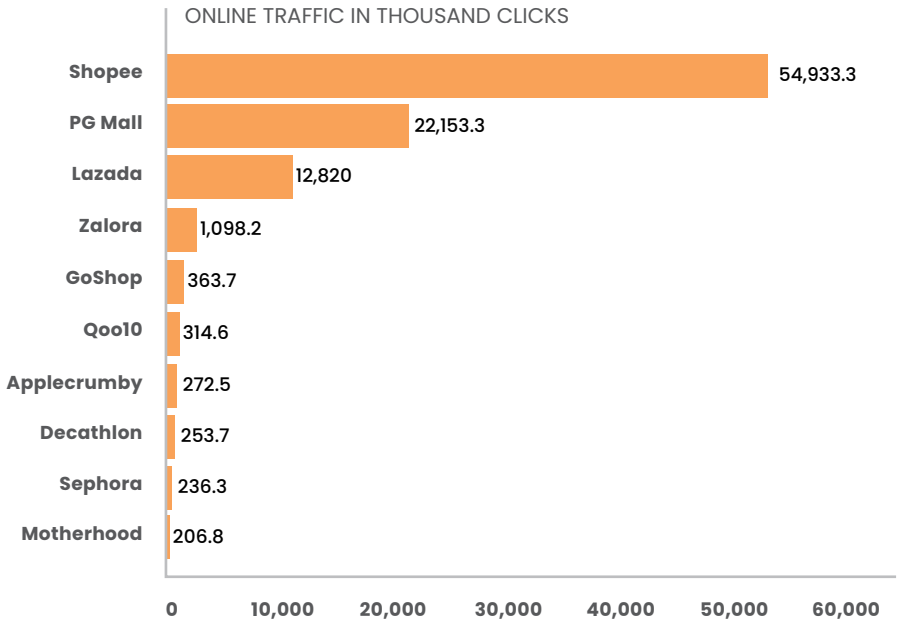


Source: GlobalData
Figure 5.1 Malaysia E-Commerce Value

TOP E-COMMERCE MARKET DOMINATION IN MALAYSIA

Shopee, Lazada and PG Mall continue to dominate the e-commerce market in Malaysia. Based on the statistics published by Statista Research Department, Shopee led the Malaysian e-commerce market as the most popular e-commerce site in the country, followed by PG Mall and Lazada as of the second quarter of 2022. With around 55 million clicks, Shopee was the leading online shopping platform not only in Malaysia, but also across Southeast Asia.

TOP E-COMMERCE MARKET DOMINATION IN MALAYSIA



Source: Statista
Figure 5.2 Top E-Commerce Market Domination in Malaysia

POPULAR ITEMS PURCHASED/ SPENT

According to a survey on e-commerce published by Statista on 21 November 2022, 30% of respondents in Malaysia said they made online purchases several times in a month, while 17% said they shopped online several times in a week. Only 3% of the respondents stated that they never made an online purchase.

Top 3 items purchased by Malaysians via online are accommodation, which is meant for vacation or leisure, electronics and physical media and clothes/ fashion.

TRAVEL/ACCOMMODATION

Malaysians spend a significant portion of their disposable income on travel. In 2021, on average, Malaysians spent RM25,454 on domestic travel alone. Internationally, Malaysian travellers are not bound by geographical distances in their travel preferences, with European destinations such as Turkiye and the Balkans being among the most favoured international destinations among Malaysian travellers in 2022, followed by Bali and the Maldives.

ELECTRONICS AND PHYSICAL MEDIA

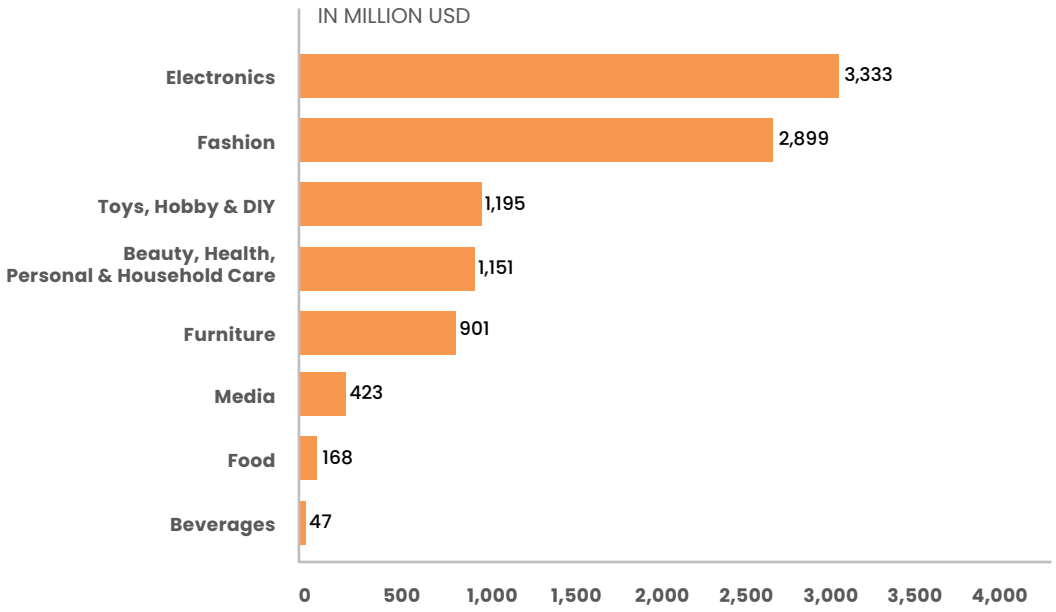
The consumer electronics market in Malaysia is projected to hit a revenue of USD5.55 billion in 2023. The highest selling products in this category are telecommunications products, with a market share of USD2.23 billion.

Strong offers via mass retailers with sizable buying power such as Lazada and Shopee tend to dominate this category. They have drawn consumers online with competitive pricing, forfeiting the usual in-store experience.

CLOTHES AND FASHION

In 2021, expenditure on clothing and footwear made up 1.7% of Malaysia's GDP. Overall, the fashion segment is expected to generate a revenue of USD3.31 billion in 2023. It is projected to continue growing at an annual growth rate of 12.67% to reach USD5.33 billion by 2027.

TOP E-COMMERCE CATEGORIES IN MALAYSIA 2022



Source: Statista
Figure 5.3 Top E-Commerce Categories in Malaysia 2022

E-PAYMENT SERVICES IN MALAYSIA

According to a survey on e-wallet usage by Oppotus, the leading e-wallet used in Malaysia as of the 4th quarter of 2022 was *Touch 'n Go* with 70% of respondents having used it before.

The distinguishing features of e-payment services that are fast, secure, and convenient are key drivers in the shift of consumer preferences towards adopting electronic payment methods for their daily activities to transfer money, make purchases, and pay bills. Electronic payments are much faster than the traditional methods of payments, for instance cash or cheques, as electronic payments can be easily made anytime from anywhere across the globe. In terms of security, e-payment service providers are constantly improving their security features by incorporating one-time-passwords (OTPs), two-factor authentications, as well as biometric security features (facial or fingerprint recognition) to protect users from security issues like unauthorised access, theft and fraud. Furthermore, users are able to conveniently track their recorded daily, monthly, and yearly e-payment transactions and expenditures, allowing for better budgeting and curbing overspending.

RURAL OPPORTUNITIES WITH E-COMMERCE

Consumer market demand is increasing in rural areas as rural communities typically have a short supply of retail stores and products. E-commerce is able to fill this gap by bringing opportunities to rural communities. Consumers can avoid the difficulties of travelling to urban centres to purchase goods and ultimately saves money. Furthermore, the expansiveness of e-commerce allows rural sellers to make sales on a more broad and dynamic scale rather than limiting their reach to customers in their immediate vicinity.

Pusat Ekonomi Digital (PEDi) is one of the various initiatives that has been introduced to build Malaysia's digital economic infrastructure for the purpose of creating economic opportunities and improving living standards of the rural communities particularly.

PUSAT EKONOMI DIGITAL

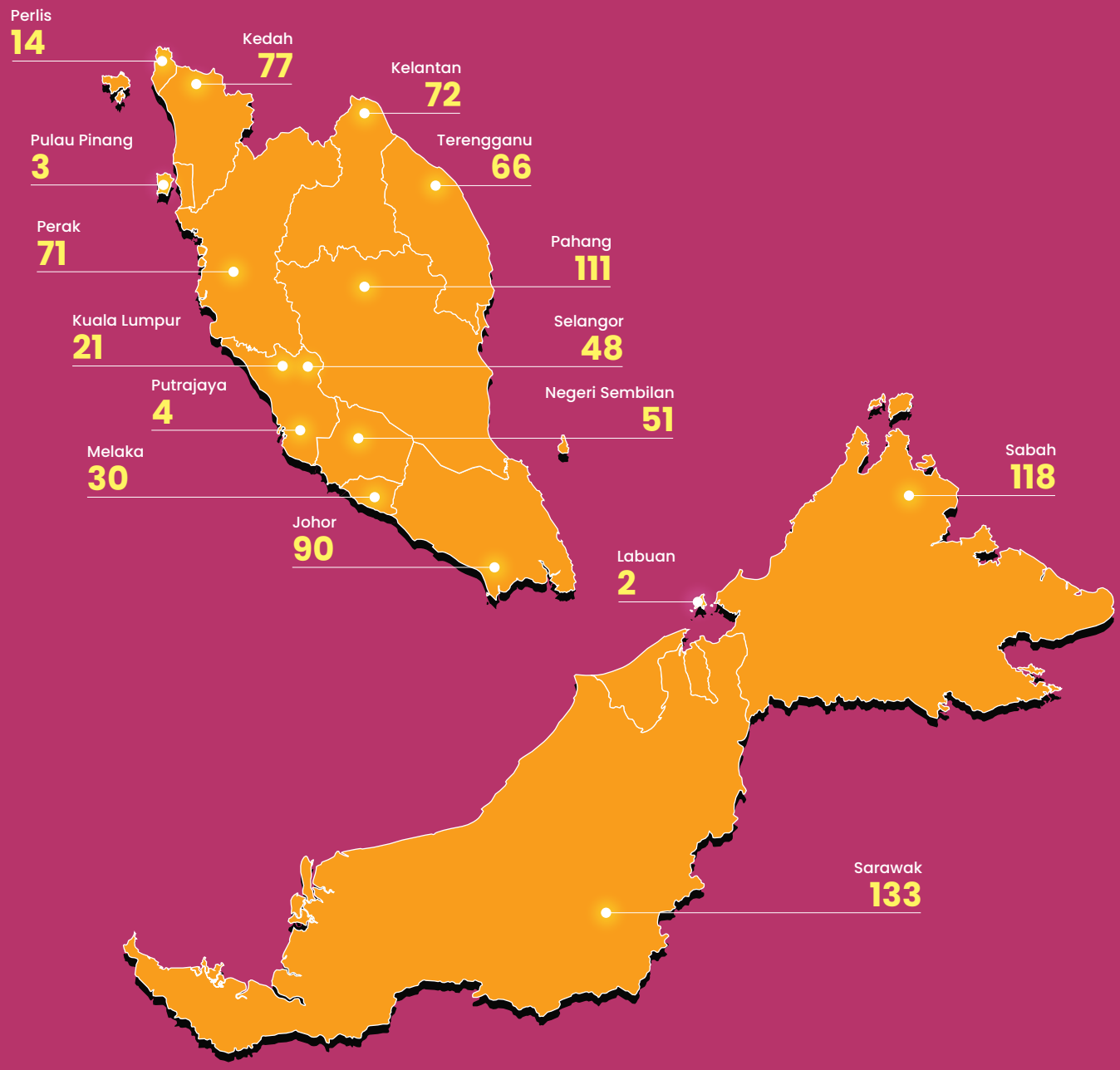
Pusat Ekonomi Digital (PEDi), formerly known as *Pusat Internet Komuniti* (PIK) has its operations fully funded by MCMC since 2007 through the Universal Service Provision (USP) Fund.

PEDi is implemented to target underserved areas and underserved communities. This includes providing collective internet access to communities living in rural, remote areas as well as communities living in low-cost housing in urban and suburban areas. Among the functions and roles of PEDi are as follows:

1) Provide Internet access collectively for underserved communities;
2) Uplift the socio-economic status and human capital development of rural communities;
3) Provide training based on ICT, entrepreneurship, multimedia and STEM; and
4) Close the digital gap between the rural and urban communities.

As of 31 December 2022, a total of 911 PEDi setups are operational nationwide. Its distribution and total number by State and Federal Territories are shown in Figure 5.1 below:

DISTRIBUTION OF PEDi NATIONWIDE



Source: MCMC
Figure 5.4 Distribution of PEDi Nationwide

OVERVIEW OF THE ROLES AND FUNCTIONS OF THE *PUSAT EKONOMI DIGITAL*

The objective of PEDi is to provide collective internet access to the surrounding communities, mainly focusing on underserved areas. However, the role of PEDi has expanded to include training programmes related to ICT, entrepreneurship and multimedia. In general, this is a collective effort to uplift the socio-economic and human capital development of rural communities and to bridge the digital divide between urban and rural communities.

PEDi has been transformed from just providing basic connectivity to the rural and underserved areas to become a community digital economy and learning centre with the aim of empowering and driving the local community towards digital economy. Furthermore, PEDi also serves as a touch point in reaching out to local communities on numerous initiatives from the government and MCMC.

As of 31 December 2022, more than 1.29 million users have enjoyed the benefits of a variety of services and facilities offered at PEDi throughout the country. Currently, PEDi is able to serve an estimated 18.9 million people within a 5 km radius. The overview of PEDi users are illustrated through Figure 5.2.

PEDi USER STATISTICS

Age

0 - 21 Years
37%

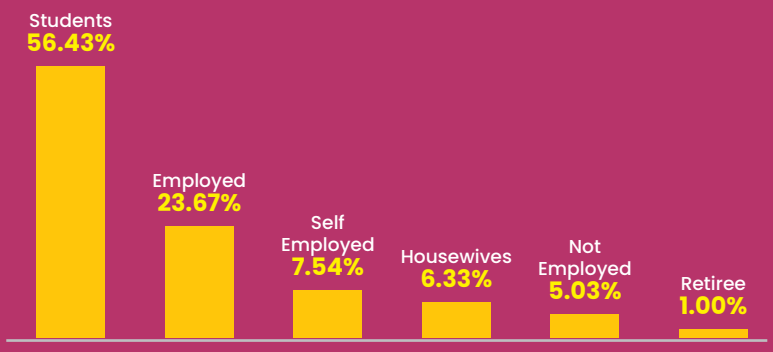
22 - 59 Years
57%

60 Years & Above
6%

Race

Malay **79.7%**
Indian **1.4%**
Chinese **1.8%**
Orang Asli **0.1%**
Bumiputera Sabah & Sarawak **17.0%**
Total **100%**

Occupation



Gender

Male **47%**

Female **53%**

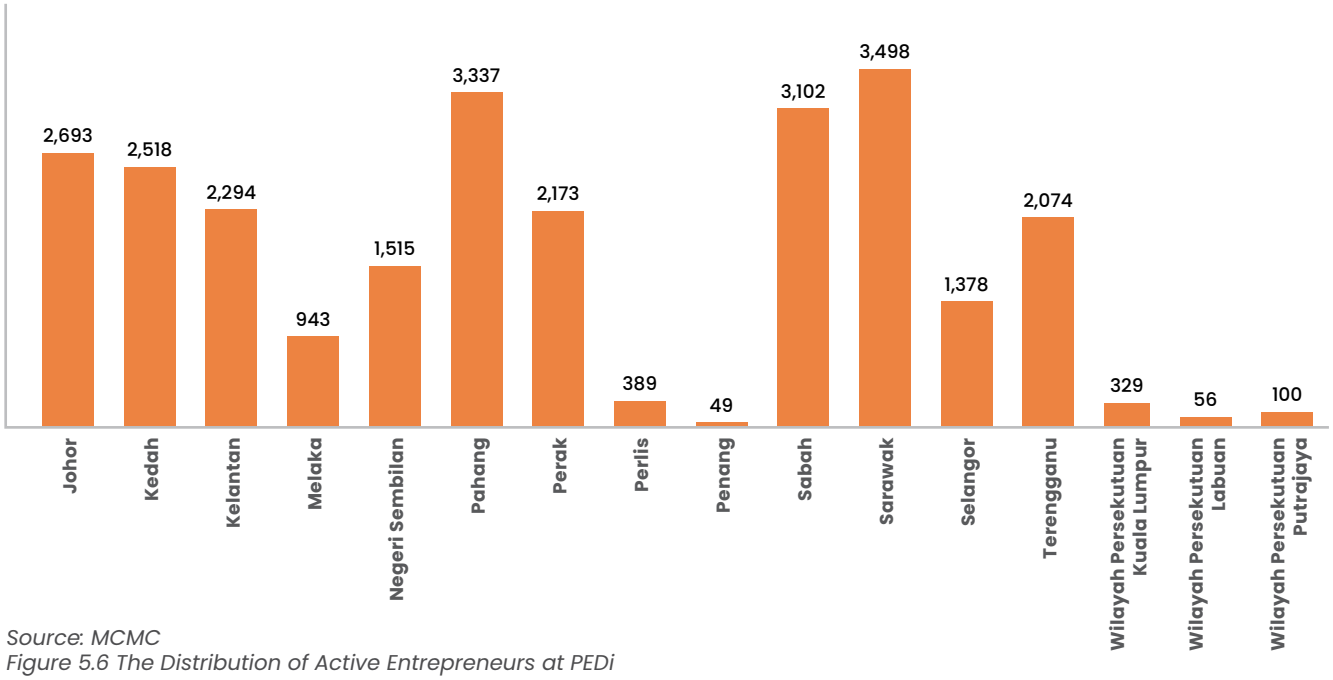
Source: MCMC
Figure 5.5 PEDi User Statistics

As consumers move towards digitalisation especially through e-commerce and cashless payments, PEDi remains relevant to local communities by offering digital entrepreneurship trainings for entrepreneurs and various ICT trainings.

The two supervisors at PEDi are agents for change - engaging and training people in their local community. Their main roles are to guide and teach basic ICT skills and entrepreneurship to the local communities, and to encourage them to adopt digitalisation in their daily life and business operations.

As of 31 December 2022, PEDi has produced up to 26,448 active online entrepreneurs and recorded more than 3.2 million training participations among local communities through various learning programmes offered at PEDi.

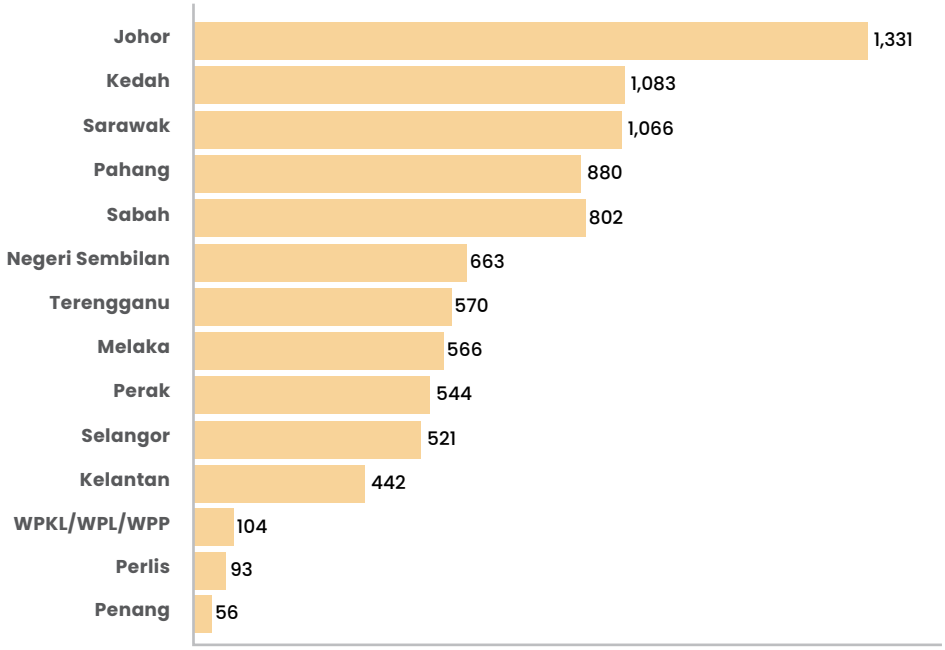
THE DISTRIBUTION OF ACTIVE ENTREPRENEURS AT PEDi



Source: MCMC
Figure 5.6 The Distribution of Active Entrepreneurs at PEDi

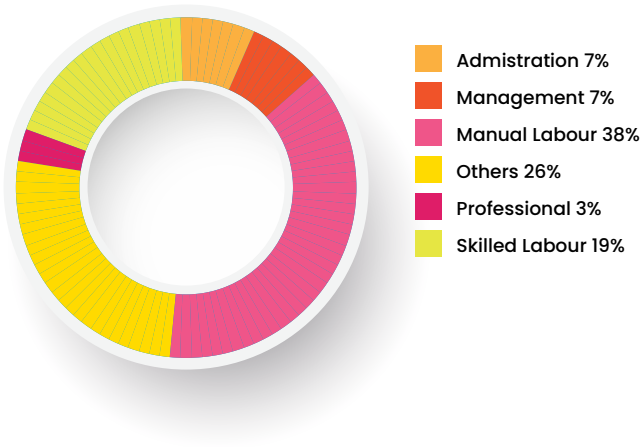
Further to this, PEDi also supports gig economy in the surrounding community by creating job opportunities through sharing of information and assisting with resume preparation. In 2022, a total of 8,721 new jobs have been created within the community with help from PEDi.

TOTAL JOBS CREATED WITHIN THE COMMUNITY WITH THE SUPPORT FROM PEDi



Source: MCMC
Figure 5.7 Total Jobs Created within the Community with the Support from PEDi

CATEGORIES OF JOBS CREATED WITHIN THE COMMUNITY WITH THE SUPPORT FROM PEDi



Source: MCMC
Figure 5.8 Categories of Jobs Created within the Community with the Support from PEDi

The communities also utilise and leverage on the facilities offered at PEDi specifically computers and internet access to complete their public service examinations and online interview sessions. Most of the local communities managed to secure jobs in administration, management, manual labour, skilled labour and even professional.

PROGRAM PEMERKASAAN PENDIGITALAN USAHAWAN KECIL

Program Pemerkasaan Pendigitalan Usahawan Kecil (Pupuk) is a digitalisation initiative to facilitate micro entrepreneurs to transform their business to digital platform. The initiative was introduced in June 2021 to empower entrepreneurs towards digital economy and promote digitalisation of businesses. Programmes under Pupuk are implemented nationwide through touch points at selected PEDi centres.

This transformation serves as a point of reference for other agencies participating in these programmes such as Urban Transformation Centre (UTC), TM Point and *Institut Keusahawanan Negara Berhad* (INSKEN). Programmes under Pupuk are implemented through smart partnerships with participating agencies and via collaborations with private sector, telecommunications companies and e-commerce platform providers.

As of 31 December 2022, a total of 600 Rakan Digital PEDi have been appointed by the Designated Universal Service Providers to further assist various entrepreneurship programmes under Pupuk as well as helping local entrepreneurs to digitalise their businesses.

In 2022, eight programmes have been implemented under Pupuk. Overview of the Pupuk initiatives and its implementation is illustrated in Figure 5.6 below:

Programmes
Pupuk@Shopee

Participating Agencies/
Collaborations with Private Sector
Shopee Mobile Malaysia Sdn Bhd

Campaign Period
May – December 2022

11,220
Entrepreneurs on boarded Shopee platform

RM27.9 million
Total sales

Programmes
Pupuk@AEON

Participating Agencies/
Collaborations with Private Sector
AEON CO. (M) Berhad

Campaign Period
January – December 2022

22
Entrepreneurs on boarded with AEON and their products are available on the shelves

RM46,801.99
Total sales

Programmes
Pupuk@go2Brand

Participating Agencies/
Collaborations with Private Sector
MYNIC Berhad

Campaign Period
January – June 2022

1,827
Entrepreneurs registered with BIZ.MY

Programmes
Pupuk@Jana'preneur

Participating Agencies/
Collaborations with Private Sector
Human Resource Development Corporation

Campaign Period
January – May 2022

Note:
HRD Corp is enhancing the system from May to Dec, thus there is no on-boarding during this period

3,476
Micro entrepreneurs trained and adopted digitalisation

Programmes
Pupuk@SSM

Participating Agencies/
Collaborations with Private Sector
Suruhanjaya Syarikat Malaysia

Campaign Period
January – December 2022

24,547
B40 group and students of IHLs registered with SSM under Skim Pendaftaran Perniagaan Prihatin (SPPP)

Programmes
Pupuk@PEDAS

Participating Agencies/
Collaborations with Private Sector
Malaysia Digital Economy Corporation (MDEC) Sdn. Bhd.

Campaign Period
January – December 2022

35
PEDi selected a PEDAS centres

579
Entrepreneurs trained out of which **535** has onboarded to online marketplace

Programmes
PUPUK@SemarakNiaga

Participating Agencies/
Collaborations with Private Sector
Bank Simpanan Nasional

Campaign Period
May – December 2022

3
No. of application for the grant

RM24,000
Grant approved and paid

SUCCESS STORIES FROM PUPUK INITIATIVE AND ENTREPRENEURSHIP PROGRAMMES CONDUCTED AT PEDi

PEDi has been contributing to the well-being of communities for 15 years. It has a positive social and economic impact on rural communities and the efforts have been fruitful as numerous individuals have become successful digital entrepreneurs by transforming their traditional approach in business to online and on-boarded into e-commerce platforms. Below are a few success stories from local entrepreneurs:

INVOLVEMENT IN PEDi & ACHIEVEMENT

Name
Monin bin Angkap
PEDi Location
PEDi Daerah Kudat, Sabah

Registered as a PEDi Member
2014
Product
Sabah Ethnic Handicrafts and Souvenirs

- Attending entrepreneurship classes at PEDi since May 2017. Successfully opened an online store on AgroBazaar Online and started getting orders.
- Received the first overseas order from Saudi Arabia for the United Nations Conference, his necktie creations received orders from South Korea even during the pandemic and once reached sales up to RM 50,000 a month.
- Business grew after marketing his product on e-commerce platforms and also using social media platforms for promoting his products.
- Monthly sales increase from RM1,500 to more than RM 10,000 (depending on demand) after joining e-commerce platform.

Online Business Platform
Shopee : *http://shopee.com.my/samodku_onlineshop67*
Facebook : *http://www.facebook.com/Samodkudat*
TikTok : *@samodku_aolm*

Name
Junaidah binti Mohd Tahir
PEDi Location
PEDi Taman Nilam, Pontian, Johor

Registered as a PEDi Member
2015
Product
Mini Spring Rolls

- Attending various ICT classes and learnt entrepreneurship skills at PEDi Taman Nilam.
- Started online business on Shopee's platform in March 2020 with the guidance from PEDi staff.
- Successfully market the product throughout Malaysia and Singapore.
- Obtained the Halal Certificate from JAKIM and *Sijil Makanan Selamat Tanggungjawab Industri* (MeSTI) from the Ministry of Health Malaysia (MOH) with the guidance of PEDi Staff.
- Successfully opened her own factory and currently employed 10 workers.
- Monthly sales increase from RM 1,500 to more than RM 3,000 after joining e-commerce platform.

Online Business Platform
Shopee : *http://shopee.com.my/shahfood*
Facebook : *http://www.facebook.com/Shahfood-101362888332103*
Instagram : *minipopiahshahfood& shahfood 2020*

Name
Faizah binti Fauzi
PEDi Location
PEDi Kampung Belukar, Tumpat, Kelantan

Registered as a PEDi Member
2022
Product
Serunding and Dried Local Food

- She is using Shopee to market serunding and other homemade dried foods.
- She discovered Shopee through a friend and she uses ShopeeLive to promote her product.
- Generated more than RM 9,000 in sales from the PUPUK@Shopee campaign as a result of the voucher incentives given by joining the campaign.

Online Business Platform
Shopee : *http://shopee.com.my/saifaizah93*

PUBLIC KEY INFRASTRUCTURE

A Public Key Infrastructure (PKI) is a set of policies, processes, and technology that allows a public key cryptography scheme to maintain digital certificates, an electronic credential that proves an individual's, organisation's, or computer's identity. According to Thales[1], PKI is "the set of hardware, software, policies, processes and procedures required to create, manage, distribute, use, store and revoke digital certificates and public keys".

PKI not only entails the creation of infrastructure for distributing and managing public keys and digital certificates, but it also entails the development of software, rules, policies, and standards to ensure secure Internet connections. Nevertheless, PKIs establish the identity of individuals, devices and services, allowing for controlled access to systems and resources, data protection and transaction accountability.

With the rapid rise of the digital economy, the use of PKIs has become increasingly important. The MCMC continues to assist the digital transformation of both the public and private sectors by empowering a trusted ecosystem through the PKI system offered by certificate authorities.

CERTIFICATION AUTHORITIES

Growing digital usage in e-commerce, e-government services, e-banking, e-health, and other digital services are accompanied by varying requirements to fulfil the obligations of confidentiality, identity authentication, non-repudiation, and integrity of an information. To this end, digital signatures have supported this changing and ubiquitous digital wave and this is important especially now amidst all the disruption caused by COVID-19.

The Digital Signature Act 1997 (DSA 1997) which came into force on 1 October 1998, with the purpose of regulating the use of digital signature in Malaysia using the PKI, ensures the security of legal issues related to electronic transactions and verifies the use of digital signatures through certificates issued by licensed Certification Authority. The DSA 1997 defines digital signatures as "a transformation of a message using an asymmetric cryptosystem such that a person having the initial message and the signer's public key that corresponds to the signer's public key can accurately determine whether the transformation was created using the private key that corresponds to the signer's public key and, whether the message had been altered since the transformation was made".

MCMC administers, enforces, implements and gives effect to the provisions under DSA 1997 for the purpose of monitoring, overseeing the activities, and regulating the use of digital signature in Malaysia through certificates issued by licensed Certification Authority. For a digital signature to be valid, enforceable, and effective in Malaysia, it must be certified and validated by licensed certification authorities as digital signatures that fulfil the aforementioned conditions and cannot be generated by unlicensed software providers found online. Currently, there are four licensed Certification Authorities, namely; Pos Digicert Sdn Bhd (Pos Digicert), MSC Trustgate Sdn Bhd (MSC Trustgate), Telekom Applied Business Sdn Bhd (TAB) and Raffcomm Technologies Sdn Bhd.

Digital signatures have many benefits, including reducing the risk of duplication or alteration of documents, faster transactions and better customer service, and enhanced security. They also ensure that signatures are verified and secured as compared to paper-based systems.

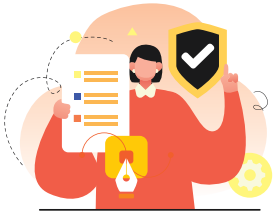
[1] Thales Group is a French multinational company that designs and builds electrical systems and provides services for the aerospace, defence, transportation and security markets.

Benefits of Digital Signature

Added Security

- Reduce the risk of duplication or alteration of a document by providing the signers with PINs, passwords, and codes that can authenticate and verify their identity and approve their signatures.
- Ensure that documents have not been altered without authorisation.
- Time stamping feature of digital signatures provides a track of the document that ensures non-repudiation thus minimising any risk of tampering or fraud.

Legal Validity

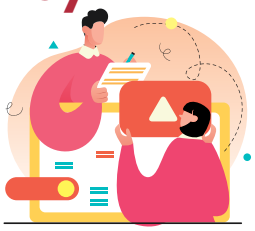


- Provide authenticity and ensure that the verified signature has the same legally binding effect as a document signed with a handwritten signature, an affixed thumbprint or any other mark.
- Act as legal recognition and can be presented for court proceedings to provide evidence and support for further investigation.

Cost-Effective and Time-Saving

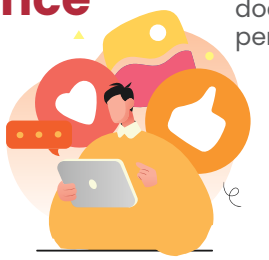
- Provide significant cost savings on ink, paper, printing, scanning, or shipping/delivery.
- Reduce the risks of financial fraud from falsification of signatures to approve purchases, invoices, or any other transactions.

Increase Workflow Efficiency



- Improve efficiency in workflow where management and tracking of documents are made easier, with lesser time and effort involved

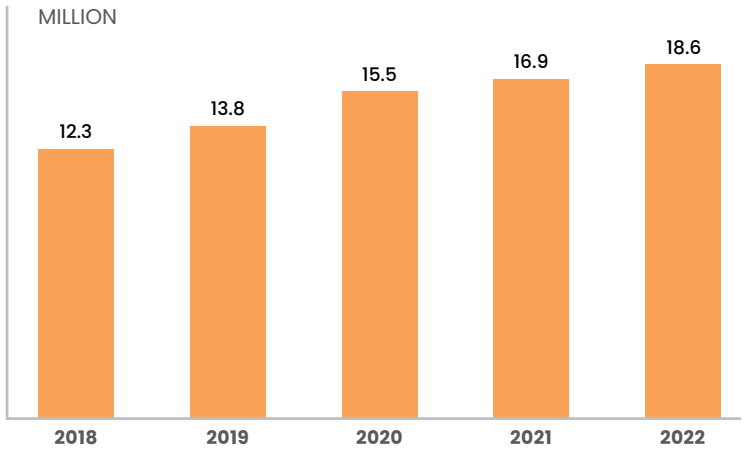
Better Customer Experience



- Provide convenience, flexibility, speed and efficiency of signing important documents as the customer or the person to sign can be located anywhere.

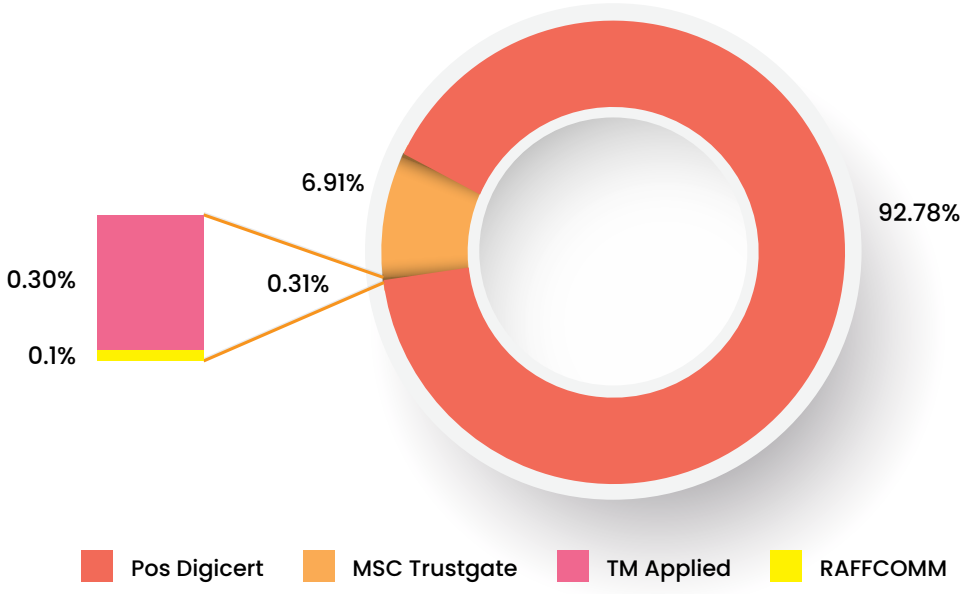
In 2022, the total number of digital certificates issued by Certification Authorities reached 18.6 million compared to 16.9 million in 2021. Pos Digicert Sdn Bhd was the leading issuer of digital certificates in 2022, with a total of 14.4 million digital certificates issued, an increase of 11% compared to 12.8 million in 2021. In relation to the number of digital certificates issued by these four Certification Authorities, Figure 5.7 below provides an overview from the year 2018 to 2022:

NUMBER OF CERTIFICATES ISSUED



Source: MCMC
Figure 5.9 Number of Certificates Issued

TOTAL NUMBER OF DIGITAL CERTIFICATES ISSUED BY CERTIFICATION AUTHORITIES



Source: MCMC
Figure 5.10 Total Number of Digital Certificates Issued by Certification Authorities

The local government sector was the largest contributor to the use of digital certificates in Malaysia, accounting for 96.2% of all digital certificates issued in 2022. Most government online application services are supported by digital certificates to secure online data transmissions over the internet. The remaining 3.8% were issued to local individuals (0.34%) and corporates (3.45%), while a total of 1,167 digital certificates were issued by foreign corporates and governments. The increase in the number of digital certificates issued in Malaysia indicates the growing demand for digital certificate services, which also further strengthens the Malaysian PKI industry.

CHALLENGES IN THE USAGE AND ADOPTION OF DIGITAL SIGNATURES

While digital signatures are not new in Malaysia, there is still a sense of trepidation and resistance which hinders its take up at a desired rate across many organisations, be it the public or corporate sector.

1) **Building awareness is key**

The lack of awareness on the advantages of digital signatures over the conventional method is a major challenge that requires urgent intervention. Although there is growing awareness on digital signatures among the federal and state governments as well as the corporate sector, more awareness and promotional programmes are needed to further advocate for the adoption of digital signatures in Malaysia. The public needs to be made aware of the digital signature initiative as they are one of the primary stakeholders in the digital signature ecosystem.

2) **Readiness of the end-to-end system**

The MyDIGITAL initiative is to transform Malaysia into a digitally driven nation. To achieve this, the government will implement more e-services in both government and private sectors. While many government services have now moved onto the digital platform, another challenge is the readiness of the system with some public-facing services provided yet to be completed end-to-end.

3) **Requirements of wet-ink signatures by some laws**

Notwithstanding the fact that digital signatures are recognised in Malaysia, there are specific types of legal documents that require notarisation or attestation. For instance, the traditional wet ink signing method is a requirement under the National Land Code dealing with property matters.

In practice, government departments such as the stamp office and land office would only accept documents signed with wet signatures. This is without any legal basis but only serves as "authorities' acceptance" requirement. For registration of land dealings, the land office requests physically printed documents duly signed in the traditional method of wet ink signatures. In view of the above, there is a need to revise the laws and regulations to suit the growing needs of adopting digital signatures in government or public related matters.

4) **Cost**

Whenever adopting new technology, cost is always a concern. Generally, many organisations are reluctant to migrate into digital technology because the Return on Investment (ROI) in adopting the new technology is not defined. The good thing about digital signatures is that they are designed for efficiency and cost savings, for instance in streamlining the cost of operation and reducing storage expenses.

THE ROLE OF MCMC IN PROMOTING DIGITAL SIGNATURE

In supporting Malaysia's aspirations under the MyDIGITAL Blueprint to accelerate digital signature implementation across public sector online services, MCMC is desirous of promoting further and more intensive take-up by the public sector, targeting full adoption by 2025.

Together with the Ministry of Communications and Digital (KKD) and Malaysian Administrative Modernisation and Management Planning Unit (MAMPU), a strategic plan was developed to undertake the digital signature promotional and awareness programmes among public sector throughout the country.

In view of the above, in 2022, MCMC has proactively conducted outreach programmes, engagement sessions, meetings and discussions both online and on site with no less than 30 such activities concluded with various stakeholders at the federal and state levels as well as the private sector. The list includes Bank Negara Malaysia (BNM), Ministry of Health (MOH), Malaysian Palm Oil Council (MPOC), Dewan Bandaraya Kuala Lumpur (DBKL), State Secretary Offices (SUK) of Pahang, Terengganu, Johor and Kelantan, Universiti Malaysia Pahang, Maybank and Futurise.

Additionally, three webinars were hosted to complement the effort, reaching out to a wider and larger audience with in-depth presentations by speakers from the public sector as well as the Certification Authorities. Kicking-off with the general overview of digital signatures, the first webinar discussed the usage of digital signatures in the public sector, followed by a more focused discourse on how the digital signature reduces fraud risks and ensures the safety and security of online transactions and the digital ecosystem.

The awareness and promotional activities have garnered encouraging response and attendance from the targeted stakeholders with more of such activities to be executed in the future. This is to ensure that the target for full adoption of this digital service by 2025 is achieved.

E-COMMERCE CONSUMER SURVEY 2022

Background

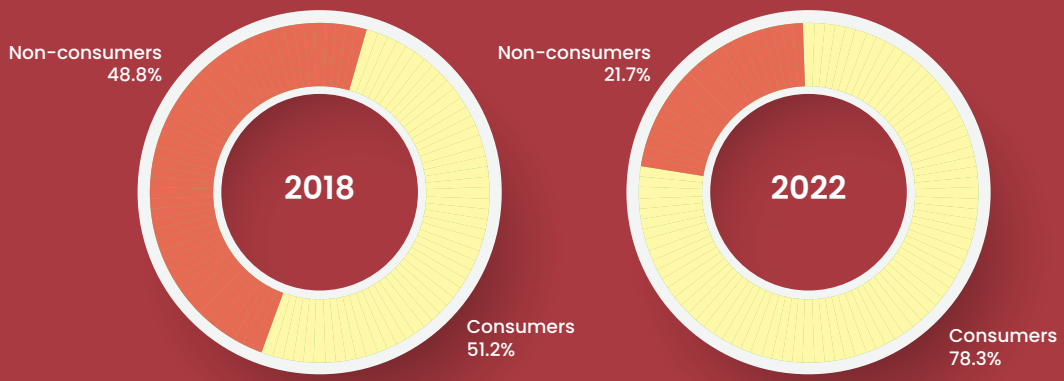
The e-Commerce Consumer Survey 2022 (ECS 2022) is a series of purpose-built survey conducted by the Malaysian Communications and Multimedia Commission (MCMC). The ECS 2022 provides insight into the behaviours of e-Commerce consumers and online consumption trends in Malaysia.

Key Findings

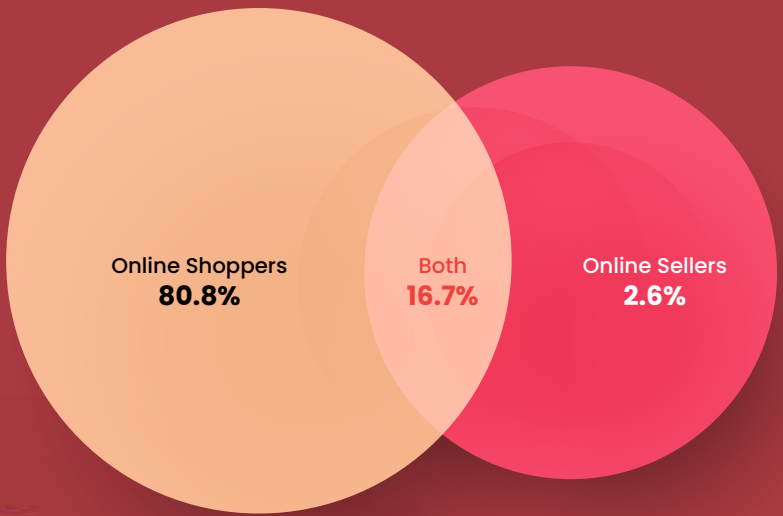
The survey determined that the percentage of e-Commerce consumers in Malaysia for 2022 stood at 78.3%, an increase of 27.1 percentage point from 2018. Of these consumers, 80.8% respondents claimed to be online shoppers only, 16.7% were online shoppers and sellers, and the remaining 2.6% claimed to be sellers only.

Despite the increase in e-Commerce consumers, 21.7% of respondents did not conduct any e-Commerce activities (non-consumers). Non-consumers were most likely to come from people living in rural areas suggesting a gap in knowledge, skills, connectivity, and accessibility for e-Commerce.

E-COMMERCE CONSUMERS IN MALAYSIA



Proportions of e-commerce consumers and non-consumers for 2022



Breakdown of e-commerce consumers for 2022

Source: MCMC
Figure 5.11 E-Commerce Consumers in Malaysia

Delivery Experience

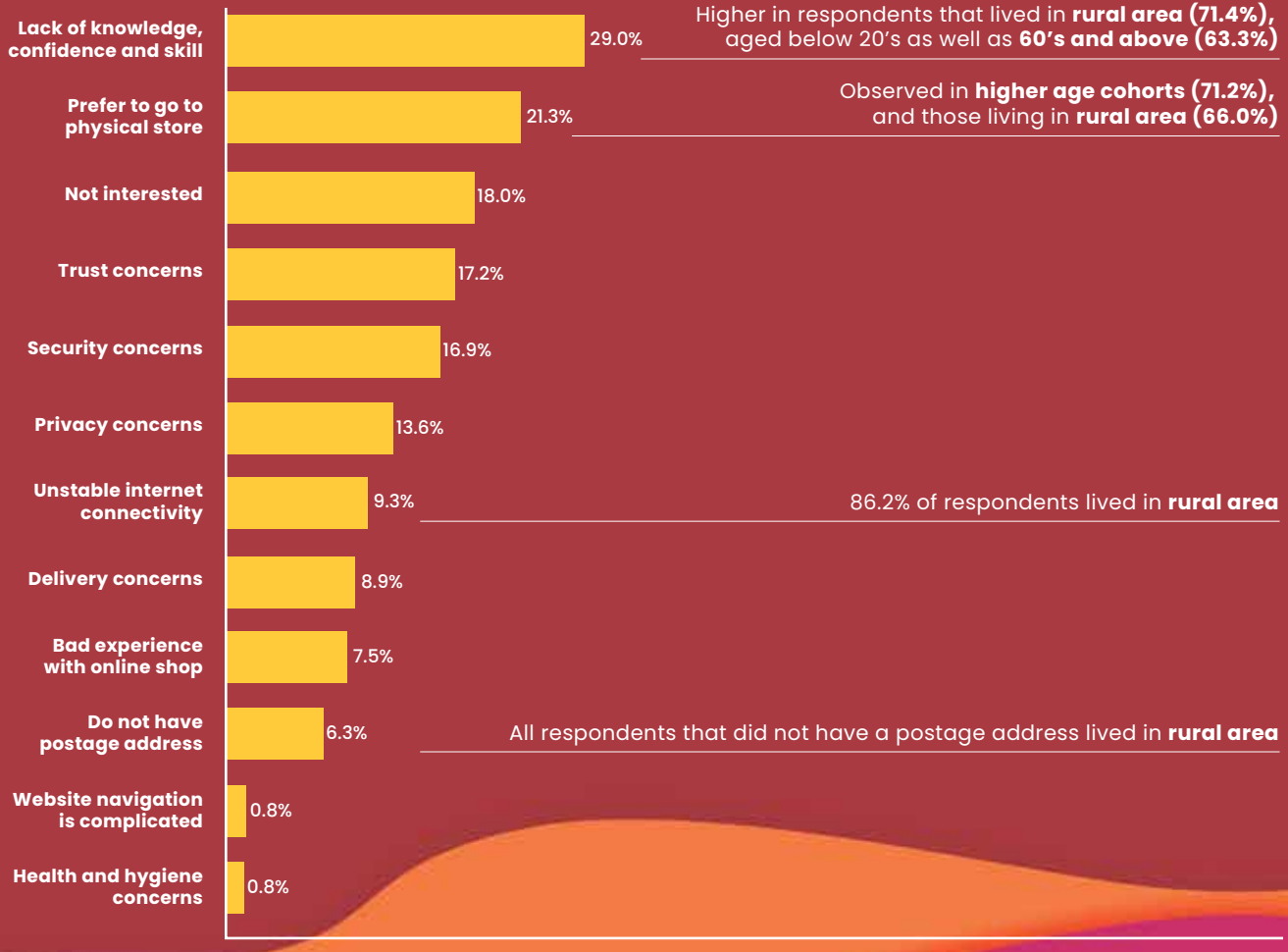
Seven in ten consumers (76.2%) expressed their preference for home delivery of their parcels, while the remaining 23.8% opt for alternative delivery methods. The primary factors influencing this choice include the unavailability of consumers at home (49.3%), scheduling conflicts that make parcel collection inconvenient (42.5%) and a preference for pick up locations that better align with consumers' needs (16.4%).

The survey findings also highlight a notable trend i.e. while speedy delivery is considered the paramount factor in parcel delivery, the cost of delivery can often outweigh this preference. Among the respondents, a significant 80.7% emphasized the importance of speedy delivery. However, within the same group, a substantial 60.5% favored free or low-cost delivery with a 3-5 day delivery window, while only a mere 15.2% opted for premium delivery at a higher cost, guaranteeing delivery within 24 hours.

This indicates that consumers are willing to exercise patience in waiting for an additional three days or more for their parcels to be delivered at a lower cost, even though fast delivery remains the top priority in their delivery preferences.

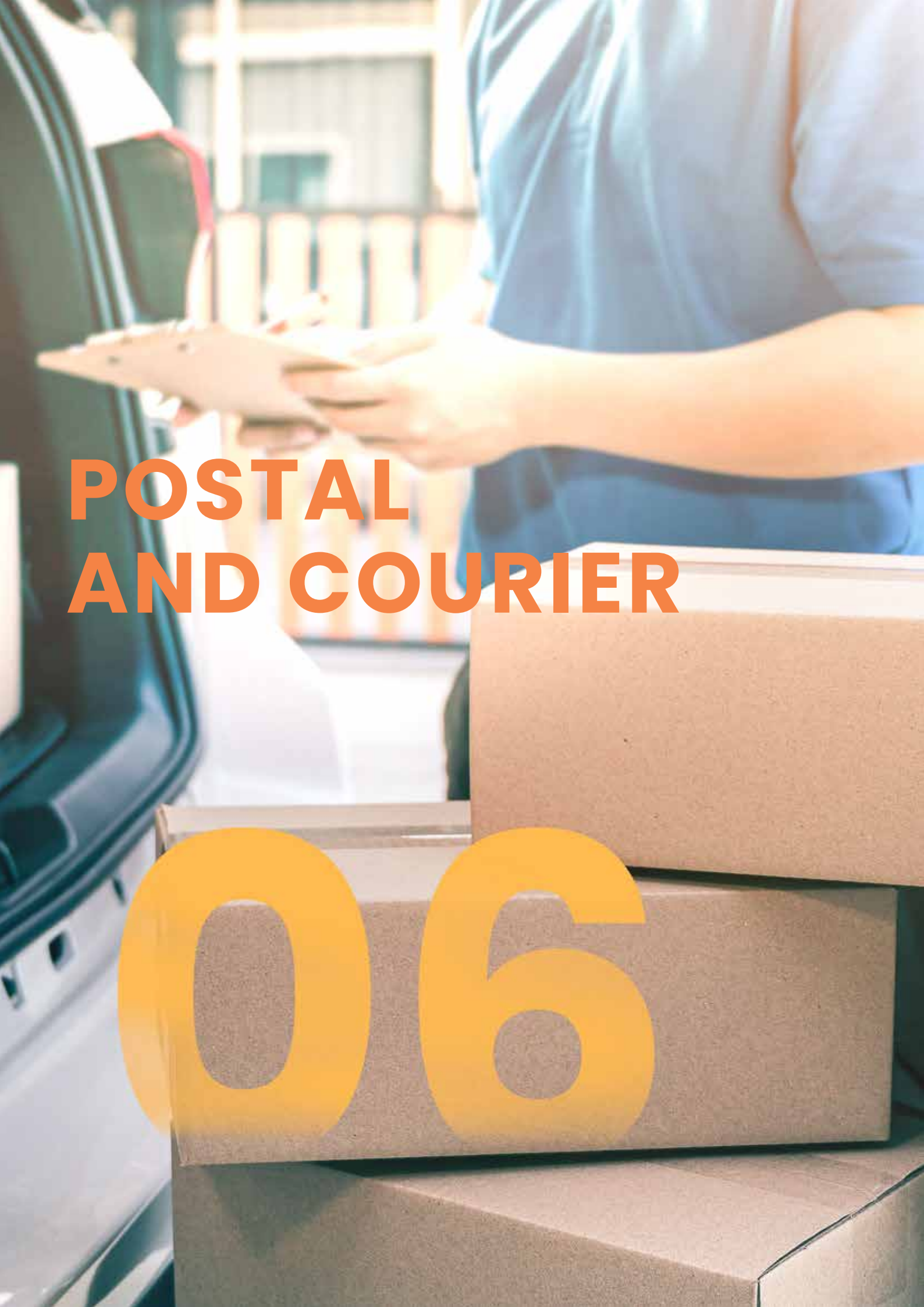
Conclusion

While the COVID-19 crisis accelerated the growth of e-commerce in Malaysia, the ECS 2022 report highlights several key challenges hindering broader participation. These challenges include connectivity, financial inclusion, skills, security, privacy, and trust. In overcoming these barriers and to promote more inclusive e-commerce participation, ongoing initiatives are crucial. These initiatives should focus on expanding broadband coverage to rural and underserved regions, ensuring affordable and high-quality broadband access, enhancing financial inclusion, building trust among consumers and businesses, and fostering skill development.



Note: For further information, please visit https://www.mcmc.gov.my/en/resources/statistics/e-commerce-consumers-survey

Figure 5.12 Breakdown of Reasons for Not Conducting any E-Commerce Activities



POSTAL AND COURIER

06

This chapter reports on the performance and growth of the postal and courier industry, supported by the upsurge in e-commerce and package deliveries due to shift in consumer shopping behaviours. It provides data on postal and courier services traffic and total number of courier licences in 2022. One of the chapter highlights is the *Pelan Accelerator Kurier Negara* (PAKEJ), which aims to provide improved and flexible access and coverage of postal and courier services for the consumers and merchant communities. PAKEJ also aims to improve courier services through the setting of industry benchmarks and guidelines on Quality of Service (QoS).

KEY HIGHLIGHTS
2022

1,489
Postal Infrastructure
(2021: 1,425)

17,428
Postal Employees
(2021: 19,821)

23,034
***Rangkaian PAKEJ* Points**
(2021: 21,188)

120
Courier Licences
(2021: 121)

161,986
Courier Employees
(2021: 154,322)

21.4
Parcel per capita
(2021: 23.2)

Postal Services Traffic

Domestic

362.09 million
Letter Post Items
(2021: 364.96 million)

17.89 million
Registered Items
(2021: 15.41 million)

170,214
Ordinary Parcels
(2021: 750,479)

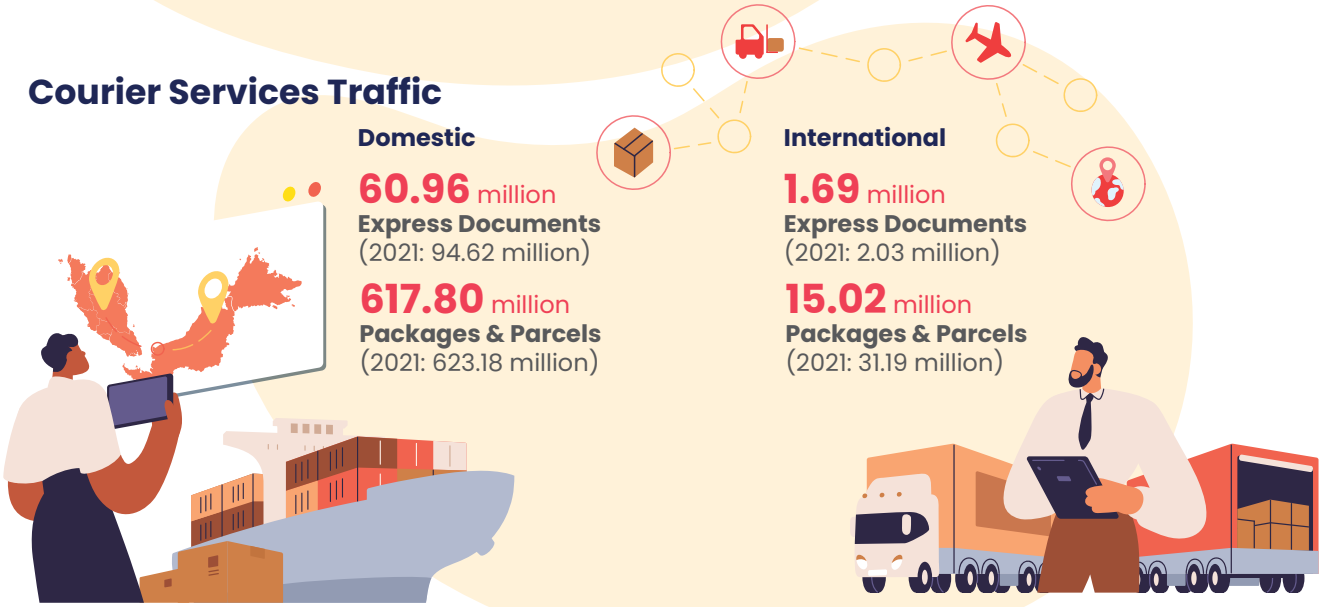
International

10.50 million
Letter Post Items
(2021: 13.00 million)

1.22 million
Registered Items
(2021: 1.62 million)

173,947
Ordinary Parcels
(2021: 189,052)

Courier Services Traffic



Domestic

60.96 million
Express Documents
(2021: 94.62 million)

617.80 million
Packages & Parcels
(2021: 623.18 million)

International

1.69 million
Express Documents
(2021: 2.03 million)

15.02 million
Packages & Parcels
(2021: 31.19 million)

POSTAL SERVICES INDUSTRY PERFORMANCE

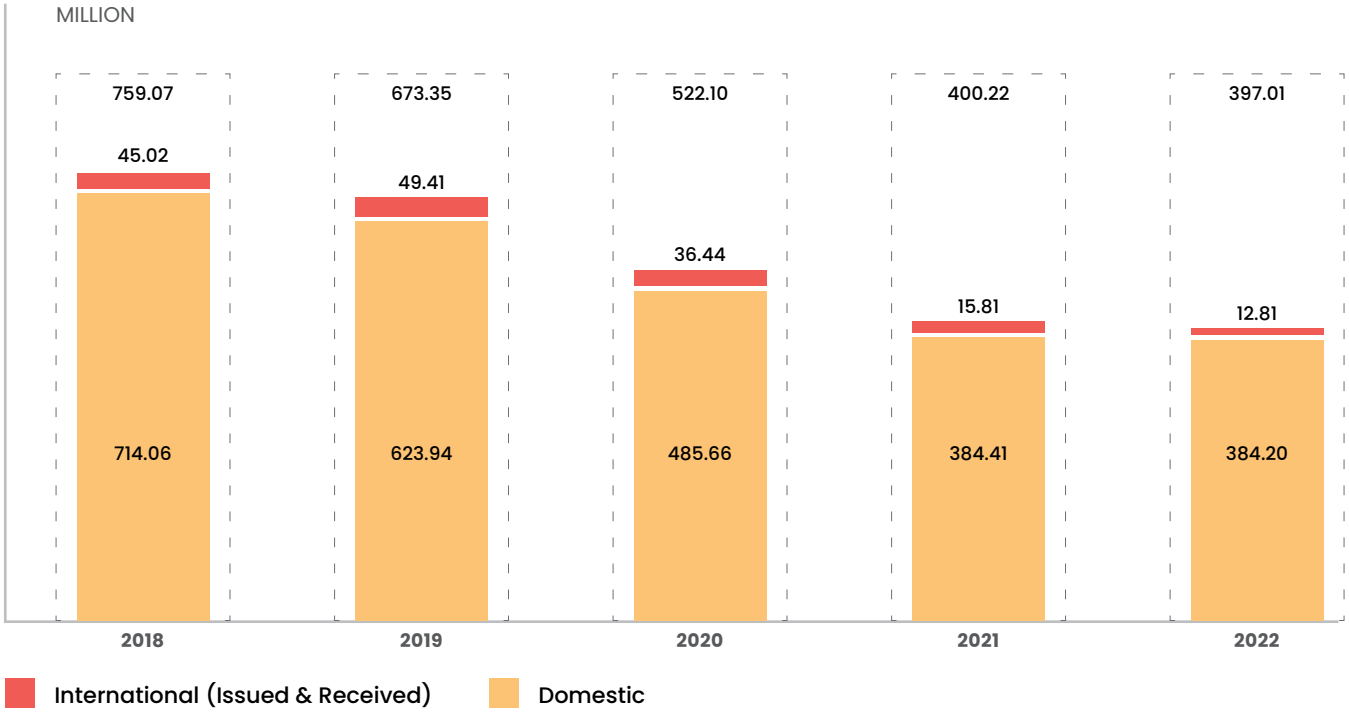
Postal services play a key role in the economy, providing domestic and international mail and parcel services. In Malaysia, there is still a significant demand for postal services, particularly among those who seek affordable services and to reach out to those living in remote areas. Additionally, government bodies and organisations rely on these services for delivering notices and important documents.

Pos Malaysia is the sole appointed and licensed universal postal services provider in Malaysia. Over the years, Pos Malaysia has evolved from a traditional postal service into a dynamic mail and parcel services, financial services, aviation, and supply chain solutions provider. The Group provides the largest delivery and touchpoint network, reaching over 1,000 postal outlets and connecting to more than 10 million addresses nationwide. As part of its transformation journey, Pos Malaysia plans to migrate most of its IT infrastructure to cloud by 2023.

Postal Services Traffic

A total of 397.01 million postal items were managed domestically and internationally in 2022, 0.8% decline from 400.22 million in 2021. Despite the slight decrement in overall postal services traffic, the international postal traffic which was issued and received in 2022 experienced a lower percentage decrease of 19% compared to the reduction of 57% international traffic in 2021. Meanwhile, the domestic traffic in 2022 was slightly reduced by 0.1% compared to the 20.8% decline in 2021.

POS MALAYSIA: OVERALL POSTAL TRAFFIC 2018-2022

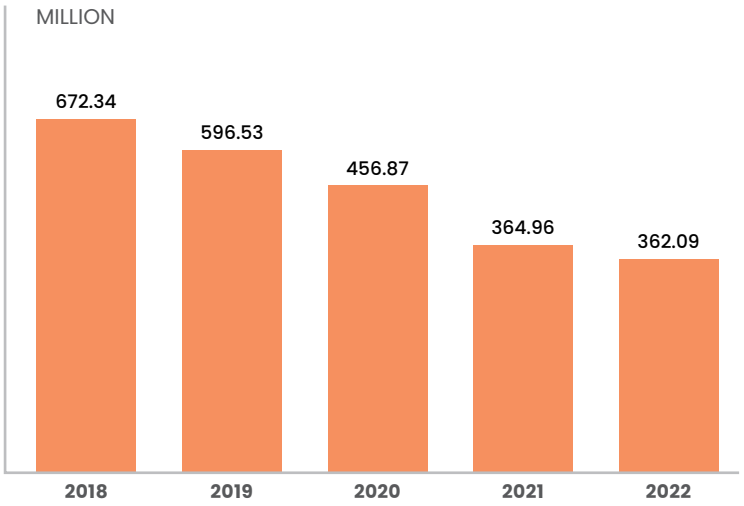


Source: Pos Malaysia
Figure 6.1 Pos Malaysia: Overall Postal Traffic 2018-2022

Domestic items include letter post, registered mail, ordinary parcel, insured parcel, express item, post-free item and advertising item. Meanwhile, international items include letter post, express item, registered item and ordinary parcel. In 2022, 97% of the overall postal items were managed domestically while 3% were issued and received abroad.

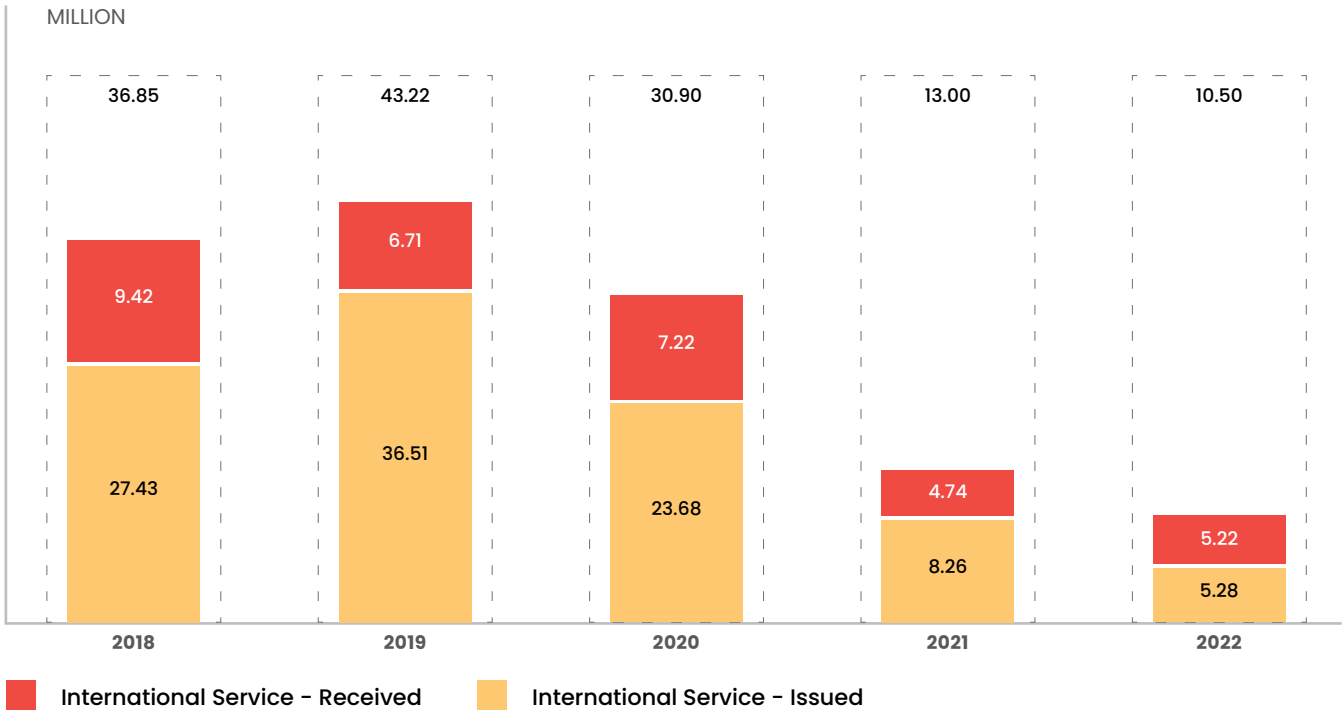
For letter post traffic, domestic items reduced by 0.8% from 364.96 million in 2021 to 362.09 million in 2022, while the total international letter post items reflected 19.2% reduction from 13 million items managed in 2021 to 10.5 million in 2022. In 2022, items issued internationally by 36% whilst items received through international service increased by 10.1%.

POS MALAYSIA: DOMESTIC LETTER POST ITEMS 2018-2022



Source: Pos Malaysia
Figure 6.2 Pos Malaysia: Domestic Letter Post Items 2018-2022

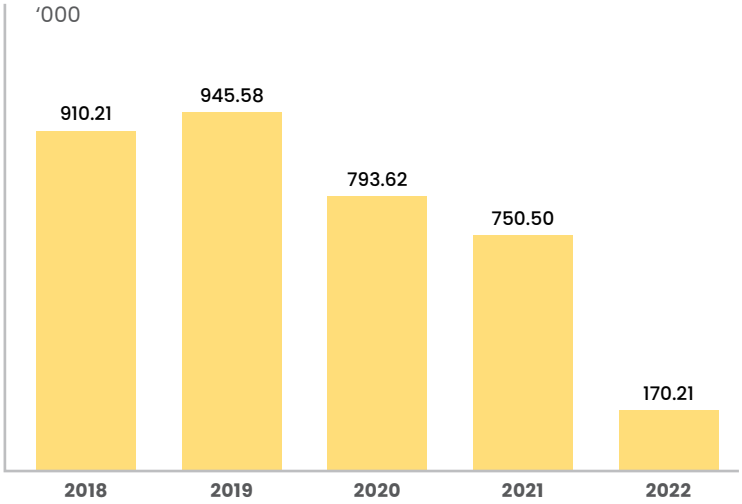
POS MALAYSIA: INTERNATIONAL LETTER POST ITEMS 2018-2022



Source: Pos Malaysia
Figure 6.3 Pos Malaysia: International Letter Post Items 2018-2022

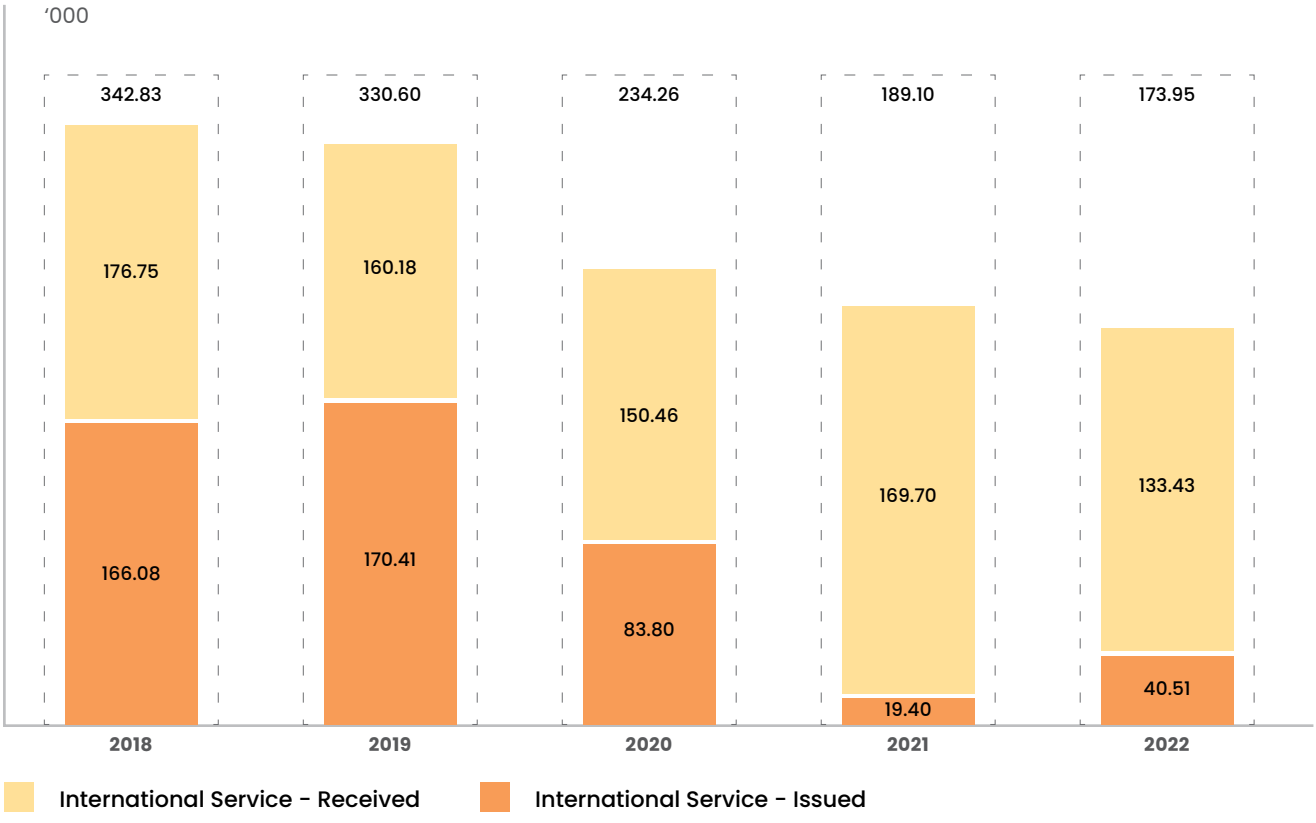
In 2022, ordinary parcel traffic involved 170,214 parcels managed domestically, and 173,947 parcels issued and received through international service. Domestic parcels showed a rapid shrinkage by 77.3% while international parcels had a slight fall of 8% in 2022. The international parcel issued in 2022 increased exceptionally from 19,400 parcels in 2021 to 40,514 parcels in 2022. Conversely, the international parcel received in 2022 decreased by 21.4% from 169,700 parcels in 2021 to 133,433 parcels in 2022.

POS MALAYSIA: DOMESTIC ORDINARY PARCELS 2018-2022



Source: Pos Malaysia
Figure 6.4 Pos Malaysia: Domestic Ordinary Parcels 2018-2022

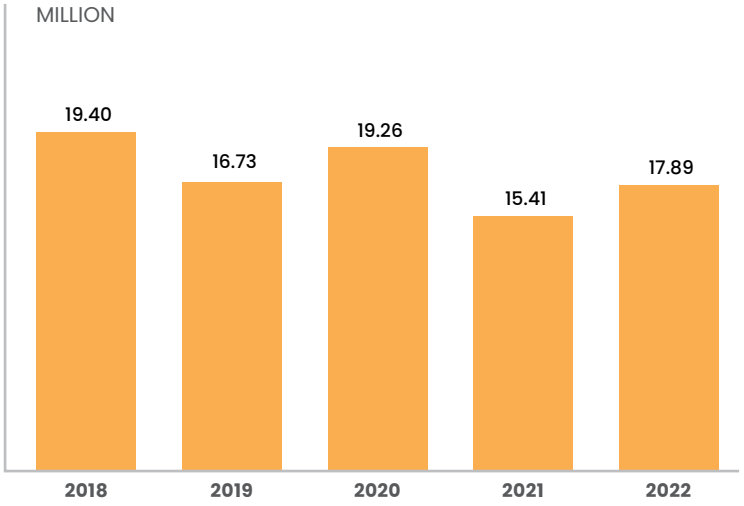
POS MALAYSIA: INTERNATIONAL ORDINARY PARCELS 2018-2022



Source: Pos Malaysia
Figure 6.5 Pos Malaysia: International Ordinary Parcels 2018-2022

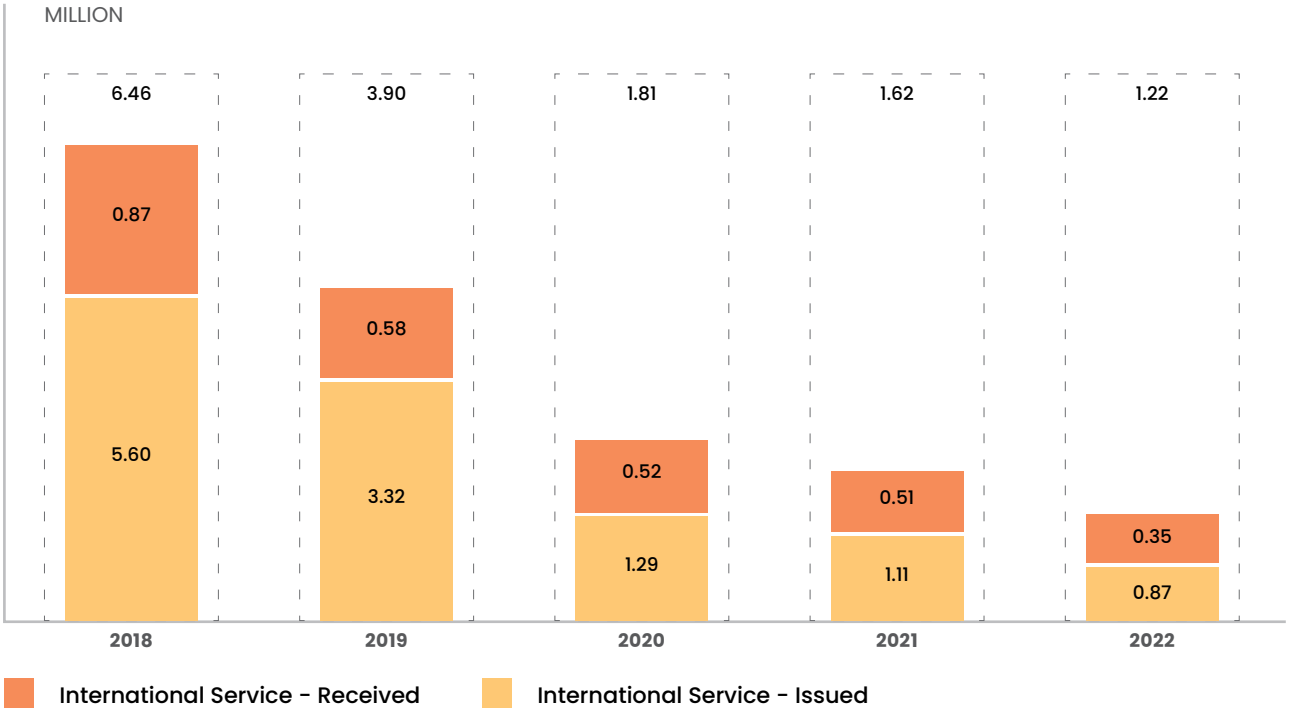
The total volume of registered items increased by 12.2% from 17.03 million in 2021 to 19.10 million in 2022. The increment was contributed by the 16.1% increase in domestic services for the year 2022 while international registered items continued to fall by 25%.

POS MALAYSIA: DOMESTIC REGISTERED ITEMS 2018-2022



Source: Pos Malaysia
Figure 6.6 Pos Malaysia: Domestic Registered Items 2018-2022

POS MALAYSIA: INTERNATIONAL REGISTERED ITEMS 2018-2022



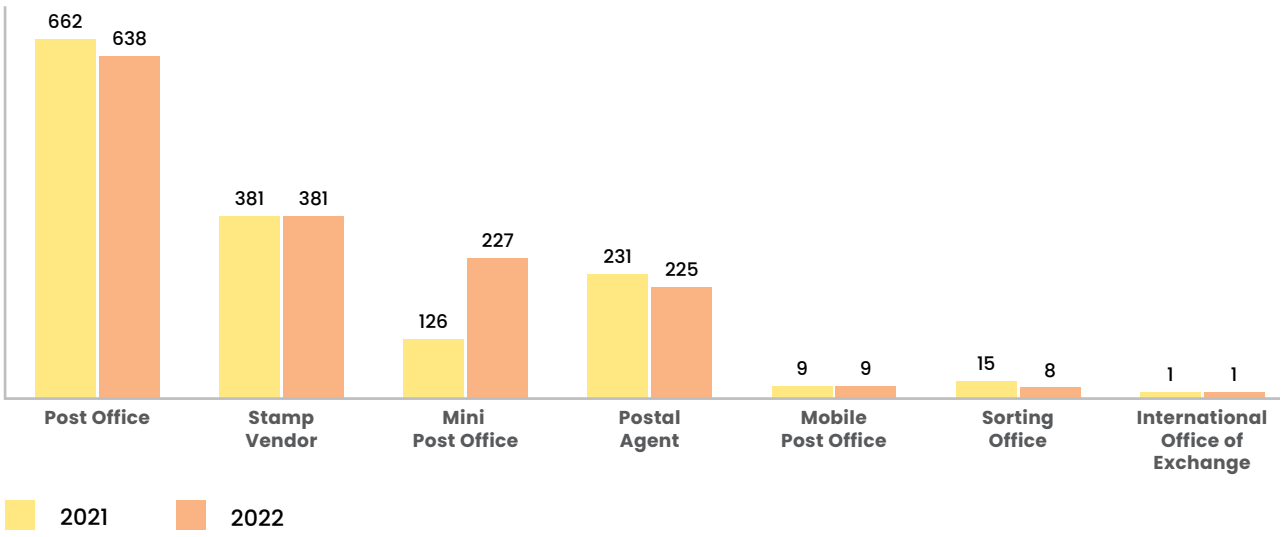
Source: Pos Malaysia
Figure 6.7 Pos Malaysia: International Registered Items 2018-2022

Postal Services Accessibility

Pos Malaysia provides postal and related services namely standard mail services, courier, express and parcels services, and retail services such as bill payments and Road Transport Department (JPJ) services. Postal infrastructure acts as a crucial foundation in ensuring that these services are carried out efficiently and remained accessible to consumers.

Figure 6.8 lists out different types of postal infrastructure available in 2021 and 2022. The number increased by 4.5% to 1,489 facilities in 2022 (2021: 1,425).

TYPES OF POSTAL INFRASTRUCTURE 2021-2022



Source: Pos Malaysia
Figure 6.8 Types of Postal Infrastructure 2021-2022

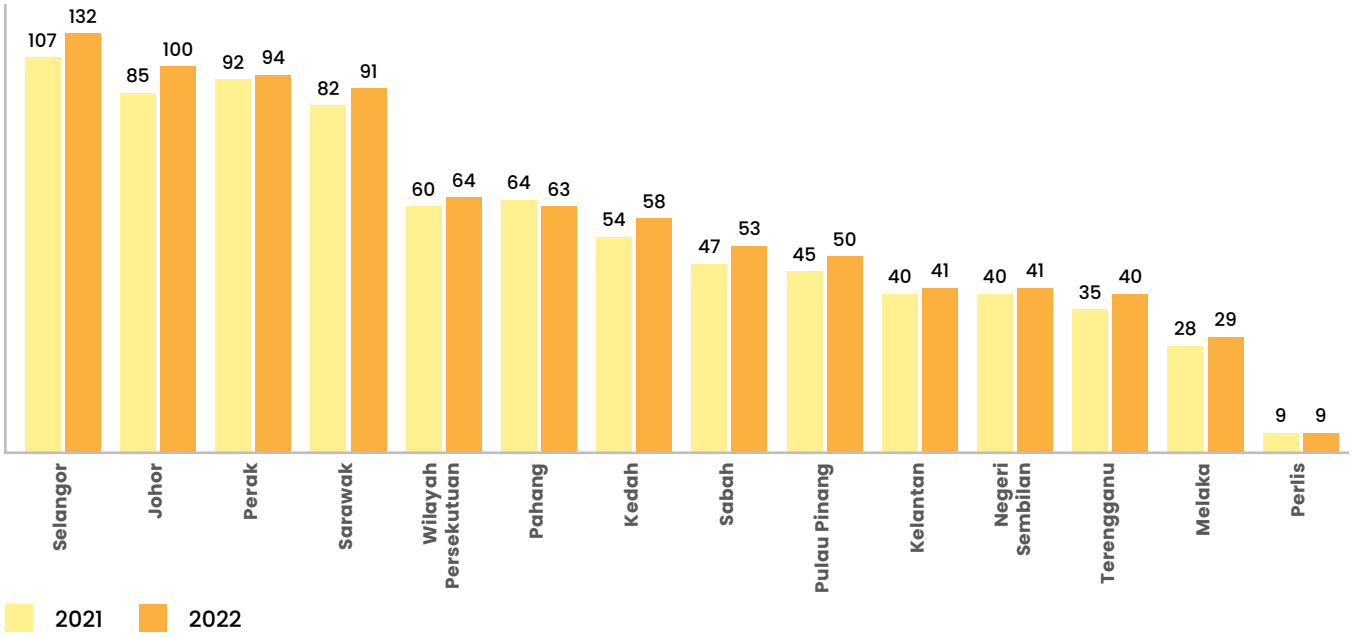
Mini post offices that are privately operated by third party individuals or businesses, have increased by 80.2% in 2022 compared to 126 offices in 2021. This type of infrastructure offers relatively similar retail postal services to post office. The total of 227 mini post offices are fragmented into 116 offices in urban and 111 offices in rural areas; portraying the relatively equal distribution of mini post offices available between these two areas. In addition, in 2022, there was 132% increase in the total number of mini post offices in the urban area and 46.1% increase in the rural area.

Contrarily, post offices, postal agents and sorting offices were reduced to 638, 225 and eight respectively, while other infrastructures remained since 2021. Out of the total number of post offices, 416 are in urban and 222 are in rural areas. The overall number of post offices decreased by 23 in urban areas and 1 in rural areas compared to the previous year.

The reduction of infrastructure was a strategic decision aimed at improving the efficiency and cost-effectiveness of postal services while retaining sufficient access for the public. In addition, the decrease in sorting offices was mainly influenced by the adoption of machineries and technologies that automate mail and package processing and minimise labour intensity.

Further, the distribution of post offices and mini post offices by states are reflected in Figure 6.9 for the year 2021 and 2022. In 2022, almost all states showed an increment in the number of facilities established, with Selangor appearing to have the greatest number of offices (132), followed by Johor and Perak with 100 and 94 offices respectively.

POST OFFICES BY STATE 2021-2022



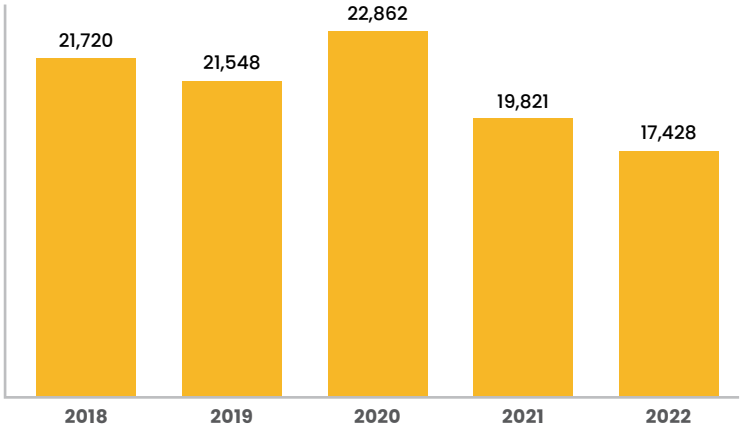
Source: Pos Malaysia
Figure 6.9 Post Offices by State 2021-2022

In 2022, Selangor remained as the state with the highest percentage of increment by 23.4%, followed by Johor with 17.6% expansion and Terengganu with 14.3% growth.

Postal Employment

In 2022, postal employment comprising in-house and outsourced employees was reduced by 12.1% from 19,821 employees in 2021 to 17,428 employees.

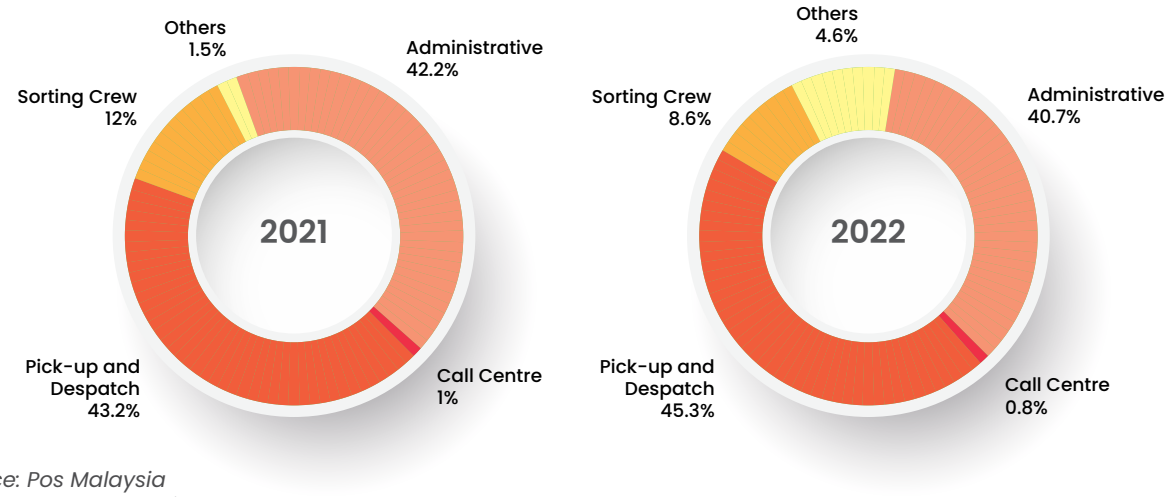
POS MALAYSIA: POSTAL EMPLOYMENT 2018-2022



Source: Pos Malaysia
Figure 6.10 Pos Malaysia: Postal Employment 2018-2022

Employment types are segmented into five categories which are administrative, call centre, pick-up and despatch, sorting crew and others. In 2022, the categories of pick-up and despatch, and administrative represent the biggest share of employment at 45.3% and 40.7%, respectively.

POS MALAYSIA: POSTAL EMPLOYMENT BY CATEGORY 2021-2022



Source: Pos Malaysia
Figure 6.11 Pos Malaysia: Postal Employment by Category 2021-2022

Compared to the total number of sorting crews employed in 2021, this employment decreased by 37.4%, which corresponds to the significant reduction of sorting offices in 2022. The sorting crew category contributes to the largest reduction in postal employment, followed by call centre and administrative categories, which decreased by 27.1% and 15.2%, respectively.

Contrarily, employment in other sections that include supervisor of *posmen* and *wakil posmen*, rose significantly by 162.4% from 303 staff in 2021 to 795 staff in 2022. The collaboration between Pos Malaysia and *Posmen Komuniti* in supporting the initiatives listed under PAKEJ widened the employment opportunities for people in rural area.

COURIER SERVICES INDUSTRY PERFORMANCE

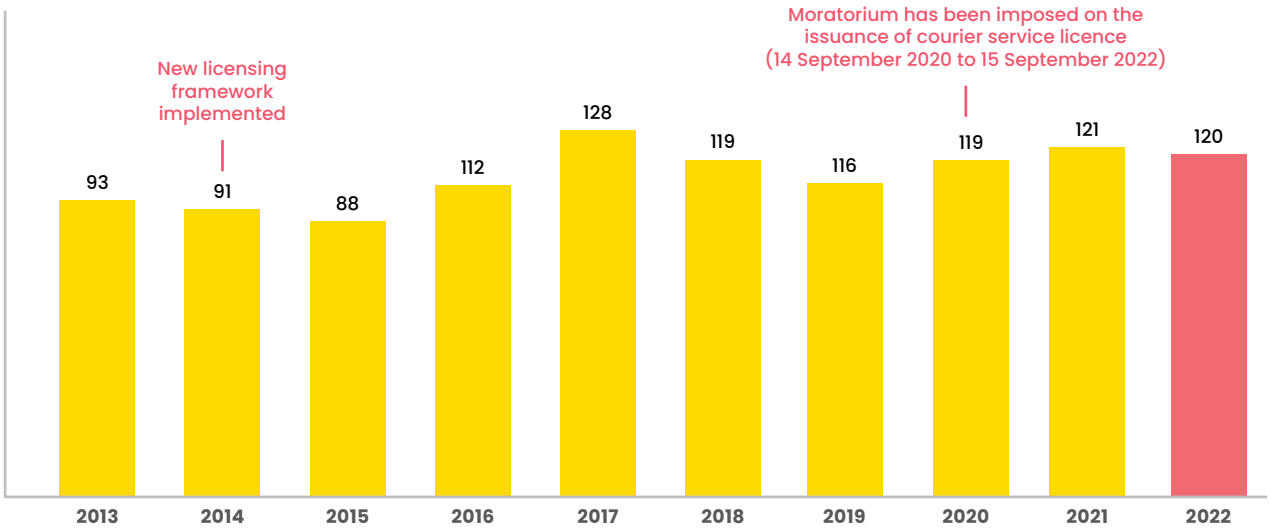
Courier services play an important role in supporting e-commerce. With e-commerce on the rise, courier services will continue to grow as the enabler of last-mile deliveries. The development is a positive prospect for the courier industry although the overall performance has been mixed with the impact of uncertain market conditions and changes in consumer demand.

Courier Licensing Profile

MCMC has imposed a moratorium policy on new courier service licence issuance commencing 14 September 2020 till 15 September 2022 to allow for a thorough review of the licensing framework. After the two-year moratorium period has ended, application for new licence is open for all courier services categories.

Figure 6.12 shows the total number of courier licences from 2013 to 2022. There was a total of 120 courier licences available as at 31 December 2022.

TOTAL NUMBER OF COURIER LICENCES 2013-2022

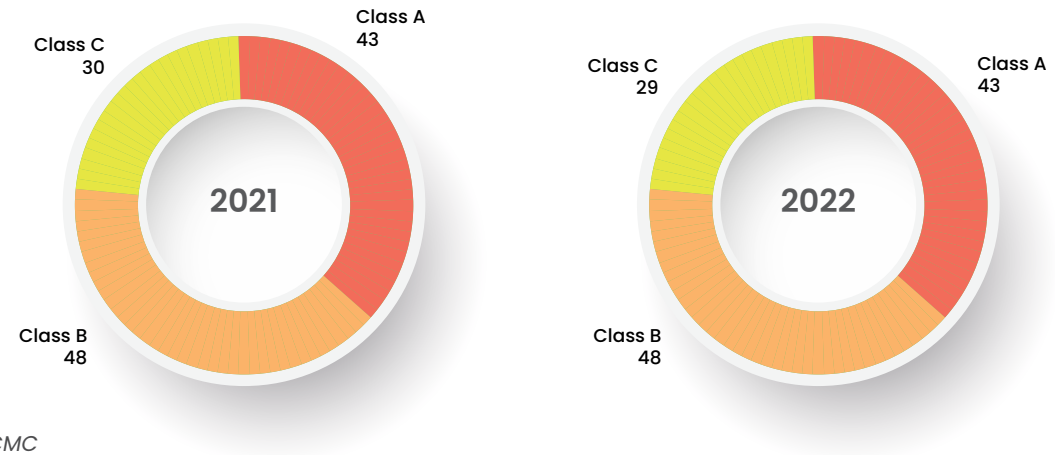


Note: Two licence applications were received before the moratorium took effect on 14 September 2020 and were approved in early 2021.

Source: MCMC
Figure 6.12 Total Number of Courier Licences 2013-2022

Courier licences are categorised into three classes as shown in Figure 6.13. Class A licences are issued to courier companies delivering domestic and international services. The latter encompasses both international inbound and outbound services. Meanwhile, companies with Class B licenses can provide courier services for both domestic and international inbound services. In contrast, companies with Class C licenses are only permitted to provide services within a single state.

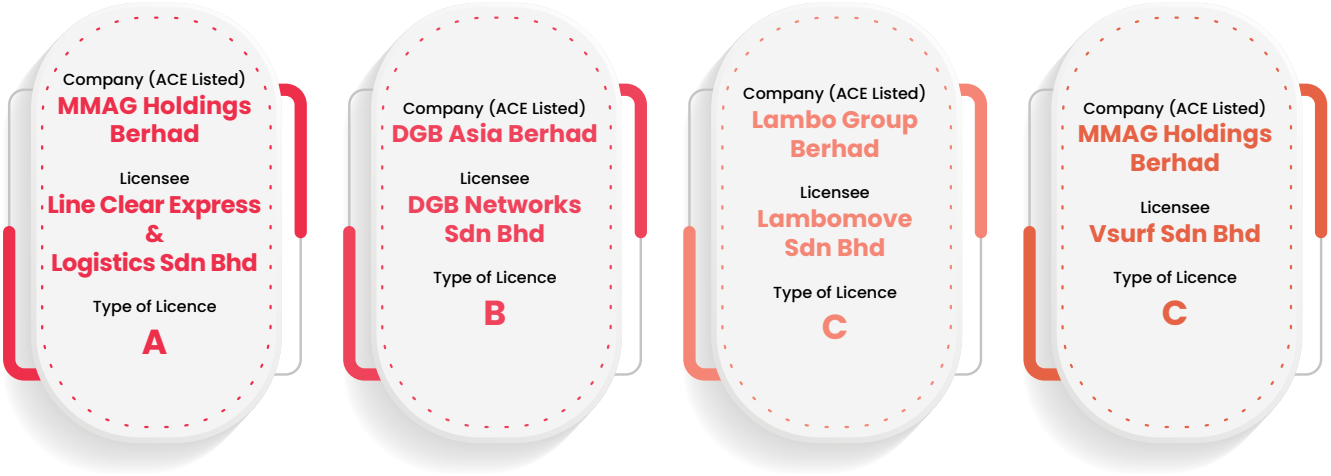
COURIER LICENSEES BY CATEGORY 2021-2022



Source: MCMC
Figure 6.13 Courier Licensees by Category 2021-2022

In 2022, the total number of courier licensees was slightly reduced following the reduction of Class C licence holders from 30 licensees to 29 licensees; other classes have maintained their number of licence holders since 2021.

Four courier licensees were listed in the Access, Certainty, Efficiency (ACE) Market in 2022.



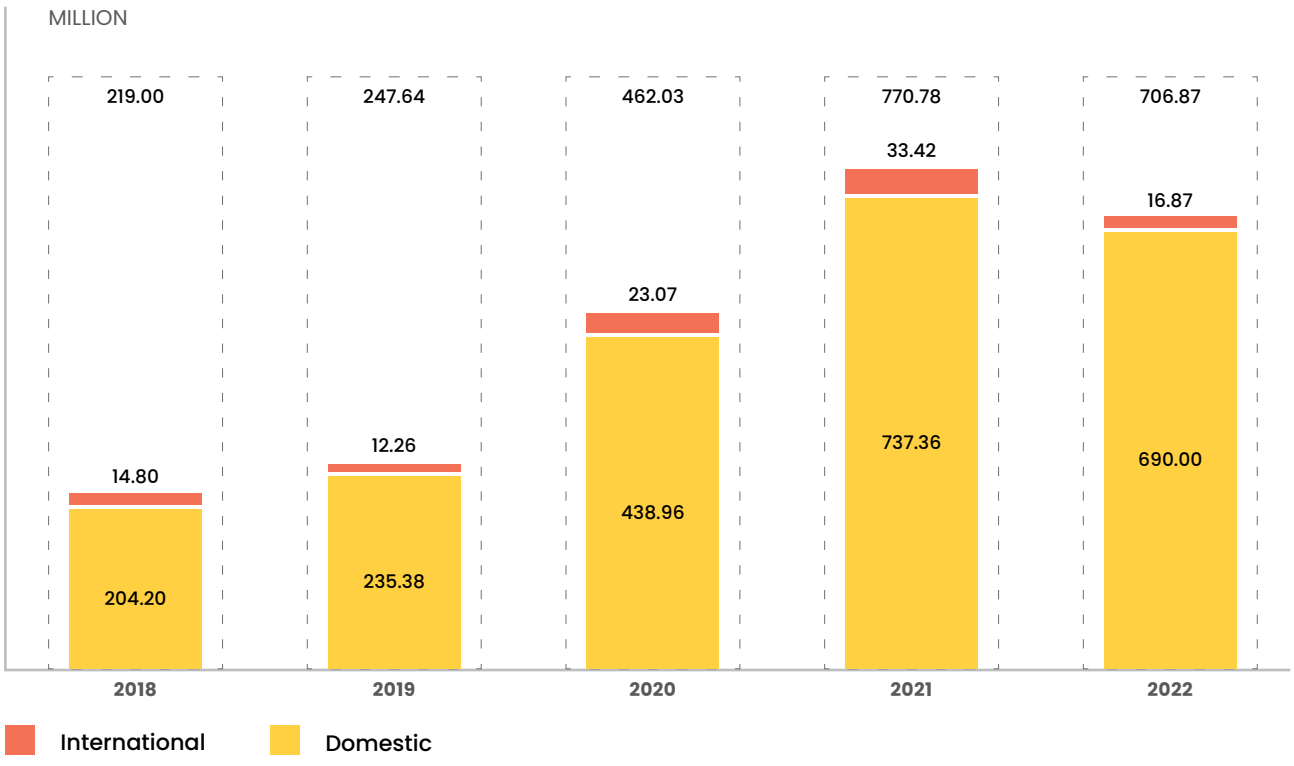
Source: Bursa Malaysia ACE Market
Figure 6.14 Courier Licensees Listed in ACE Market 2022

Being listed in the ACE Market reflected that they were able to meet the standards and requirements set by the market; portraying their capabilities in providing reliable services and competitive pricing although they were relatively new in the industry.

Courier Services Traffic

Overall courier services traffic experienced a reduction of 8.3% from 770.78 million items in 2021 to 706.87 million items in 2022. Domestic and international courier items contributed 97.6% and 2.4% respectively to the overall traffic in 2022. Due to the easing of COVID-19 restrictions and reopening of physical stores, e-commerce performance normalised with fewer online purchase transactions reported and returned to pre-pandemic growth rate. Consequently, courier traffic declined in 2022.

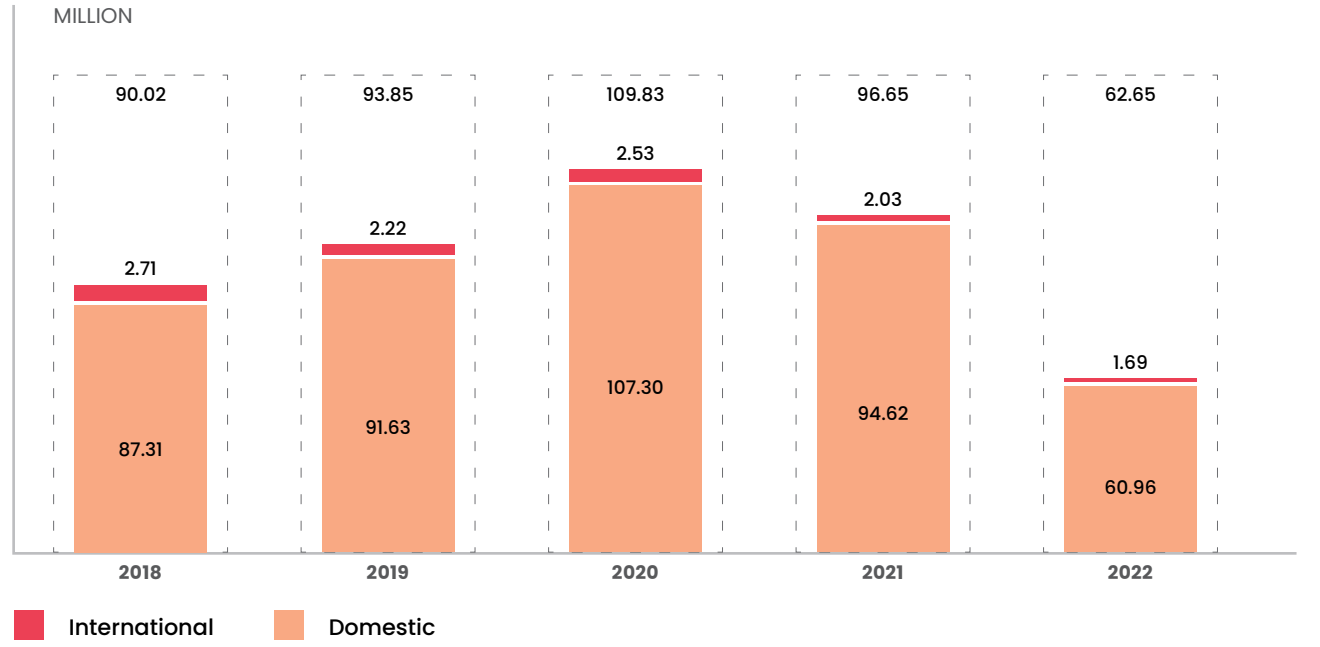
OVERALL COURIER SERVICES TRAFFIC 2018-2022



Source: MCMC
Figure 6.15 Overall Courier Services Traffic 2018-2022

Figure 6.15 comprises different types of courier services which are express documents, packages and parcels, and other services such as non-priority mail, walk-in courier, prepaid and post express.

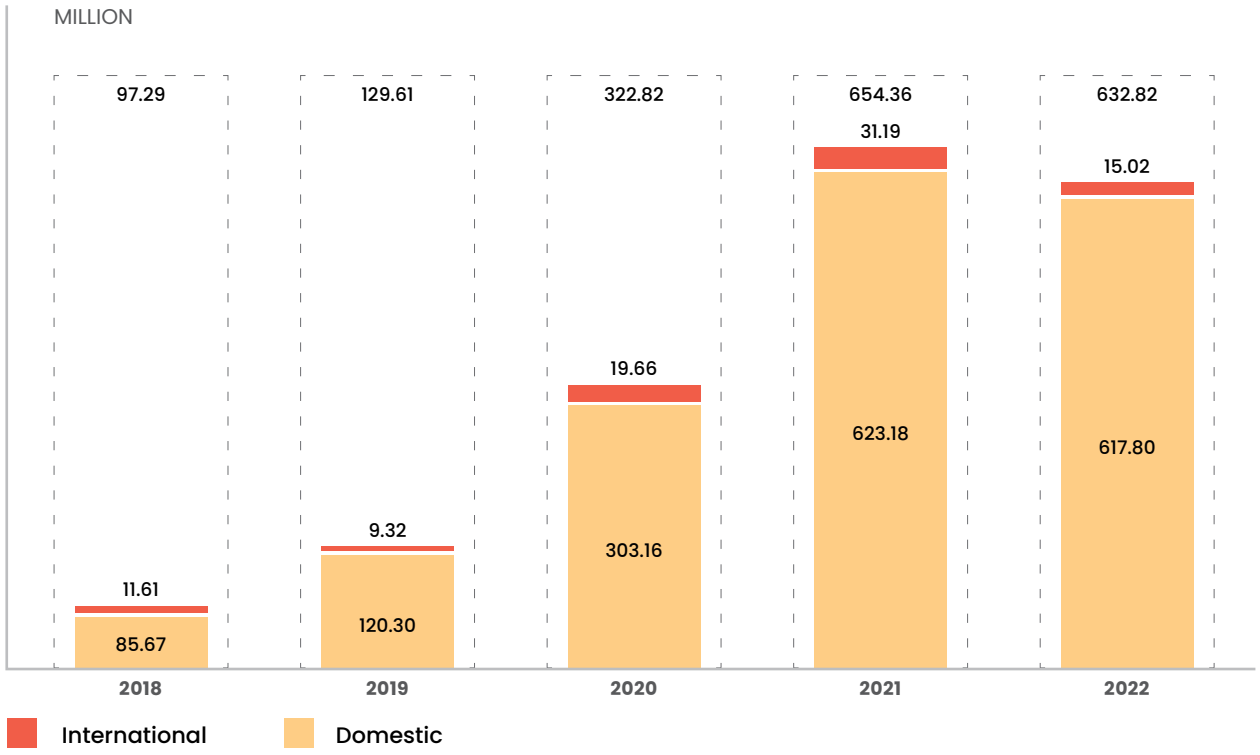
COURIER SERVICES TRAFFIC: EXPRESS DOCUMENTS 2018-2022



Source: MCMC
Figure 6.16 Courier Services Traffic: Express Documents 2018-2022

Based on Figure 6.16, the volume of express documents decreased from 96.65 million in 2021 to 62.65 million in 2022. This represents a decrease of 35.2% for this service between 2021 and 2022.

COURIER SERVICES TRAFFIC: PACKAGES & PARCELS 2018-2022



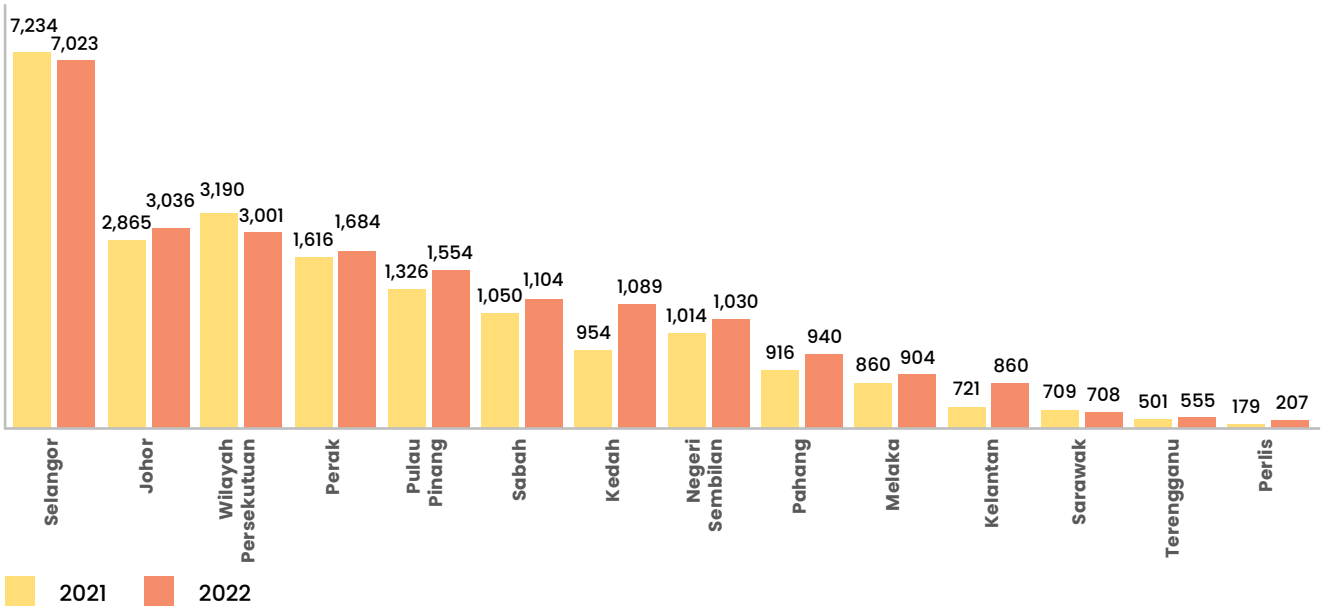
Source: MCMC
Figure 6.17 Courier Services Traffic: Packages & Parcels 2018-2022

Figure 6.17 shows that the traffic for packages and parcels reduced by 3.3% from 654.36 million in 2021 to 632.74 million in 2022. In 2022, 97.6% of the total packages and parcels managed were from domestic services and 2.4% from the international services. Despite the trivial decrement in 2022, the volume of packages and parcels has rapidly increased compared to pre-pandemic years, reflecting the high relevance of online retail and e-commerce.

Courier Services Accessibility

In 2022, a total of 23,695 infrastructures were serving as distribution channels that facilitate customers' demand for courier services, an increment of 2.4% from 23,135 facilities accessible in 2021. Based on Figure 6.18, Selangor, Johor and Wilayah Persekutuan remain as the top three states with the highest number of infrastructures since 2021.

COURIER INFRASTRUCTURE BY STATE 2021-2022

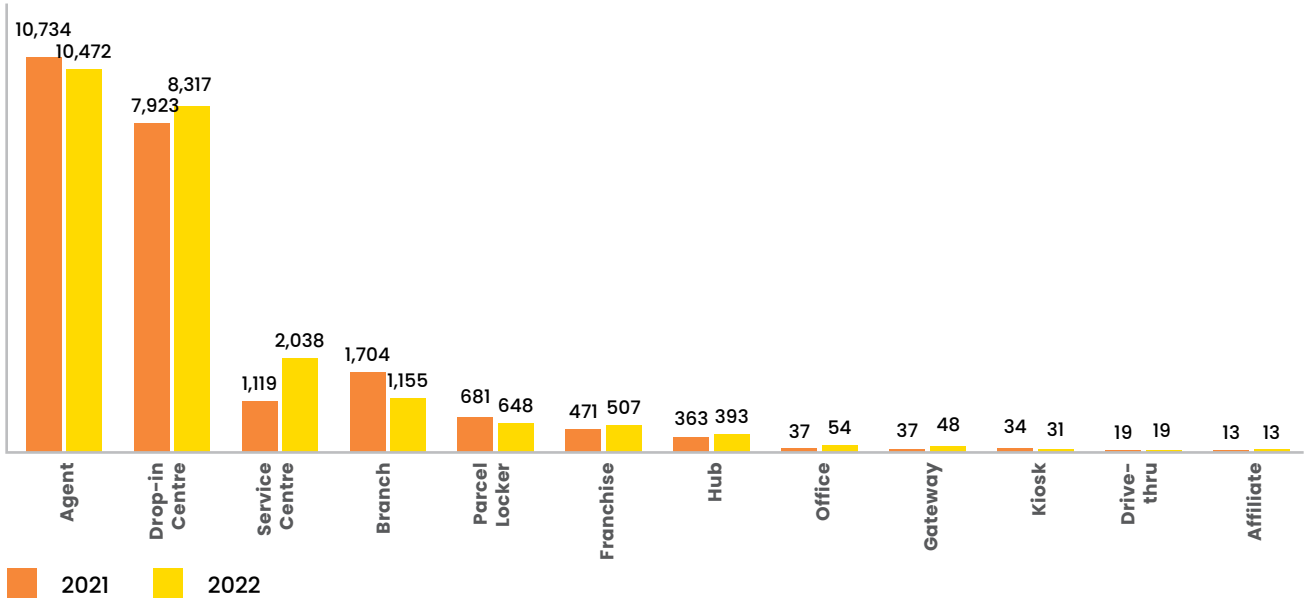


Source: MCMC
Figure 6.18 Courier Infrastructure by State 2021-2022

Nonetheless, the comparison between the increment of facilities available in each state show that Kelantan has the greatest growth by 19.3% in 2022, followed by Pulau Pinang and Perlis with 17.2% and 15.6% growth.

Further, there are 12 types of courier infrastructures available nationwide as listed in Figure 6.19. In 2022, there were 10,472 agents in service, while 8,317 drop-in centres and 2,038 service centres were in operation. These were the top three facilities with the highest count in the country.

TYPES OF COURIER INFRASTRUCTURE 2021-2022

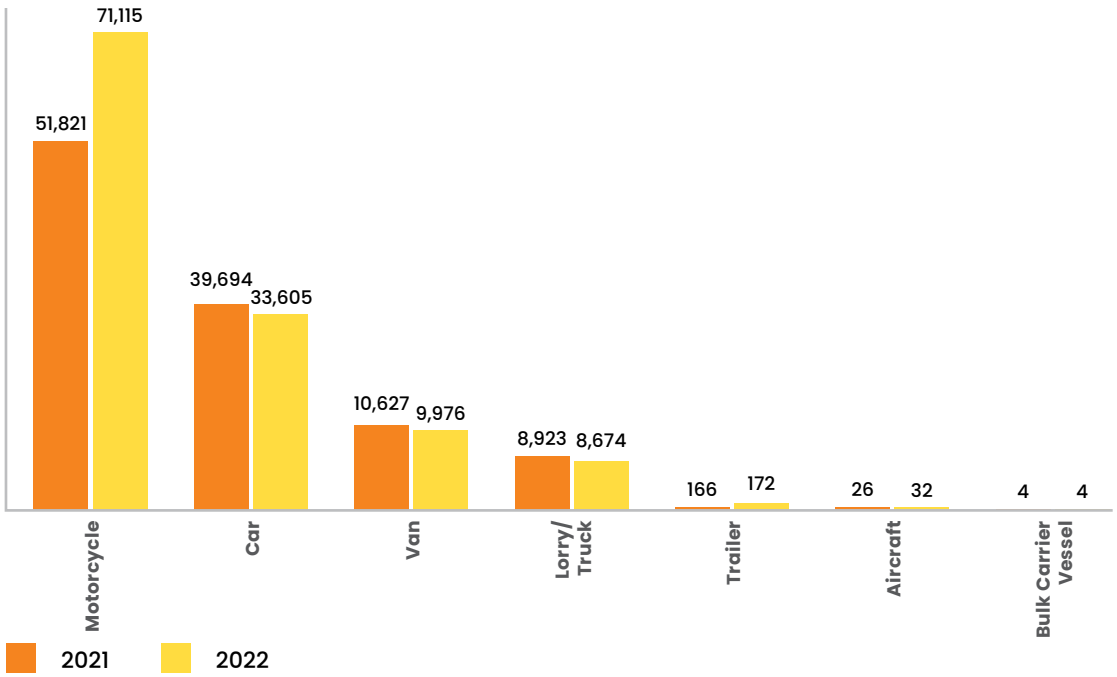


Source: MCMC
Figure 6.19 Types of Courier Infrastructure 2021-2022

Comparatively, service centres significantly increased by 82.1% from 1,119 centres in 2021 to 2,038 centres in 2022; this type of facility provides special services that act as a distribution centre, courier hub, retail point and service point. Additionally, gateways were added by 29.7%, followed by the addition of offices b 45.9%. Conversely, the number of branches, kiosks, parcel lockers and agents were reduced in 2022.

Other than that, 123,578 courier vehicles were allocated in 2022, 11.1% increase from 111,261 vehicles in 2021. These figures include vehicles owned by the courier companies, outsourced and employee-owned vehicles that have been used for courier activities.

COURIER VEHICLES 2021-2022



Source: MCMC
Figure 6.20 Courier Vehicles 2021-2022

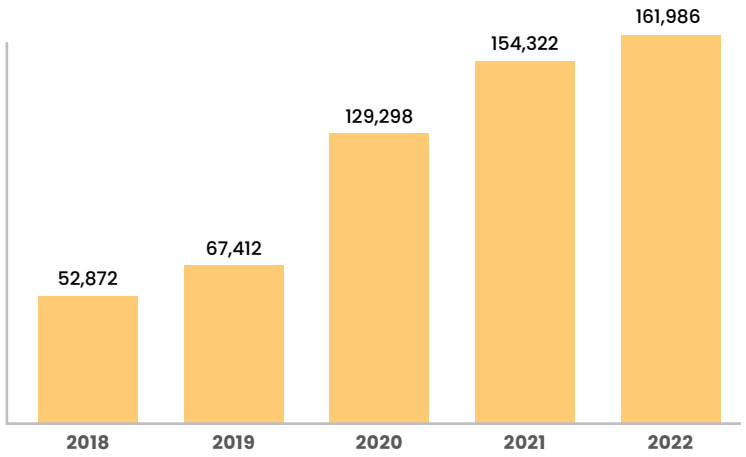
Figure 6.20 lists the types of courier vehicles for transporting goods and performing pick-up and delivery activities. Motorcycle, car and van remained as the top three means of transportation that were widely used in 2022. The total number of motorcycles increased by 37.2% while the total count for cars and vans were respectively reduced by 15.3% and 6.1% in 2022.

Previously, the number of aircrafts reduced tremendously from 166 aircrafts in 2020 to 26 aircrafts in 2021. However, the trend started to change with the ease in travel restrictions as the nation entered the endemic phase. Consequently, there were 32 aircrafts used in 2022, reflecting 23.1% increment from 26 aircrafts available in 2021.

Courier Services Employment

Courier employment increased by 5% from 154,322 employees in 2021 to 161,986 employees in 2022. Figure 6.21 illustrates the positive trend in courier employment from 2018 to 2022. This indicates the growing demand for their services and the stable growth in the transportation and logistics sector of the industry.

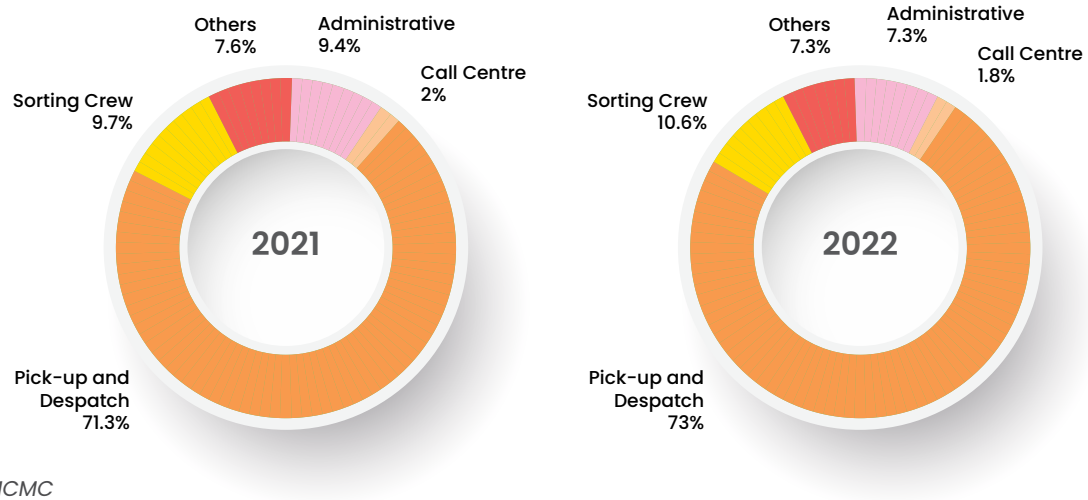
COURIER EMPLOYMENT 2018-2022



Source: MCMC
Figure 6.21 Courier Employment 2018-2022

Figure 6.22 shows five categories of employment for the courier industry. At 73%, the pick-up and despatch category holds the largest portion from the overall courier employment in 2022. A total of 118,327 employees were working in this type of employment including riders and drivers involved in managing postal and courier activities compared to 110,071 employees in 2021.

COURIER EMPLOYMENT BY CATEGORY 2021-2022



Source: MCMC
Figure 6.22 Courier Employment by Category 2021-2022

Employment in administrative category had the largest reduction by 18.1% from 14,430 employees in 2021 to 11,811 employees in 2022, followed by the decrement in call centres by 3.3% from 3,042 centres in 2021 to 2,942 centres in 2022.

BUSINESS INNOVATION AND SUSTAINABILITY STRATEGIES

The postal and courier industry has undergone significant technological improvement in recent years. As the market continues to evolve, service providers are adapting and utilising the latest advances in technology to remain competitive.

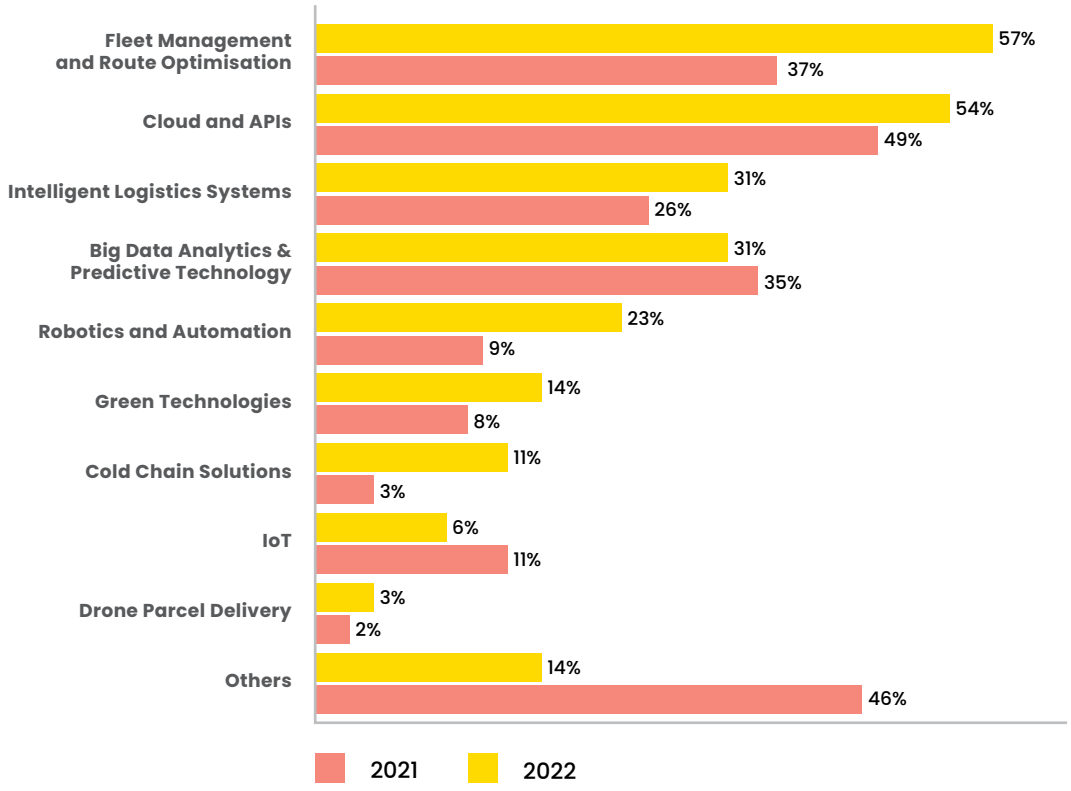
Digitalisation and Technological Adoption

Technological advancement allows companies to transform their business models and streamline their processes through digitalisation – from the use of Artificial Intelligence (AI) for advanced track and trace system to Radio Frequency Identification (RFID) usage in high-value packaging.

Pos Malaysia migrated 60 critical applications including parcel and mail tracking, System Applications and Products in Data Processing (SAP), and supply chain to Amazon Web Services (AWS) in June 2022, and will migrate the remaining applications by 2023. Pos Malaysia will use Amazon Elastic Compute Cloud (Amazon EC2), which provides secure, resizable compute capacity in the cloud, to help scale its workloads. This will enable Pos Malaysia to provide better support to its customers particularly with seamless delivery during peak periods such as promotional sales events and festive seasons.

Figure 6.23 expresses the emerging technologies deployed by courier service providers between 2021 and 2022.

TECHNOLOGY ADOPTION BY COURIER SERVICE PROVIDERS 2021-2022



Source: Industry
Figure 6.23 Technology Adoption by Courier Service Providers 2021-2022

Fleet management and route optimisation, cloud and application programming interfaces (APIs), and intelligent logistics systems are the top three types of technologies adopted by most courier service providers in 2022 and the application has been increasing since 2021. Conversely, the implementation of big data analytics and predictive technology, Internet of Things (IoT), and other technologies that include autonomous delivery vehicles, augmented and virtual realities, Industry 4.0 and blockchains were reduced in 2022.

Cargomind Sdn Bhd developed a digitalised logistics management system known as LOMS, which digitalises all key business processes to create a seamless business operation process. Among the main features include getting instant response for rates to popular destinations by defining their logistic needs such as origin, destination, weight, type of goods, shipment mode, and the production of shipping instruction.

The Ninja Van Group invested USD50 million in automation technology and systems to enhance its parcel processing capabilities across its key parcel sorting hubs, in an effort to modernise and automate parcel processing capabilities across Southeast Asia, tying in with their focus on efficient operations to drive best-in-class services. The region-wide exercise will involve equipping nine key regional hubs with automation technology by the second half of 2024. The improvements in parcel handling capabilities looks set to increase the Group's overall operational productivity across Southeast Asia by 50%.

Investment in World Class Infrastructure

With the rapid increase in the number of courier infrastructures in Malaysia, many players have extended their network to other regions outside the country to create international presence.

The J&T Group expanded beyond the Asian and Latin American regions to the Middle East and Latin American countries in 2022, launching its express network in the United Arab Emirates, Saudi Arabia, Mexico, Brazil and Egypt in 2022 – establishing a global delivery network.

On the local front, J&T Express completed the RM600 million acquisition of a 30-acre parcel of land in Bandar Rimbayu, Selangor to build an integrated logistics centre for express distribution, logistics and transportation and warehousing to meet J&T's growing business needs in Malaysia.

Ninja Van Malaysia kicked off 2022 with the launch of their largest warehouse in Shah Alam, spanning across 260,000 square feet, in line with the company's expansion plan to future-proof its volume growth trajectory and better support the growth of local small and medium-sized enterprises (SMEs) and businesses by increasing speed and efficiency.

Local players like GDEX are also continuously expanding its presence in countries like Vietnam, Indonesia and Japan to leverage on existing networks and cross-border logistics; as well as infrastructure upgrades with increased customer access points and logistics fleet.

Green Initiatives

As a member of the Universal Postal Union, Pos Malaysia is committed to reducing its carbon footprint and conducting 100% paperless business operations by 2025[1]. In conjunction with World Post Day 2022 themed "Post for Planet," Pos Malaysia continues its operations with a sustainability roadmap that focuses on environmental, social and governance (ESG) initiatives.

Pos Malaysia aims to reduce 30% of its scope one and two emissions and 50% of direct waste by 2025[1]; through the implementation of Building Energy Management System (BEMS) and IoT devices, the company expected 7% reduction in the energy demand of each building. The company managed to save an annual worth of 218,000kWh energy through the completion of its energy-efficient projects deployed at eight locations in May 2022. The amount of energy saved was equivalent to electricity usage for 30 homes in a year. Other than that, two more facilities will be installed with solar photovoltaic (PV) system by the end of 2022, in addition to the 2.2MW PV system installed at Pos Malaysia National Mall Centre in Shah Alam in November 2021[2].

In parallel, courier service providers such as GDEX initiated its own Go Green initiative with its fleet's first all-electric motorcycle in November 2021, to reduce carbon emissions by exploring and adopting more green solutions in daily operations. Since then, GDEX has embarked on numerous initiatives relating to carbon neutrality by adopting renewable energy across the Group. These include implementation of a solar panel project in April 2022 as a source of renewable energy. The estimated monthly electricity bill saving is 15% while the projected payback period is three years and two months.

In October 2022, DHL Express deployed six electric vans in Malaysia across the Klang Valley for last-mile deliveries, serving the Kuala Lumpur and Selangor areas. DHL aims to add a further 55 to bring the total number of electric vehicles (EV) to 61 by 2023, which will be deployed to other states nationwide. At the same time, DHL has been developing its infrastructure to support the roll out. For example, smart charging points at the service centres are designed for scalability, for additional electric vans in the coming years. With the deployment of the fully electric CAM EC35 that has a cargo space of 4.8 m^3 and a payload of more than one ton, DHL will see fuel cost savings of 48% over conventional vehicles and a 33% decrease in CO2 emissions annually.

[1] A roadmap to sustainability for Malaysia's National Postal Service (Accenture, 2022).
[2] World Post Day 2022 (The Star, 2022).

PELAN ACCELERATOR KURIER NEGARA

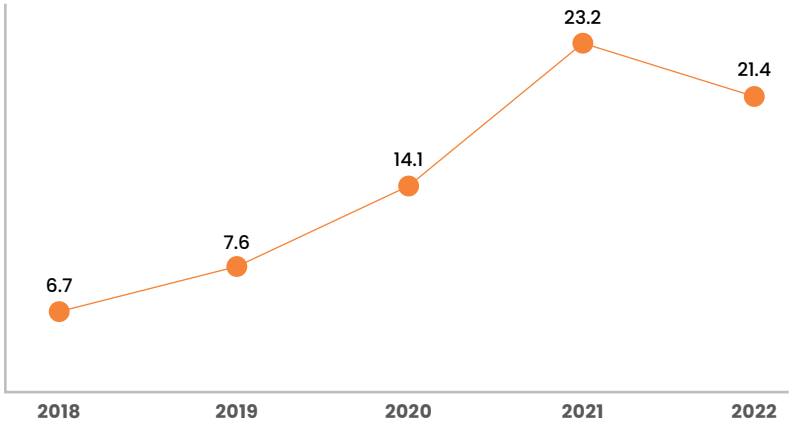
Postal and courier industry plays a critical role in supporting Malaysia's digital economy by facilitating the movement of goods and services across the country. However, the rapid growth of e-commerce services in Malaysia has triggered a significant transformation in industry's operation and performance.

The substantial increase in parcels per capita by 85.5% in 2020 influenced the initiation of National Postal and Courier Industry Laboratory (NPCIL) by MCMC with the collaboration of ministries, government agencies and service providers. NPCIL was organised to formulate strategic frameworks and regulatory approaches that aim to assist the industry in leveraging challenges and opportunities brought by the rapid increment of parcels, technological changes, emerging markets and consumers' behaviour.

As a result, MCMC initiated *Pelan Accelerator Kurier Negara* (PAKEJ) in 2021 to support the growth of postal and courier industry. The national aspiration of PAKEJ is to "deliver quality of service and seamless coverage to all Malaysians sustainably to support the projected e-commerce industry growth from 14 parcels per capita to 30 parcels per capita by 2025." The programme focuses on enhancing the efficiency and competitiveness of courier companies by utilising digital tools and platforms to streamline operations and improve customer experience.

COVID-19 pandemic contributed to a higher parcel volume which was reflected through an increase in parcels per capita from 2020 to 2021. However, as Malaysia went into the endemic phase in 2022, the number of parcels per capita reduced to 21.4. Although Figure 6.24 illustrates a slight fall by 7.8% in 2022, the number of parcels per capita in 2022 still surpasses the average growth prior to the implementation of PAKEJ and represents a 51.8% increase since 2020.

PARCELS PER CAPITA 2018-2022



Source: MCMC
Figure 6.24 Parcels per Capita 2018-2022

Hence, PAKEJ Initiatives were developed to provide Malaysia with first-class courier services through the foundation of 4Rs, namely:

1) Reliability (quality of service),
2) Reach (seamless coverage),
3) Relevance (through industry growth); and
4) Resilience (sustainability).

PAKEJ Initiatives comprises of Pillar 1 that focusses on achieving industry's sustainability, and Pillar 2 that focuses on providing first-class quality of services and coverage-backed growth. Both pillars aim to create a sustainable and dynamic postal and courier industry that can meet the needs of consumers and businesses, while contributing to the economic development of the country. By focusing on both sustainability and growth, the industry can build a strong foundation for the future, while also providing high-quality and reliable services to customers in the present.

PILLAR 1

BUSINESS SUSTAINABILITY INITIATIVES

1. *Rangkaian PAKEJ*
2. Resource Sharing and Collaboration with *Posmen Komuniti*
3. Parcel Commercial Vehicle Enhancement Proposal
4. Courier Infrastructure Network Map
5. National Address System

pakej
Pelan Accelerator Kurier Negara

Delivering Quality of Service (QoS) and Seamless Coverage to All Malaysians Sustainably to Support the Projected e-commerce Industry Growth from 14 Parcels per Capita in 2020 to 30 Parcels per Capita by 2025

PILLAR 2

POLICY & REGULATORY INITIATIVES

1. Implementation of Pricing Guideline for Parcels
2. Licensing Framework Review
3. QoS & Consumer Protection
   - General Terms and Conditions (GTC)
   - General Consumer Code of Practice (GCC)

Source: MCMC
Figure 6.25 PAKEJ Initiatives

Figure 6.25 classified the eight initiatives of PAKEJ and the development of each initiative is closely governed by MCMC and reported in PAKEJ Implementation Committee (PIC) meetings. As at the end of 2022, 10 meetings were organised to discuss and deliberate issues surrounding PAKEJ initiatives. PAKEJ overall progress stood at 77% (2021-2025), while the yearly performance for 2022 recorded 99.6% achievement of the annual target.

Pillar 1: Business Sustainability Initiatives

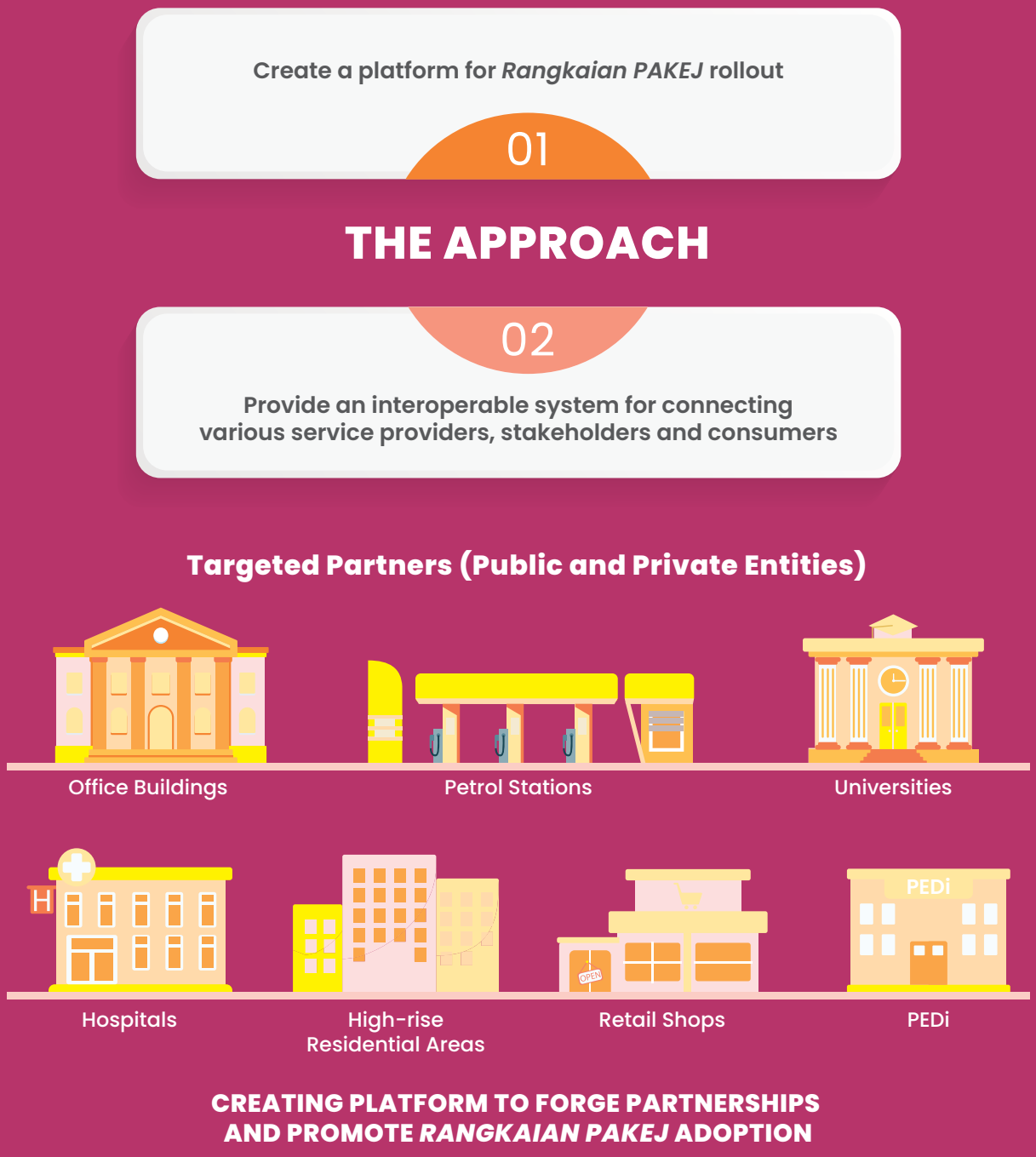
Initiative 1: *Rangkaian PAKEJ*

Courier and third-party logistics (3PL) that provide parcel delivery services, encounters challenges in providing parcel delivery services and solving last-mile delivery issues with solutions that not only satisfy the customers but also address parcel management challenges.

Out of Home (OOH) delivery has been a crucial alternative for last-mile delivery solution in accommodating the travel restrictions during pandemic. The OOH service that provides parcel collection points (in the form of a parcel locker or retail service counter) has been identified as a potential solution to address the issues. It helps to ensure that customer expectations and experience remain intact while solving last-mile delivery challenges.

Rangkaian PAKEJ service is one of the initiatives implemented under PAKEJ. It is part of a strategic collaboration between MCMC with courier companies, 3PL, and parcel locker providers to set up and provide information on the pick-up and drop-off service points via a single platform.

STRATEGIC APPROACH TO ACCELERATE *RANGKAIAN PAKEJ* INITIATIVES



Source: MCMC
Figure 6.26 Strategic Approach to Accelerate Rangkaian PAKEJ Initiatives

As at 31 December 2022, 17 entities consisting of couriers and 3PL players have joined the *Rangkaian PAKEJ* initiative that focuses on the development of pick-up and drop-off services through the establishment of collaborative platform and services. The participating players in the *Rangkaian PAKEJ* initiative are depicted in the diagram below:

PARTICIPANTS OF *RANGKAIAN PAKEJ* INITIATIVE

17 Participating Service Providers in *Rangkaian PAKEJ*

Source: MCMC

Progress of *Rangkaian PAKEJ* Points by MCMC

As at the end of 2022, there are 23,034 *Rangkaian PAKEJ* points nationwide. The number has increased by 1,846 from 21,188 points in 2021.

Rangkaian PAKEJ points have also been implemented at the *Pusat Ekonomi Digital* (PEDi) to cater the needs of local communities. It enables SMEs to utilise their local PEDi as a collection point for their merchandise. The number of PEDi with *Rangkaian PAKEJ* service points has increased by 296 from 134 in 2021 to 430 in 2022.

The benefits of *Rangkaian PAKEJ* are summarised in the diagram below.

BENEFICIARIES OF *RANGKAIAN PAKEJ* AND THE ANTICIPATED BENEFITS

Empowers Greater Malaysia with *Rangkaian PAKEJ* Benefits

Efficient and Clean

- Add value for digital transformation of Government services; and
- Support the Government to promote better environment-friendly practices through the decrease in carbon emission

Reachability for Better Sustainability

- Increase service visibility of industry players by expanding more service promotions for access by the users;
- Promotes Government initiatives i.e MyDIGITAL towards cross-sector digitalisation; and
- Addresses parcel management issues by courier industry players

Trusted and Convenient

- Efficient and trusted digital services in addressing issues of missed and late parcel delivery due to the unavailability of the recipient at home/location;
- Solutions to people without home address and act as 'second address' - secured parcel receiving any time and according to convenience;
- Ease parcel pick-up and drop-off during commute to home and workplace;
- Provide security and privacy protection; and
- Promote digital lifestyle - cashless payment, paperless and QR code adoption

Community Enrichment

- Increases level of trust towards last mile delivery service;
- Empowers PEDi workforce with the current trends and community needs;
- Connect PEDi with the community to improve better socioeconomic activities; and
- Continuous support for bridging the digital divide through e-commerce

Source: MCMC

Initiative 2: Resource Sharing and Collaboration with *Posmen Komuniti*

The e-commerce industry in Malaysia continues to grow steadily, fuelled partly by the COVID-19 pandemic. Citizens nationwide are starting to realise the benefits of online shopping and adapting to the online lifestyle.

As such, the Community Postmen, widely known as *Posmen Komuniti* (PK) and *Wakil Pos Komuniti* (WPK) have been identified as strategic resources that can be leveraged to improve the growth of e-commerce in rural areas which has been hampered due to the dispersed population density and challenging geographical terrains, especially in East Malaysia.

PK and WPK are locally-appointed postmen from communities that aim to expand door-to-door mail delivery services especially to rural areas. They are the core components of *Pelan Transformasi Pos Sabah & Sarawak* (PTPSS).

PTPSS is a collaboration between MCMC and Pos Malaysia to:

1. Improve mail and parcel delivery in rural areas;
2. Provide postal counter service and access to Government services to rural communities;
3. Increase socio-economic status and quality of life for rural citizens; and
4. Create employment opportunities for rural communities.

Under PAKEJ, PKs and WPKs are being leveraged for delivery asset sharing and collaboration initiatives between Pos Malaysia and other courier companies under a collaborative programme called *Program Perantis Posmen Komuniti* (P3K).

P3K was designed to help lower delivery costs and expand network coverage to East Malaysia. In addition, the initiative will improve the utilisation of PKs and WPKs, whilst providing additional income to the parcel delivery riders to compensate for the declining mail volumes. Furthermore, value-added features such as mobile online delivery embedded into the P3K scheme could improve the livelihood of PKs.

Initiative 3: Enhancing the Proposal for Usage of Parcel Commercial Vehicle (PCV)

Customers in urban and rural areas are now expecting fast deliveries of their items. Parcels sent out come in various shapes and sizes. Some may be too big to fit onto a motorcycle or may have to wait for full volume to be filled in a van before delivery commences. These problems may incur cost and cause delay, and this is where electrical three-wheeler (E3W) vehicles would be perfect for the job.

In January 2022, the MCMC, along with several industry players have successfully obtained approval from the Road Transport Department (JPJ) for three-wheeled vehicles (side cars). This initiative would be expanded with the introduction of more modern and environmentally friendly electric commercial vehicles as a last mile delivery solution.

Following that, MCMC has collaborated with the Association of Malaysian Express Carriers (AMEC), where several meeting and discussion sessions have taken place with the Ministry of Communications and Digital (KKD), the Ministry of Transport (MOT) and JPJ.

These discussions were held to get MOT and JPJ to consider testing the E3W vehicle by the national postal and courier industry in a controlled operating environment, as well as to develop the E3W vehicle specification in order to obtain operational approval in accordance with related transport legislation.

In November 2022, AMEC in collaboration with E3W vehicle supplier, Eclimo Sdn Bhd, a local company developing the E3W vehicles, have successfully obtained approval for the L5 symmetrical three-wheeled vehicle for research and development (R&D) purposes.

This effort will help industry players improve productivity and quality of service while contributing to the environment with environmentally friendly delivery vehicles.

Initiative 4: Courier Infrastructure Network Map

Courier Infrastructure Network Map provides a detailed map of courier facilities network, enabling businesses to optimise their delivery routes and ensure timely and cost-effective delivery. In addition, courier service providers can use the map to identify areas where additional investment or modification are required to improve services. This initiative consists of '*Peta Rangkaian PAKEJ*' or *Rangkaian PAKEJ* Map to locate and enhance the accessibility of courier infrastructure in Malaysia. Launched as a new feature on JENDELA portal on 22 December 2022, it allows users to search for pick-up and drop-off locations available in their area and is accessible via the link: jendela.my/pakej.

The illustrations on the following page show the appearance of *Rangkaian PAKEJ* as a new information segment in the JENDELA portal to provide information access on the *Rangkaian PAKEJ* service locations throughout Malaysia.

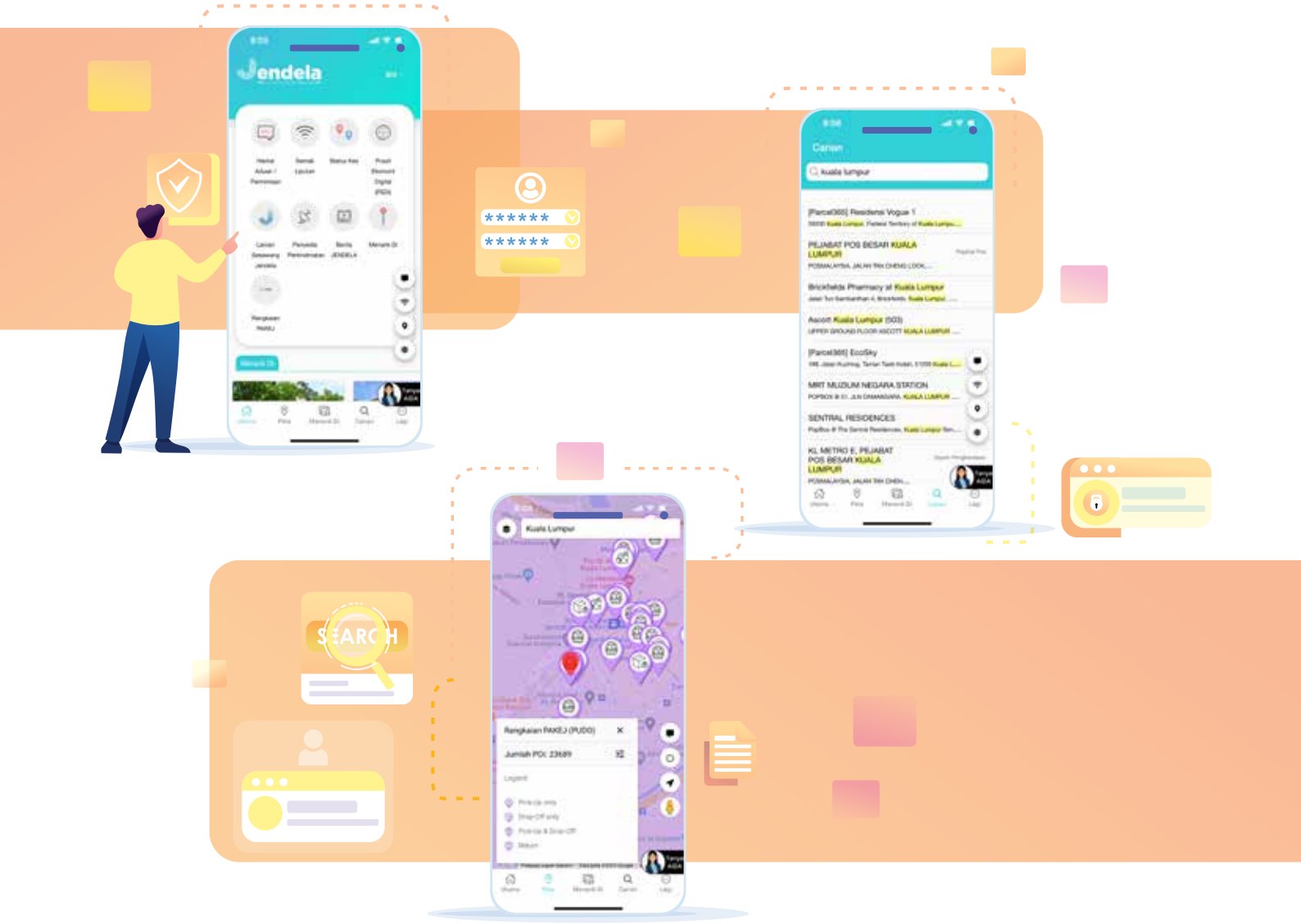
RANGKAIAN PAKEJ SEGMENT IN JENDELA PORTAL

Source: MCMC

In addition, *Rangkaian PAKEJ* Map was also updated on JENDELA mobile application considering the convenience of digital services. It helps people to make faster decisions when they are on-the-go and need to undertake parcel delivery instantly. This initiative is also an opportunity to create a socioeconomic impact and empower the growth of digital economy in Malaysia, henceforth including Malaysia on the global e-commerce map.

The illustration on the following page show steps for users to find *Rangkaian PAKEJ* service locations within JENDELA mobile application.

RANGKAIAN PAKEJ SERVICE POINTS THROUGH JENDELA MOBILE APPLICATION



Source: MCMC

Initiative 5: National Address System

The National Address System (NAS) is an initiative to have a single "centralised, standardised and authoritative" source of address data in Malaysia. NAS is anticipated to drive greater collaboration in the creation and daily use of address and address location data to support economic, social and environmental outcomes across the traditional and digital economies. Addresses managed by NAS will be from authoritative data sources such as local, state and federal governments including related agencies and may feature authorised third party suppliers in building greater confidence of address data in the Malaysia.

MCMC through the Postal Act 2012 sees the importance of NAS towards enhancing better service delivery of Government and industry to stakeholders and envisage ecosystem efficiency in systems and applications to smartly fill address information in service requests forms, to better aid in address mapping and related navigation towards continuous improvement in policy planning, community and service development, national security and emergency operation activities.

Pillar 2: Policy & Regulatory Initiatives

Initiative 1: Implementation of Pricing Guideline for Parcels

The main purpose of introducing a reference price within courier delivery services is to monitor any anti-competitive practices in protecting courier companies, particularly local players from predatory pricing and price dumping. In the long term, it will assure continuous consumer protection and business sustainability.

In April 2022, a new Courier Service Price Guideline came into effect. To inculcate a self-regulating industry, licensees are required to periodically declare their prices to the MCMC to ensure predatory activities are curbed. Based on these data, MCMC is actively monitoring and studying the impact on industry financial sustainability and establish the appropriate policies with regards to pricing in the future.

Initiative 2: Licensing Framework Review

The rationale for reviewing the existing licensing framework is that there is a pressing need to address the 'new norm' and to cater for future demand driven by situational changes and evolution of the industry at regional and global level.

Thus, the newly proposed licensing approach would require some perspective on the regulation of courier services since these services have emerged as an integral part of society. Such development promotes ubiquitous access, raises service standard and also enables new players to emerge for serving last-mile delivery, such as parcel lockers, p-hailing, pick-up and drop-off points. Further, the licensing framework shall reflect the dynamic industry landscape and ensure a high level of compliance in the areas of security, quality of service and the environment.

The development of the licensing framework is a long process. In 2021, MCMC conducted a Public Consultation to gather views and insights from a range of stakeholders including government agencies and key industry players from the postal and courier service. Subsequently, MCMC has been formulating the framework including realigning/ rescoping the target for the proposed licensing structure such as determining the threshold of parcel volume capacity and shareholding structure for different classes of courier service license.

Initiative 3: QoS Standards Disclosure and Insurance Policy

Quality of Service (QoS) perceptions are typically influenced by consumer complaints. Generally, courier service providers publish delivery rates by location, although consumers do not have an overview of delivery schedules. Therefore, a lack of a Service Level Agreement (SLA) makes it difficult for consumers to complain and demand compensation.

In this regard, the new General Terms and Conditions (GTC) for the courier industry have been formulated based on feedback from a Public Consultation in 2021 to address public concern and was implemented in 2022. At the end of 2022, a total of 24 licensees adopted the GTC.

Among the items contained in the GTC are as follows:

i. Types of services
ii. Mutual Responsibilities
iii. Deliveries
iv. Information
v. Rates & Charges
vi. Service Standards
vii. Liabilities
viii. Insurance
ix. Claim Reimbursement
x. Complaint Handling Procedures
xi. Complaint Responses
xii. Data Protection

Moving forward in 2023, MCMC is strengthening ties with Postal Forum in enhancing the QoS for the postal and courier industry.

QUALITY OF SERVICE

This chapter is on quality assurance and consumer protection in relation to services provided under the C&M industry. It reports on the number of consumer complaints received by MCMC, and detailing the complaints handling processes. Industry Self-Regulating Forums under MCMC are also listed in this chapter, detailing their roles and activities in the C&M industry. This chapter also reports on the quality of services provided by the licensees in accordance with the Mandatory Standards for Quality of Service under the Communications and Multimedia Act 1998.

07

KEY HIGHLIGHTS
2022

No. of Complaints
Total number of complaints received in 2022

146,659
(2021: 291,718 million)

50%

Complaints by Services

57%
Telecommunications

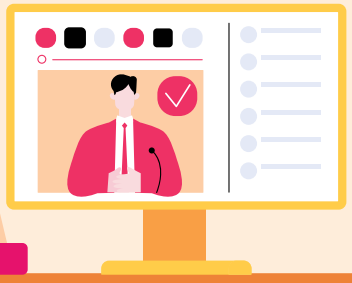
15%
New Media

27%
Postal & Courier

1%
Broadcasting

Compound
Prepaid guidelines non-compliance: Compound issued

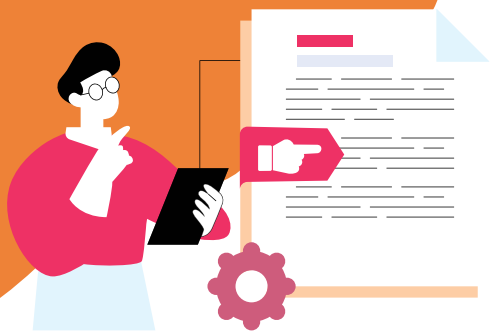
Maxis Broadband	U Mobile
RM50,000	RM50,000



Revised Code of Practice

The Consumer General Code of Practice for the Communications and Multimedia Industry Malaysia 2022 came into effect on 30 November 2022.

The Content Code came into effect on 30 May 2022.



PART A: CONSUMER PROTECTION AND COMPLIANCE-RELATED ACTIVITIES

CONSUMER PROTECTION AND EMPOWERMENT

Consumer protection is one of the fundamental principles under the Communications and Multimedia Act 1998 (CMA 1998). Therefore, as a regulator of the C&M industry, MCMC focuses on customer service excellence, monitors and analyses the compliance level of the licensees under the C&M industry to ensure the protection of consumers within the ambit of the CMA 1998, Postal Service Act 2012, Digital Signature Act 1997, and other regulatory instruments issued.

MCMC's scope of duties includes promoting a high level of consumer confidence in the services delivered by service providers in telecommunications, broadcasting, internet services, postal and courier, and digital signature sectors. Thus, MCMC provides convenient methods for filing consumer complaints. Consumers can submit complaints to MCMC through different channels namely the complaint hotline (1 800 188 030), complaint portal, email, post, fax, WhatsApp application, and the walk-in complaint counter at MCMC office. As part of the complaints handling the process, MCMC has also conducted quarterly monitoring of services provided through the Mandatory Standards for Quality of Service (MSQoS) and continuous monitoring of complaints handling and resolution by service providers.

Throughout 2022, MCMC implemented various development and regulatory initiatives to strengthen consumer protection, such as:

Review of the General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia 2022

The General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia (GCC) 2022, spearheaded by the Communications and Multimedia Consumer Forum of Malaysia (CFM), serves as a guideline and benchmark for service providers providing communications and multimedia services in Malaysia. This Code sets out the acceptable standards applicable in the communications and multimedia industry, a point of reference for consumers and a self-regulatory instrument for service providers.

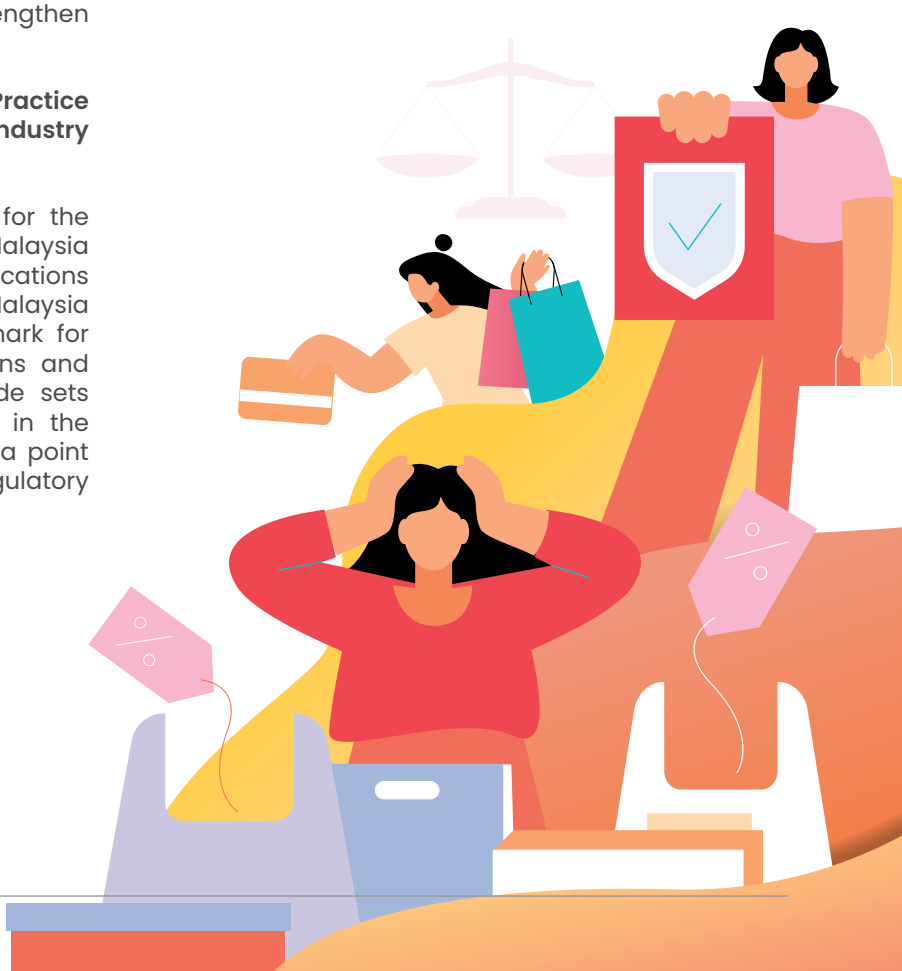
In 2021, MCMC conducted a public consultation to obtain general feedback on several provisions proposed to be amended in the new GCC. As a result, the latest GCC 2022 has been approved by MCMC and came into effect upon its registration on 30 November 2022 in accordance with section 96(3) of the CMA 1998.

Inter-Agency Engagements

To strengthen and ensure compliance with the CMA 1998 and the GCC, MCMC conducted regular meetings and communication sessions with the industry to discuss and resolve consumer issues.

Through the inter-agency engagement, MCMC participated in the task force on consumer policy, i.e., review of the Consumer Protection Act (CPA 1999) and review of the tribunal process by *Tribunal Tuntutan Pengguna*. MCMC collaborates with *Polis Diraja Malaysia* (PDRM), the Ministry of Domestic Trade and Costs of Living (KPDN), *Bank Negara Malaysia*, *Biro Pengaduan Awam*, and the Ministry of Communications and Digital (KKD) in handling consumer issues.

MCMC also collaborates with the industry to conduct awareness programmes under the *Pelan Jalinan Digital Negara* (JENDELA) initiatives and inter-agency collaboration within KKD on consumer digital literacy to create consumer awareness and education programmes.

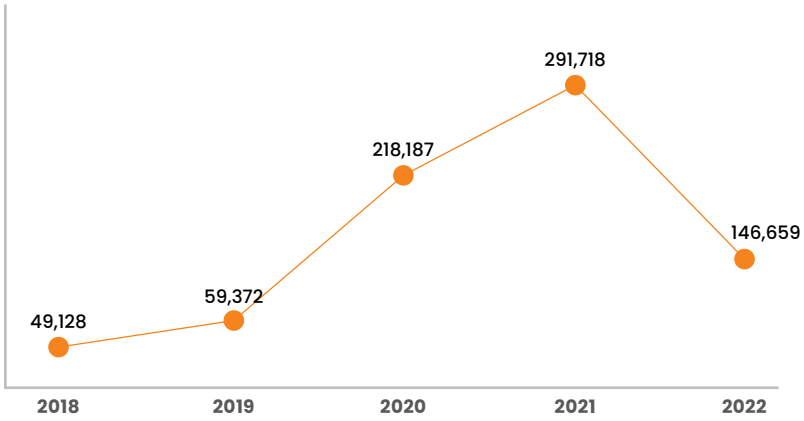


Complaint Statistics

In 2022, a total of 146,659 complaints were received for all services in the communications and multimedia industry, with a decrease of 49.7% compared to 291,718 complaints received in 2021.

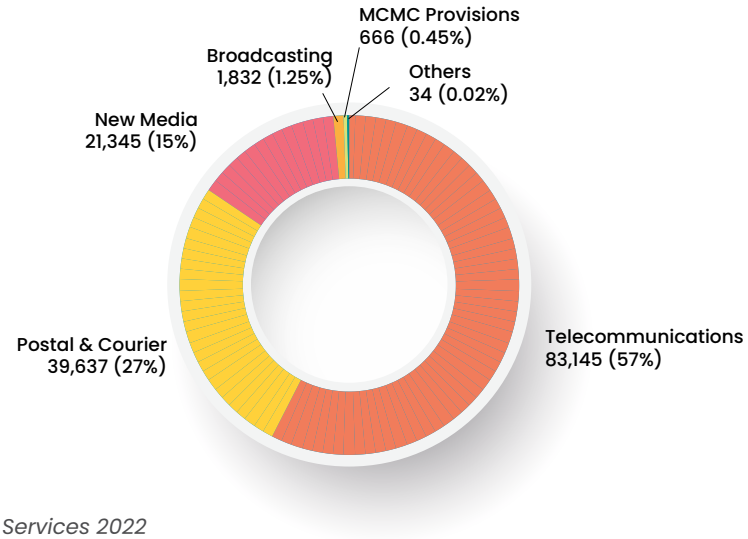
At the industry level, complaints in the telecommunications sector contributed the highest number, with 57% (83,145) of the overall complaints reported to MCMC. The second highest, postal and courier services accounted for 27% (39,637) of complaints. Complaints on new media recorded the third highest in 2022, with 15% (21,345) cases.

TREND OF CONSUMER COMPLAINTS RECEIVED BY MCMC 2018-2022



Source: MCMC
Figure 7.1 Trend of Consumer Complaints Received by MCMC 2018 - 2022

COMPLAINTS BY SERVICES 2022

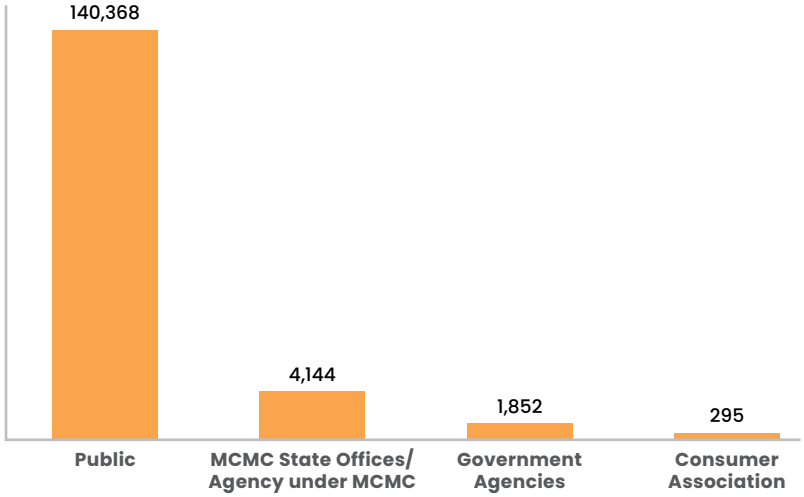


Source: MCMC
Figure 7.2 Complaints by Services 2022

Generally, most of the complaints received were directly from the public, which recorded 140,368 cases, and the rest were from various sources, i.e., other enforcement agencies and consumer associations.

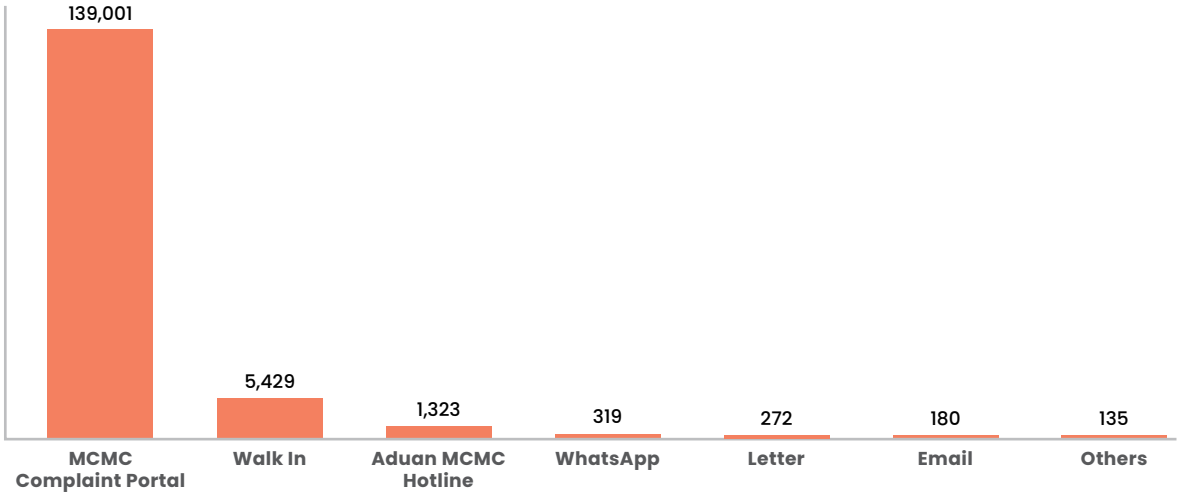
MCMC Complaint Portal received the most significant number of complaints with 139,001 recorded.

SOURCE OF COMPLAINTS RECEIVED BY MCMC 2022



Source: MCMC
Figure 7.3 Source of Complaints Received by MCMC 2022

COMPLAINTS BY CHANNEL 2022

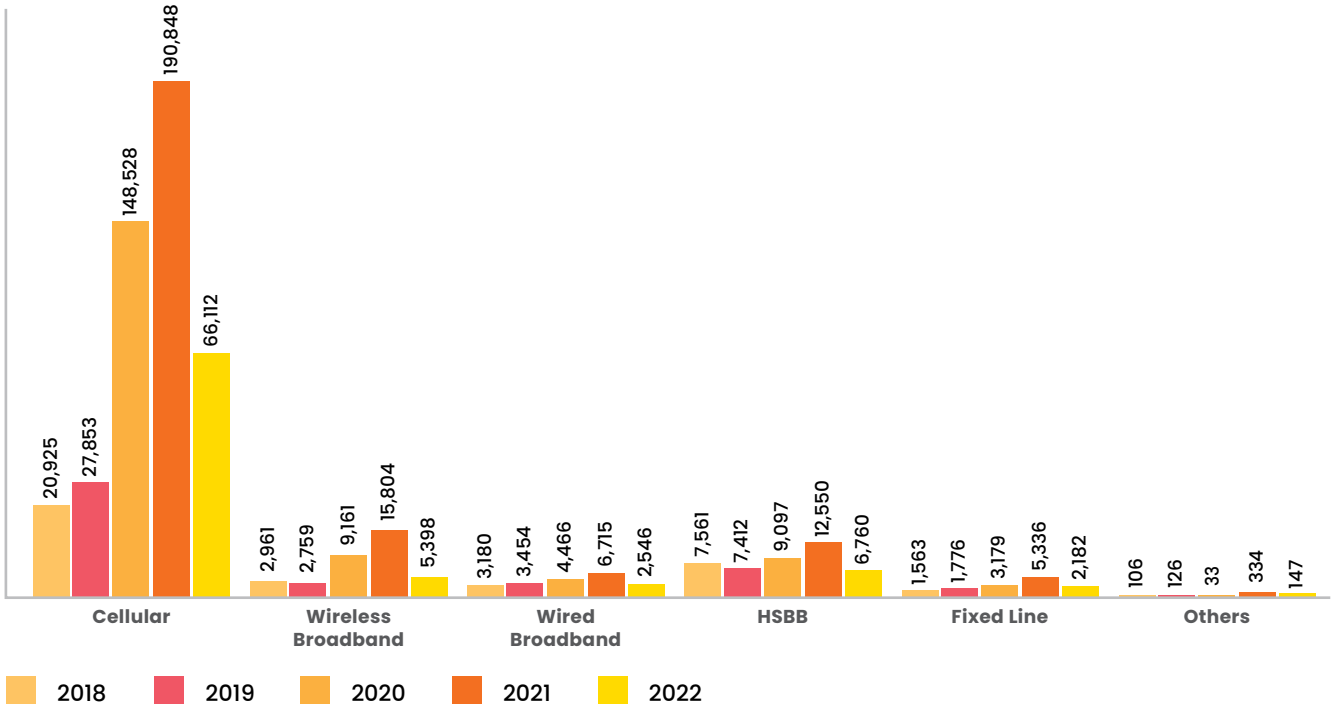


Source: MCMC
Figure 7.4 Complaints by Channel 2022

Complaints on Telecommunications

The number of complaints regarding cellular services has been the highest in the telecommunications sector for the past five years. In 2022, complaints on cellular services recorded a total of 66,112, a decrease from the past years, followed by 5,398 in wireless broadband, 6,760 in High Speed Broadband (HSBB), 2,546 on wired broadband, 2,182 complaints on fixed line and 147 complaints on other services.

TYPES OF COMPLAINTS ON TELECOMMUNICATIONS 2018 – 2022



Source: MCMC
Figure 7.5 Types of Complaints on Telecommunications 2018 – 2022

Based on the top five complaints on telecommunications, 64,020 or 82% of the cases were on network issues. Most of the issues reported were related to the quality of network service, i.e., poor or no coverage availability of 4G LTE and HSBB, service disruption/downtime, Internet connection/ speed and intermittent call connection due to network congestion.

Among the efforts to reduce these complaints and improve broadband service is to monitor traffic utilisation and planning for capacity improvement or changing traffic routes. Further, there will be continuous consumer awareness campaigns on the necessity to migrate to 4G services. The campaigns include the use of devices that support 4G VoLTE, and the understanding of packages with certain limitations, especially when it comes to speed. Additionally, service providers are committed to improving the quality of 4G service to reduce customer complaints.

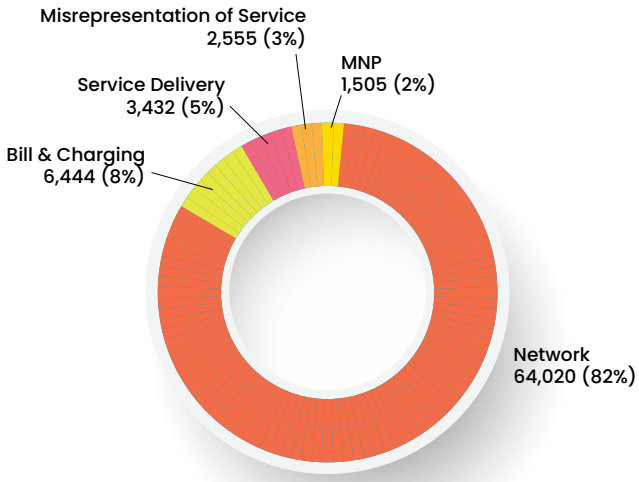
The second highest statistics were on billing and charging, which recorded 6,444 (8%) complaints from overall complaints in the telecommunications sector. MCMC observes that billing disputes are primarily on hidden charges and unclear terms and conditions at the point of sale.

Based on the analysis, service delivery complaints contribute to 3,433 (4%) of the overall complaints received in the telecommunications sector in 2022. Consumers are mostly dissatisfied with poor customer service, misrepresentation of service by dealers and agents, debt collection agencies, and late restoration and activation of services.

Mobile Number Portability (MNP) allows users to keep and port their existing mobile numbers to other service providers. In 2022, issues related to MNP recorded 1,505 (2%) complaints, mainly on the transfer process being slow or rejected by the service provider due to errors in the registered Mykad number or overdue bills from the customer.

For the misrepresentation of service, users dispute misleading statements or package advertisements by dealers during registration to enter the contract. A total of 2,555 (3%) complaints were received in 2022.

TOP 5 COMPLAINTS RECEIVED ON TELECOMMUNICATIONS 2022



Source: MCMC
Figure 7.6 Top 5 Complaints Received on Telecommunications 2022

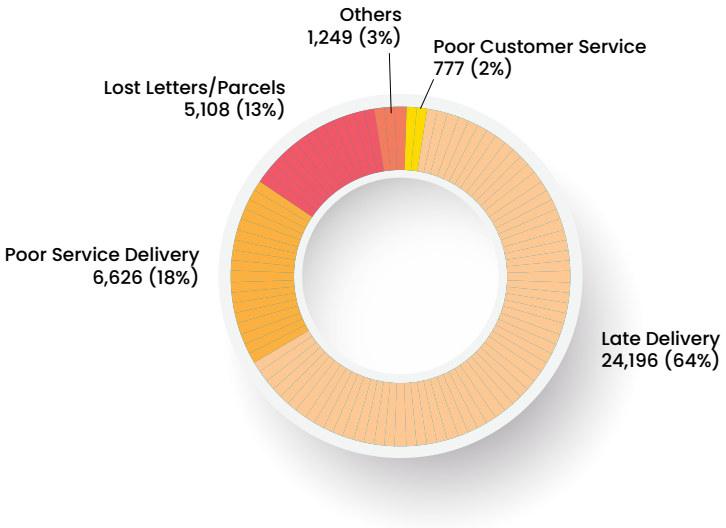
Complaints on Postal & Courier

Complaints regarding postal and courier services have increased in recent years. Since Movement Control Order (MCO) took effect in 2020, postal and courier services have played an important role in ensuring essential goods reach consumers. The demand for parcel deliveries to be on time remains the most frequent issue in postal and courier-related complaints. MCMC recorded 39,367 complaints in 2022 compared to 32,329 complaints reported in 2021, which is a 22.60% increase.

Consumer dissatisfaction was mostly on late delivery, contributing 64% (24,196) complaints, poor service delivery 18% (6,626), lost letters/parcels 13% (5,108), other issues 3% (1,249) and poor customer service 2% (777).

MCMC is currently working closely with the Postal Forum in developing a code of practice for postal services as a regulatory instrument in protecting the interest of consumers.

TOP 5 COMPLAINTS RECEIVED ON POSTAL & COURIER 2022



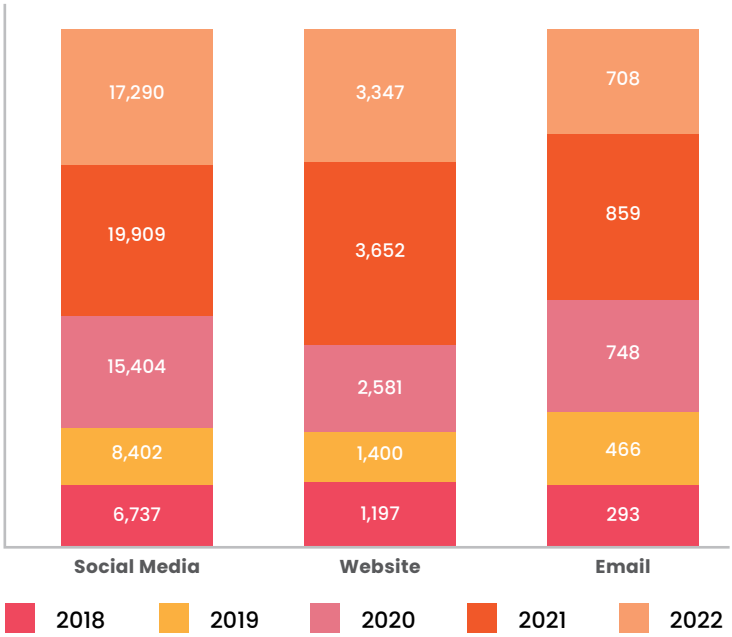
Source: MCMC
Figure 7.7 Top 5 Complaints Received on Postal & Courier 2022

New Media Complaints

MCMC recorded a total of 21,345 complaints from the public in 2022. Overall, 81% or 17,290 complaints were related to social media, followed by 16% (3,347) on websites/blogs/forums and 3% (708) on email abuse.

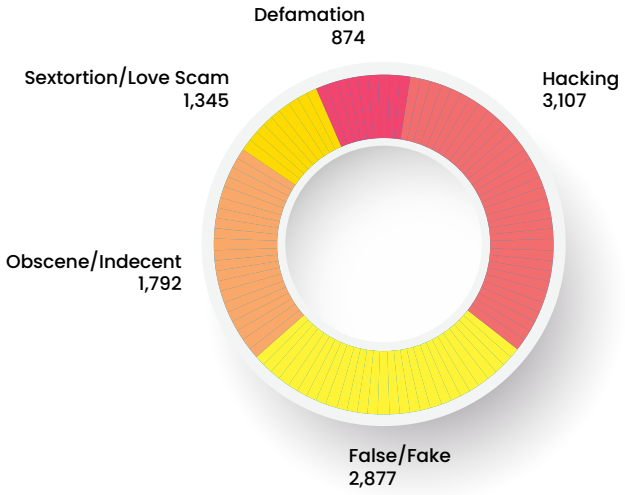
Most of the reported cases were related to hacking 32% (3,107), false/fake comments 30% (2,877), obscene or indecent content 18% (1,792), sextortion/love scams 10% (1,345) and defamation 9% (874).

TYPES OF COMPLAINTS ON NEW MEDIA 2018-2022



Source: MCMC
Figure 7.8 Types of Complaints on New Media 2018-2022

TOP 5 COMPLAINTS RECEIVED ON NEW MEDIA 2022



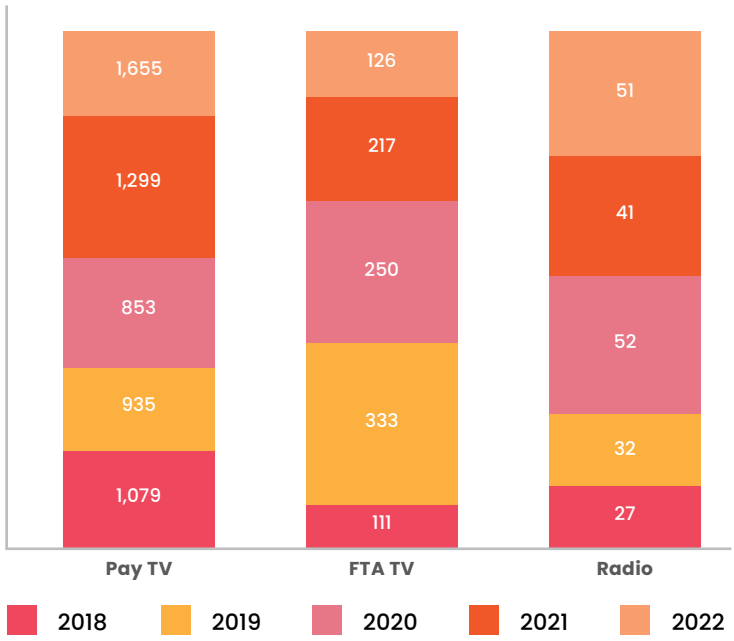
Source: MCMC
Figure 7.9 Top 5 Complaints Received on New Media 2022

Complaints on Broadcasting

The highest number of complaints received in the broadcasting sector was related to Pay TV, with 90% (1,655). Nevertheless, it is noted that complaints on FTA TV have decreased from 2021 by 42%. The complaints against radio recorded an increase of 10 complaints compared to 2021.

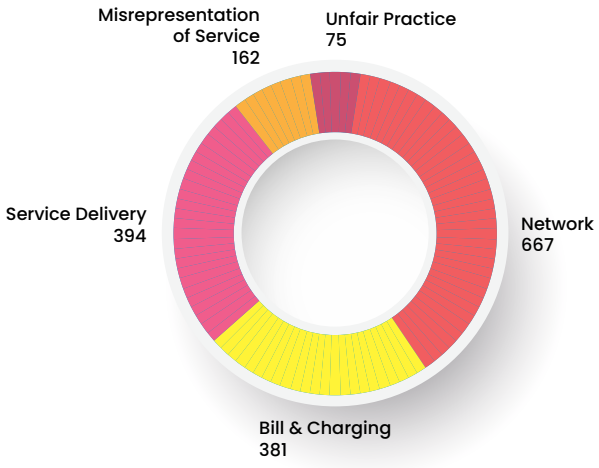
Most of the issues reported were on network problems for IPTV services comprising 40% (667), service delivery 23% (394), bill and charging 23% (381), misrepresentation of services 10% (162) and unfair practices by the service provider 4% (75).

TYPES OF COMPLAINTS RECEIVED ON BROADCASTING 2018-2022



Source: MCMC
Figure 7.10 Types of Complaints Received on Broadcasting 2018-2022

TOP 5 COMPLAINTS RECEIVED ON BROADCASTING 2022

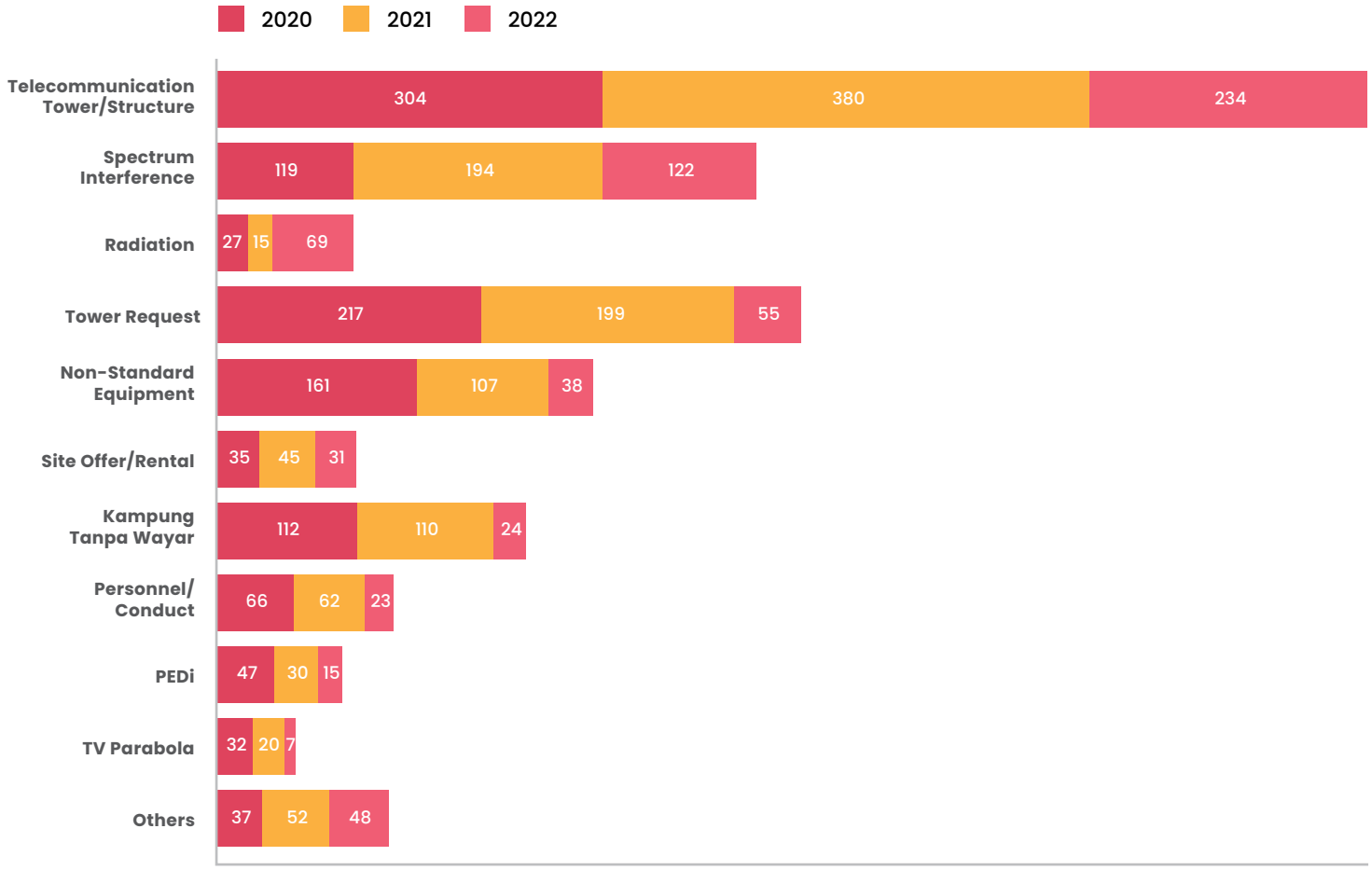


Source: MCMC
Figure 7.11 Top 5 Complaints Received on Broadcasting 2022

Complaints Under MCMC Provisions

The top three complaint categories under MCMC service provisions were telecommunications tower/structure, spectrum interference, and radiation.

COMPLAINTS ON MCMC PROVISION 2020-2022



Note: Others include Special Project By MCMC, License Enquiry, Apparatus Assignment, Radio Amateur, Time 3 Tower, Perpustakaan Jalur Lebar, Public Phone-USP Area, and Netbook 1Malaysia.

Source: MCMC
Figure 7.12 Complaints on MCMC Provision 2020-2022

Complaints Not Under MCMC Jurisdiction

In line with cyberspace technological advancements, MCMC received various complaints such as hacking, online purchases, Internet fraud/scam, phishing, spam, financial investment, gambling and prostitution.

Even though these issues are not regulated directly under the CMA, MCMC provides technical assistance and strong collaboration with relevant law enforcement agencies toward eradicating such illegal activities.

In 2022, the top three complaints reported to MCMC were hacking offences, online purchases and Internet fraud or scams.

ADDRESSING NON-COMPLIANCE

Addressing Non-Compliance with the Mandatory Standards for Quality of Service for Customer Service

Licensees are required to submit a report to MCMC quarterly and half-yearly, depending on the service provided and based on the Mandatory Standards for Quality of Service (MSQoS) for Customer Service enforced under the CMA 1998. In the 2022 reporting period, MCMC evaluated 114 reports submitted by 72 licensees.

There are two main areas to measure compliance under MSQoS, namely:

- On time submission of accurate reports.
- Adherence to minimum standard of requirements.

Based on MCMC's monitoring, non-compliance with MSQoS for Customer Services is caused by failing to meet minimal standards, late or incomplete report submission, and non-compliance with minimum standards. Pursuant to Section 105(3) of the CMA 1998, failure to comply with the mandatory standard carries a penalty of up to RM100,000 in fines, or up to two years in prison, or both.

There are administrative and enforcement measures taken for every act of non-compliance. MCMC employed the strategy of issuing non-compliance notices in relation to each offence provision followed by the submission of First Information Report (FIR) to pursue enforcement actions. In 2022, MCMC issued 10 non-compliance notices and three FIRs against service providers for a variety of violations of the provisions under the Mandatory Standards.

Additionally, MCMC conducted a study on Automatic Compensation Scheme to further enhance the service quality to the consumers. The findings of this study will help MCMC shape a new legislative framework for an automatic compensation mechanism, which is expected to be established through consultation with the industry and consumers.

Ensuring Compliance with the Prepaid Registration Guidelines

MCMC found that fraudulent prepaid card registration activities were closely related to various fraud and crime issues that harm both the consumers and the telecommunications industry. Thus, MCMC ensured that all licensees who provide prepaid services comply with the Prepaid Public Cellular Service User Registration Guidelines (Prepaid Guidelines) MCMC/G/01/17.

MCMC continued its collaboration with the National Registration Department (JPN) to implement customer data verification and ensure the accuracy of the prepaid customer data registered by service providers. Based on the verification of 4,001,684 prepaid lines registered in 2020, MCMC identified 84,766 or 50% of prepaid lines that are uncertain. According to the data, 51,034 or 30% of the lines have been terminated, while 33,732 or 20% of the lines have been updated with valid information.

Pursuant to the data verification exercise, MCMC filed two FIRs, totaling a compound of RM100,000 in 2022. These penalties were levied on service providers for not adhering to the Prepaid Registration Guidelines, as stated in Figure 7.13.

COMPOUND ISSUED FOR NON-COMPLIANCE WITH PREPAID REGISTRATION

Service Providers	Total FIR	Total Compound (RM)
Maxis Broadband Sdn Bhd	1	50,000.00
U Mobile Sdn Bhd	1	50,000.00

Source: MCMC
Figure 7.13 Compound Issued for non-compliance with Prepaid Registration

Addressing Online Fraud Issues Involving Calls and SMS

As in past years, MCMC continuously monitored and took stern action against the *modus operandi* used by scammers comprising various types of fraud using calls and SMS that imposed significant risk and loss to the consumers and the industry. MCMC has put in place a number of initiatives to stop and block fraudulent activities using calls and SMS, including:

- Establishment of a dedicated task force for telecommunication fraud in collaboration with service providers and the Royal Malaysian Police's Commercial Crime Investigation Department (CCID).

- Improvement of the Industry Reference document to outline additional blocking rules in order to reduce the number of suspicious calls and SMS from reaching the users.

From 2017 to 2022, MCMC and stakeholders have successfully blocked over 1.8 billion unsolicited calls from reaching users.

In 2022, MCMC identified the need to develop a new Guideline to combat fraud through SMS services. Concurrently, MCMC conducted several awareness campaigns in collaboration with service providers and the PDRM via SMS, social media, and broadcasting platforms.

Termination of Telephone Lines Involved in Illegal Advertisements

MCMC continued to work with Local Authorities (PBT) to combat illegal advertisements that were found to have violated the provisions of the Advertisement Regulations and By-Laws in their administrative areas. Based on the report received by the PBTs, MCMC discovered that money loan services from unlicensed agents or agencies (*ah long*/loan shark) and other promotional activities are among the contents of illegal advertisements or advertisements placed without permits from PBT.

In 2022, MCMC recorded 479 telephone lines which were involved in illegal advertising activities under the provisions of Section 263 (2) CMA 1998. Out of the 479 telephone lines, 182 have been terminated, while 297 have been found to be inactive.

Termination of Telephone Lines for Making False Emergency Calls to the 999 Emergency Service

In 2022, MCMC coordinated the False Emergency Call Committee (FEC Committee) with its members comprising the KKD, Telekom Malaysia, and other telecommunication service providers to address the issues of false emergency calls to the 999 emergency services, including prank and silent calls.

Based on the provision under section 263(2) of the CMA 1998, MCMC instructed telecommunications service providers to terminate the service of 283 telephone lines for the offense of making false emergency calls to 999 emergency service until the end of October 2022. MCMC has also filed two FIRs against individuals found to have made false emergency calls to 999.

Addressing Consumer Issues related to SMS

MCMC recorded a total of 1,333 complaints under the SMS category in 2022, based on an analysis of complaint data from the MCMC Complaint Portal. Consumer issues under the SMS comprise unsubscribed SMS, promotional SMS, fraud, gambling, SMS Peer-to-Peer (P2P)[1], spam, failure to terminate service, and others.

Based on the yearly SMS complaint trend, MCMC recorded a 35% decrease in SMS complaints compared to 2021, with 2,042 complaints recorded. Figure 7.14 depicts consumer complaints on SMS-related services in 2022.

[1] SMS Peer-to-Peer (P2P), or Person-to-Person SMS is communication between two individual subscribers using SMS.

SMS-RELATED COMPLAINTS BY SERVICE PROVIDER 2022

Rank	Service Providers	Unsubscribed SMS	Promotional SMS	Service Termination Failed	Scam	Gambling	Others	Total
1	Maxis	214	30	9	108	8	50	**419**
2	Digi	65	16	11	81	26	26	**225**
3	Celcom	11	102	4	71	13	12	**213**
4	XOX	42	5	1	45	36	18	**147**
5	U Mobile	20	10	3	30	27	7	**97**
6	Others	2	10	0	45	4	6	**67**
7	Webe	6	3	3	2	2	5	**21**
8	RedOne	5	1	1	2	0	6	**15**
9	Tune Talk	1	1	0	4	4	0	**10**
10	YTL	1	0	6	2	0	3	**12**
11	Yoodo	0	0	0	1	2	1	**4**
12	Redtone	0	0	0	0	0	1	**1**
							GRAND TOTAL	**1,231**

Note: The total of 1,231 complaints excludes 102 Spam P2P complaints made by customers of any service provider for receiving Spam SMS. The figure does not imply that the Spam SMS was sent by that service provider.

Source: MCMC
Figure 7.14 SMS-Related Complaints by Service Provider 2022

In 2022, Maxis contributed to the highest number of SMS-related complaints, with 419 complaints recorded. This figure represents a 9% decrease from the 461 complaints recorded in 2021. Digi was at the second rank with 225 complaints, followed by Celcom and XOX with 213 and 147 complaints, respectively. Most of the service providers experienced a decrease in the number of complaints compared to the previous years.

Ensuring compliance with Mandatory Standards for Mobile Content Services

MCMC received a total of 583 complaints on Mobile Content Services (MCS) in 2022. The MCS complaints are divided into three categories namely Unsubscribed SMS, Promotional SMS and Failure to Terminate Service.

The MCS complaints were investigated and handled through the following two methods:

1) Enforcement of Mandatory Standards for Mobile Content Services (MSMCS)

   In 2022, MCMC identified a total of 17 cases regarding various non-compliances involving short codes. By the end of 2022, these cases were still under investigation under the relevant provisions of the CMA 1998.

2) Administrative Actions

   MCMC suspended 21 short codes, issued four notices of non-compliance, and opened two FIRs against the MCS providers.

Assessing Courier Service Quality through the Courier Challenge Initiative

In 2022, MCMC continued the Courier Challenge initiative to assess the quality of service (QoS) for courier services in Malaysia. The initiative aimed to provide MCMC with information regarding the courier industry's performance and ability to meet the needs of consumers.

The Courier Challenge 2022 evaluated four main aspects namely delivery performance, customer service (front desk and call centre), and user experience. According to the evaluation, the delivery service quality shows an upward trend by achieving 88% of the evaluation criteria. In addition, it achieves 100% of the key performance indicator target for 2022, which has been set by the National E-Commerce Strategic Roadmap (NESR) for the reliability of domestic courier parcel services.

For customer service performance, Front Desk performance increased from 76.1% in 2021 to 78.6% in 2022, while Call Centre performance increased from 3.3 to 3.8. Additionally, consumer perception remained at 78, surpassing the World Consumer Perception index at 76.

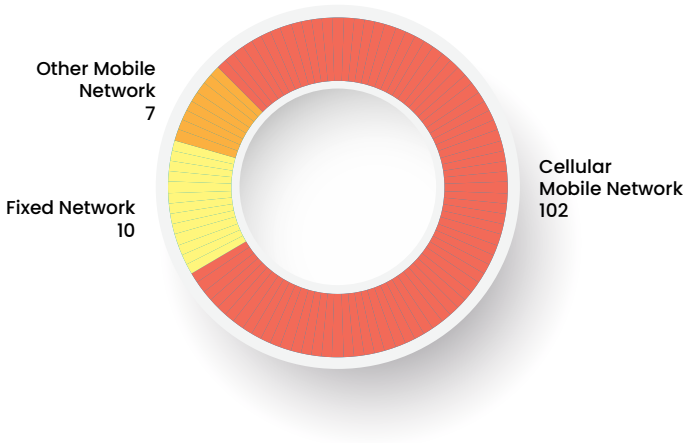
MCMC continues to address issues and protect consumer rights through ongoing regulatory activities such as reviewing and developing new instruments, enforcement actions, consumer education, and close collaboration with stakeholders.

SPECTRUM MONITORING AND INTERFERENCE RESOLUTION

Spectrum Interference

A total of 119 frequency interference cases were recorded throughout the year 2022 involving various frequency bands starting from 100 MHz to 20 GHz. Cellular mobile network services recorded the highest number of cases of frequency interference which was around 86% of the total number of cases received. Figure 7.15 shows the breakdown of cases based on the type of service.

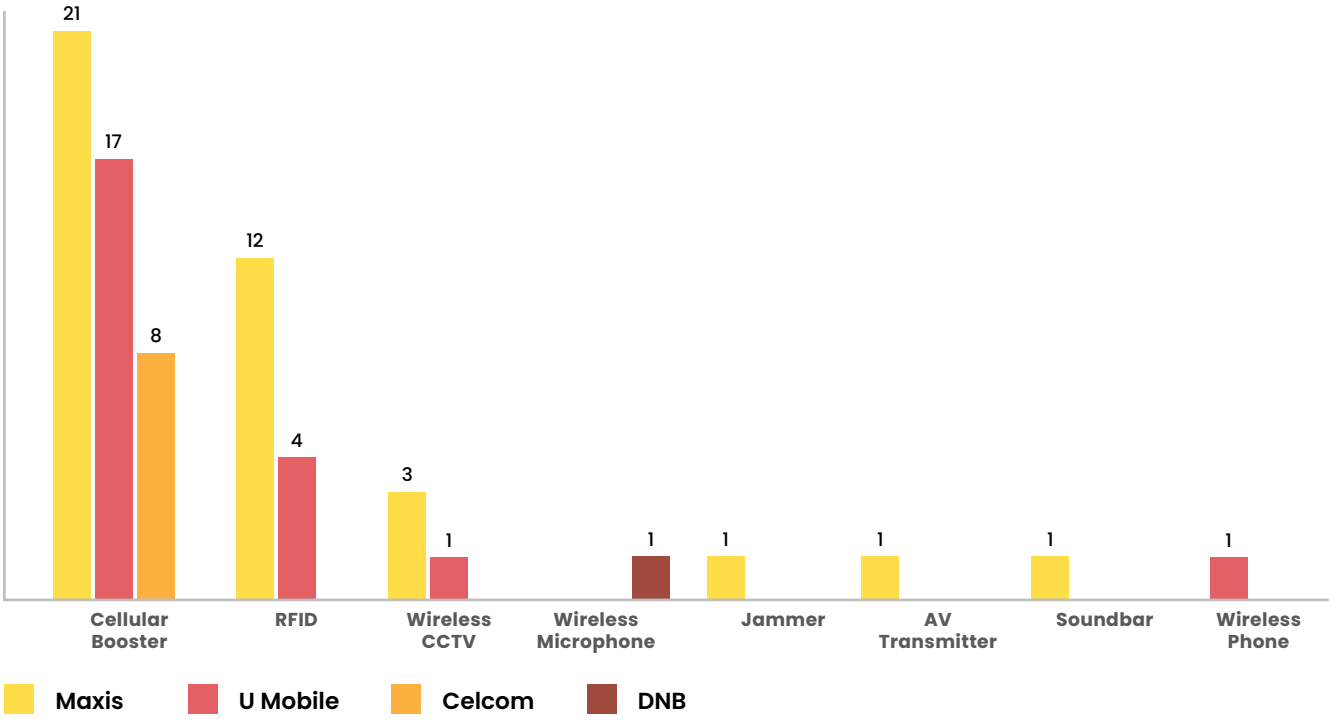
NUMBER OF FREQUENCY INTERFERENCE CASES BY SERVICE TYPE



Source: MCMC
Figure 7.15 Number of Frequency Interference Cases by Service Type

Frequency interference cases involving non-standard devices remain the main contributor to overall cases received. Figure 7.16 shows the statistics by service providers for 2022.

NUMBER OF CASES BY DEVICE TYPE



Source: MCMC
Figure 7.16 Number of Cases by Device Type

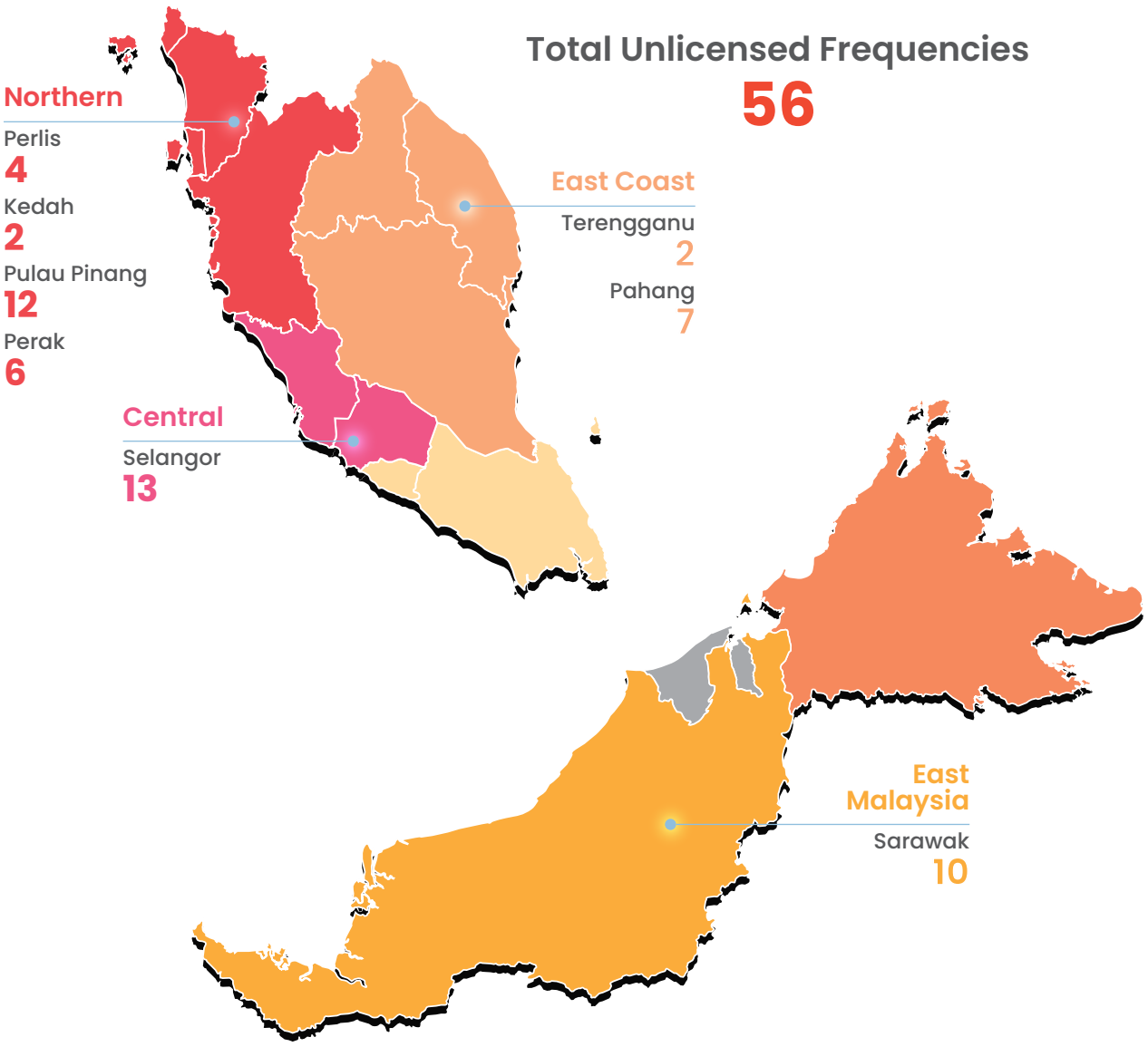
A total of 46 cases of frequency interference involving non-standard cellular booster devices were recorded in 2022. In general, cases involving non-standard cellular boosters began to register a slight decrease as compared to records in 2021. This is in line with a Guideline published by MCMC on 15 December 2020 to control the purchase and use of cellular boosters as a solution to the problem of poor coverage. In addition, non-standard radio frequency identification (RFID) devices have also contributed to 17 cases of frequency interference, followed by wireless CCTV devices that recorded four cases for the year 2022. The public is reminded not to purchase or use communication equipment that does not have MCMC certification label as it is categorised as non-standard device or equipment and has the potential to cause frequency interference.

Spectrum Monitoring

Spectrum monitoring activities have been implemented for the 30 to 500 MHz frequency range using Remote Monitoring Stations (RMS) to identify frequencies operating without Apparatus Assignment (AA). This activity is important to ensure licensees comply with spectrum use in accordance with regulations. It will prevent unauthorised use of the spectrum and avoid interruption.

Monitoring activities are focused in areas with a high density of transmitting stations within 75 km of RMS stations. Data for each frequency band will be collected from all 35 RMS located throughout Malaysia. Further monitoring activities are carried out using nearby RMS stations to locate transmitters operating without AA. Field investigations will also be conducted to collect evidence for enforcement actions. Figure 7.17 shows the number of frequencies operating without AA for each state for the year 2022 throughout Malaysia:

NUMBER OF OPERATING FREQUENCIES WITHOUT AA IN 2022



Source: MCMC
Figure 7.17 Number of Operating Frequencies Without AA in 2022

A total of three FIR were initiated in 2022 involving offences under Section 157 of the CMA 1998. Conviction can result in a fine not exceeding RM500,000 or imprisonment for a period not exceeding five years or both. Figure 7.18 shows the equipment found operating without AA in KOMTAR, Pulau Pinang.

RADIO REPEATER EQUIPMENT OPERATING WITHOUT AA IN KOMTAR, PULAU PINANG

Source: MCMC
Figure 7.18 Radio Repeater Equipment Operating Without AA in KOMTAR, Pulau Pinang

INDUSTRY RADIO FREQUENCY ELECTROMAGNETIC FIELD

Industry Radio Frequency Electromagnetic Field (RF-EMF) Awareness Programme

As the fifth-generation wireless technology (5G) emerged, public have expressed concerns on the impact of RF-EMF emissions to human and the environment. Thus, RF-EMF awareness for communications and multimedia industry training module was developed by MCMC in 2018 to promote further knowledge on the importance and benefits of wireless technology while providing stakeholders with trusted sources of information regarding RF-EMF emissions from radiocommunication infrastructure, including 5G.

MCMC has successfully organised an RF-EMF awareness training programme for local authorities in selected states since 2019 with the following objectives:

i. to serve as a platform to promote further knowledge on the importance and benefits of wireless technology;

ii. to provide trusted information sources on RF-EMF emissions;

iii. to enhance the participants' abilities and skill sets when facing the public; and

iv. to elevate local authorities' understanding on RF-EMF in order to communicate effectively with the public especially complaints regarding RF-EMF.

In 2022, an awareness programme, entitled *Radiasi EMF dari Menara Telco*: *Adakah Kita Selamat?* was extended to the local authorities in the remaining states including Kedah, Kelantan, Perlis, Pulau Pinang and Terengganu with the arrangement as below:

i. East Coast region involving the states of Kelantan and Terengganu held in Kelantan on 5-6 September 2022; and

ii. Northern region including the states of Perlis, Kedah and Pulau Pinang held in Pulau Pinang on 8-9 November 2022.

Since commencement in 2019, a total of 119 local authorities representing 76% of total local authorities in the country had attended the programme.

MCMC STAR RATING AWARDS 2021

The MCMC Star Rating Awards 2021 (MSRA21) is a programme designed to recognise service providers' performance achievements within the C&M industry namely telecommunications, broadcasting, as well as postal and courier. The award programme aims to instil a culture of quality excellence and create an environment of healthy competition between service providers.

The service providers' accomplishments were assessed based on regulatory compliance, consumer satisfaction, and contributions to corporate social responsibility (CSR). Each service provider's performance was measured using specific evaluation parameters to ensure that it could be evaluated accurately and fairly. MCMC hired expert consultants to conduct customer satisfaction surveys, create performance evaluation formulas, and evaluate scoring scores for each service provider involved.

The MSRA21 framework and assessment parameters for the participating service providers were based on the following:

TELECOMMUNICATION PARAMETERS AND MEASUREMENT CRITERIA

PCS (MNO) & BAS

Consumer Satisfaction	40%	Consumer Survey
Quality of Service	20%	Report Evaluation Submitted by Service Providers
Network Investment	20%	
Compliance to CMA 1998	20%	

MNOs have been classified into two segments based on their total subscribers:

1. Less than 5 million subscribers (YTL & Webe)
2. More than 5 million subscribers (Celcom, Digi, Maxis, U Mobile)

Note: Public Cellular Service - PCS, Broadband Access Service - BAS, Mobile Network Operator - MNO, Mobile Network Virtual Operator - MVNO

PCS (MVNO)

Consumer Satisfaction	40%	Consumer Survey
Quality of Service	20%	Report Evaluation Submitted by Service Providers
Compliance to CMA 1998	20%	

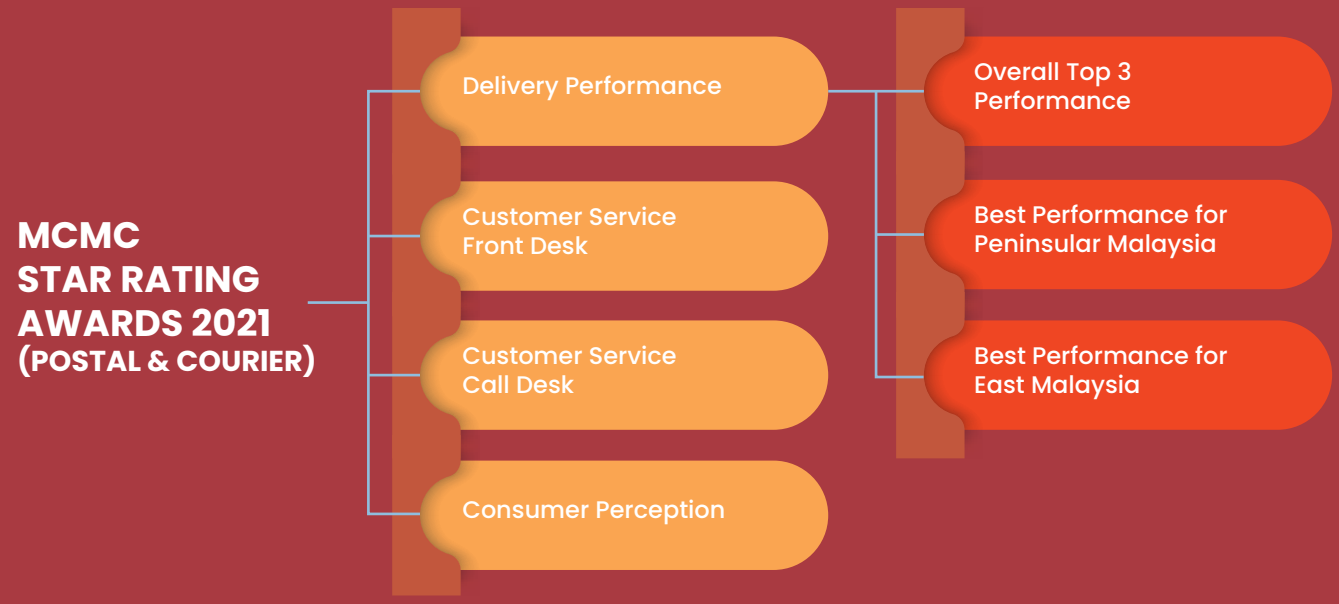
Corporate Social Responsibility(CSR)	100%	Revenue vs Amount Spent in CSR

Source: MCMC
Figure 7.19 Telecommunication Parameters and Measurement Criteria

BROADCASTING PARAMETERS AND MEASUREMENT CRITERIA

Source: MCMC
Figure 7.20 Broadcasting Parameters and Measurement Criteria

POSTAL & COURIER PARAMETERS AND MEASUREMENT CRITERIA



Source: MCMC
Figure 7.21 Postal & Courier Parameters and Measurement Criteria

The results of the performance evaluation of service providers for the year 2021 were announced at the MCMC Star Rating Awards 2021 programme, which was held in Kuala Lumpur on 21 December 2022 and officiated by the Minister of Communications and Digital. For the first time, the award ceremony brought together all three sectors under the C&M industry, with 20 award categories and 24 award winners.

MSRA21 AWARD CATEGORIES AND WINNERS

Award Categories	Award Winners
Broadcasting Industry	
Best Public Service Announcement Award for Radio	Pertubuhan Berita Nasional Malaysia (Bernama Radio)
Best Public Service Announcement Award for TV	AlHijrah Media Corporation (TV Alhijrah)
Best User Satisfaction Award for Radio	Radio Lebuhraya Sdn Bhd (Gegar)
Best Consumer Satisfaction Award for Free-to-Air (FTA) TV	Awesome Broadcasting Sdn Bhd (Awesome TV)
Best Consumer Satisfaction Award for Pay TV	TMNet Sdn Bhd (Unifi TV)
Best Corporate Social Responsibility (CSR) Award	a. BFM Media Sdn Bhd (BFM) b. Kristal Harta Sdn Bhd (Cats FM)
Telecommunications Industry	
Best Mobile Network Operator with Over 5 million subscribers Award	Digi Telecommunications Sdn Bhd
Best Mobile Network Operator with Less than 5 million subscribers Award	YTL Communications Sdn Bhd
Best of Mobile Virtual Network Operator Award	XOX COM Sdn Bhd
Best of Wired Broadband Service Provider Award	Telekom Malaysia Berhad
Best of Customer Satisfaction Survey Award	YTL Communications Sdn Bhd
Best Service Quality Award	a. YTL Communications Sdn Bhd b. Celcom Axiata Sdn Bhd
Best Network Investment Award	U Mobile Sdn Bhd
Best Compliance Award to CMA 1998	Digi Telecommunications Sdn Bhd
Best Corporate Social Responsibility (CSR) Award	YTL Communications Sdn Bhd

Postal and Courier Industry	
Best Delivery Performance Award for Peninsular Malaysia	GD Express Sdn Bhd
Best Delivery Performance Award for East Malaysia	DHL Express (M) Sdn Bhd
Overall Delivery Top 3 Performance Award	a. DHL Express (M) Sdn Bhd b. GD Express Sdn Bhd c. City-link Express (M) Sdn Bhd
Best Customer Service Award (Call Centre)	DHL Express (M) Sdn Bhd
Best Customer Service Award (Front Desk)	Ninja Logistics Sdn Bhd

Source: MCMC
Figure 7.22 MSRA21 Award Categories and Winners

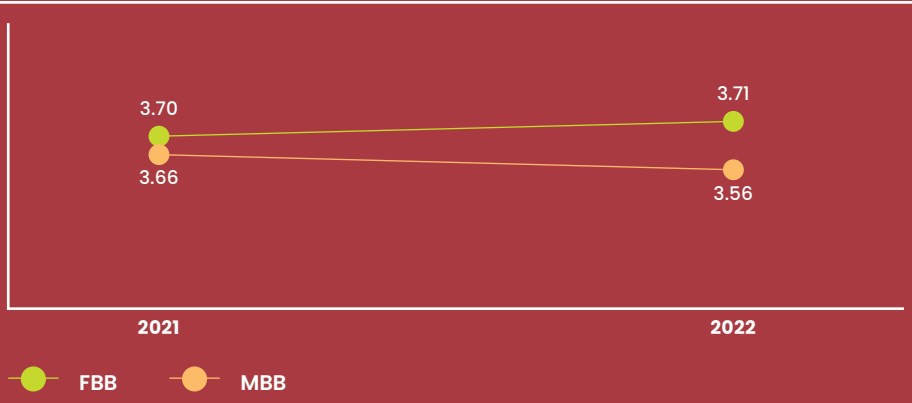
BROADBAND QUALITY OF EXPERIENCE SURVEY

The second edition of the Broadband Quality of Experience Survey known as Broadband Quality of Experience Survey 2022 (BQoES 2022), conducted by MCMC, aims to assess customers' satisfaction with their broadband quality of experience. The survey assesses five online activities namely video streaming, web browsing, online gaming, online voice call and online video call. It also compares different broadband technologies consist of fixed-broadband (FBB) and mobile-broadband (MBB).

The survey took place between November 2022 and January 2023, using both Computer Assisted Telephone Interview (CATI) and a secure online questionnaire to collect data. It involved 3,456 respondents from six mobile-broadband and three fixed-broadband service providers. The survey results were evaluated using the Customer Satisfaction Index (CSI) based on a 5-likert scale analysis comprising consumers' expectations on services and service providers' performance. The results were then categorised into three types of zones, as shown in Figure 7.24.

FBB and MBB users achieved CSI scores of 3.71 and 3.56, respectively. In comparison with 2021, FBB CSI score increased by 0.01 while MBB decreased by 0.10. However, the scores for both FBB and MBB remains in the "Zone of Indifference," indicating consumers were adequately satisfied with the services.

OVERALL CSI SCORES BY TYPES OF SERVICE, 2021-2022



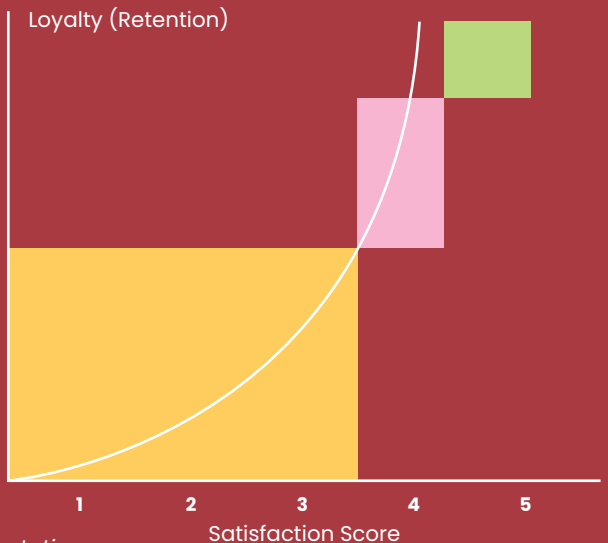
Source: MCMC
Figure 7.23 Overall CSI Scores by Types of Service 2021-2022

BQOES 2022 CSI SCORES AND THE CORRESPONDENCE INTERPRETATION

ZONE OF LOYALTY
Mean scores of >4
Highly satisfied consumers

ZONE OF INDIFFERENCE
Mean scores of >3.5 to 4
Adequately satisfied consumers

ZONE OF DEFECTION
Mean scores of 3.5 and below
Consumers were unsatisfied in most attributes and ready to switch to another option at any time



Source: MCMC
Figure 7.24 BQoES 2022 CSI Scores and the Correspondence Interpretation

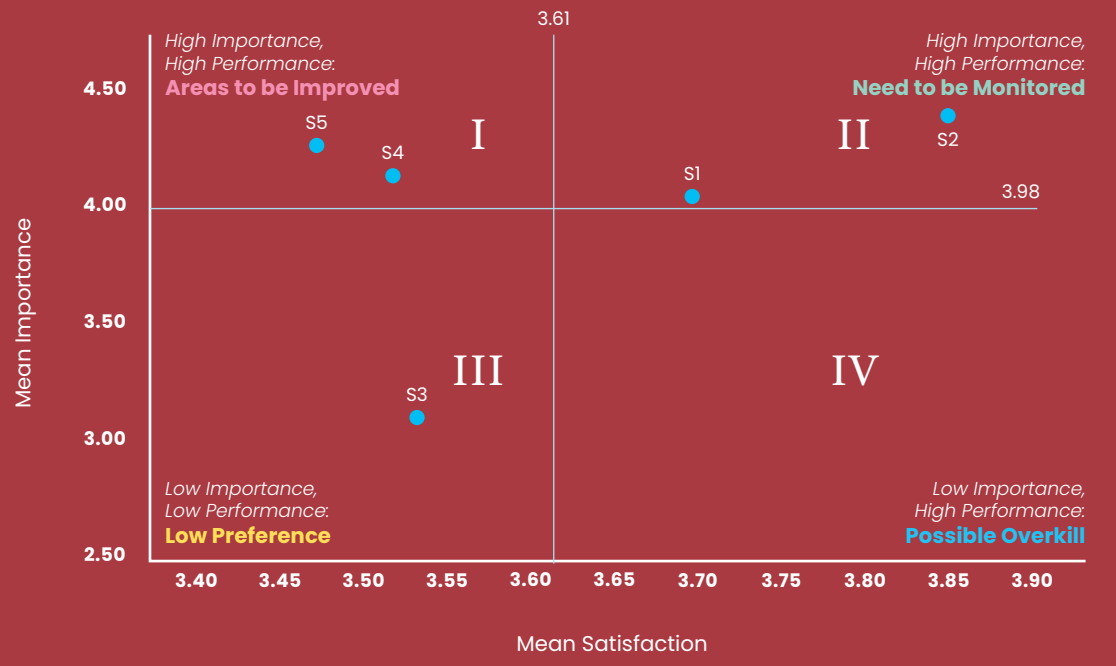
When asked about dissatisfaction with the services, broadband consumers listed the following issues according to the respective online activities (top three) as follows:

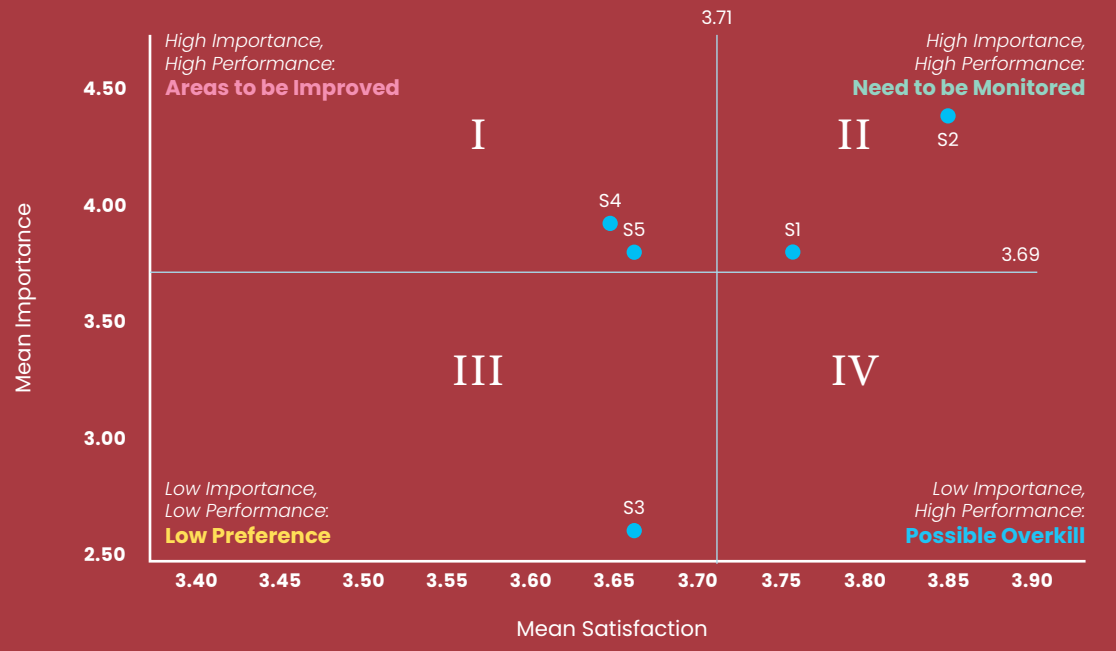
	Top Three Issues
Video Streaming	• Video stalls and buffers • Video slow to load/start • Low picture quality
Web Browsing	• Waiting for page to load • Slow download from webpage • Webpage does not display smoothly
Online Gaming	• Animation stuttering • Latency • Low frame rate
Online Voice Call	• Choppy • Dropped call • Cannot hear the other person
Online Video Call	• Frozen or disconnected video • Choppy or broken voice • Low video quality

The survey used the Importance-Performance Matrix to identify areas of improvement based on the CSI score for both FBB (Figure 7.25) and MBB (Figure 7.26). For FBB, all activities remained in the same quadrant as in 2021, except for online video call which has moved closer to Quadrant III (Low Preference). For MBB, online voice call moved from Quadrant I (Areas to be Improved) to Quadrant II (Need to be monitored) compared to 2021. Meanwhile, other online activities namely video streaming, web browsing, online gaming, and online video call remained in the same quadrant.

Activities in Quadrant I for both broadband technologies fall under area requiring improvement and attention from service providers.

IMPORTANCE-PERFORMANCE ANALYSIS FOR FBB





S1 = Video Streaming. S2 = Web Browsing. S3 = Online Gaming. S4 = Online Voice Calls. S5 = Online Video Calls.

Source: MCMC
Figure 7.25 Importance-Performance Analysis for FBB

IMPORTANCE-PERFORMANCE ANALYSIS FOR MBB

S1 = Video Streaming. S2 = Web Browsing. S3 = Online Gaming. S4 = Online Voice Calls. S5 = Online Video Calls.

Source: MCMC
Figure 7.26 Importance-Performance Analysis for MBB

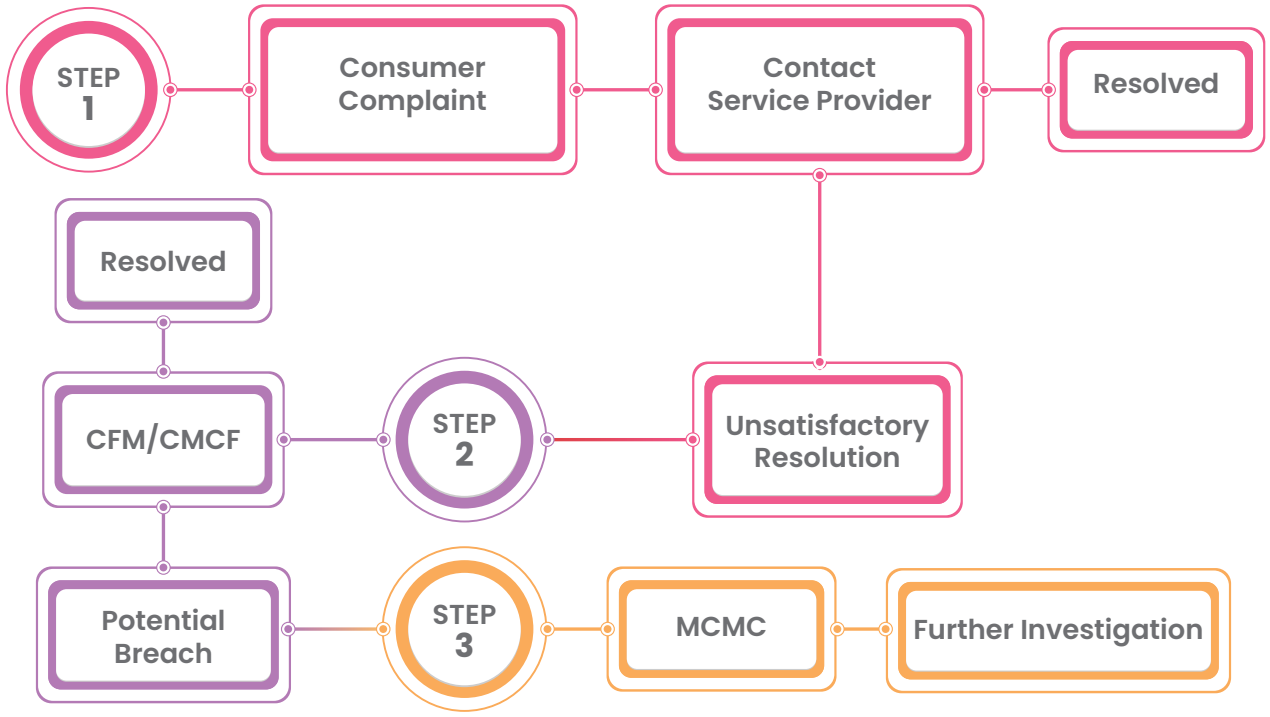
In conclusion, the findings of BQoES demonstrate the perceived level of satisfaction towards selected broadband services among consumers in Malaysia. Therefore, MCMC will continue to conduct BQoES every year to monitor the trend and find areas of improvement to provide the best broadband quality of experience to consumers.

PART B: REGULATIONS AND FORUMS

Protecting the interests of C&M service consumers is a primary task of MCMC. Therefore, it is crucial that consumers, consumer associations and other interest groups are aware of effective regulatory measures that safeguarding consumer rights and privileges.

Consumers must first lodge a complaint with the service provider to address the issue directly. If the service provider does not resolve the matter satisfactorily, the consumer may escalate it to the appropriate Industry Forum, such as the Communications and Multimedia Consumer Forum of Malaysia (CFM) or the Communications and Multimedia Content Forum of Malaysia (Content Forum), for the complaint redressal process. In the event of a possible breach by the service provider, MCMC will investigate the case further and take regulatory action.

CONSUMER COMPLAINTS HANDLING PROCESS



Source: MCMC
Figure 7.27 Consumer Complaints Handling Process

COMMUNICATION AND POSTAL REGULATION

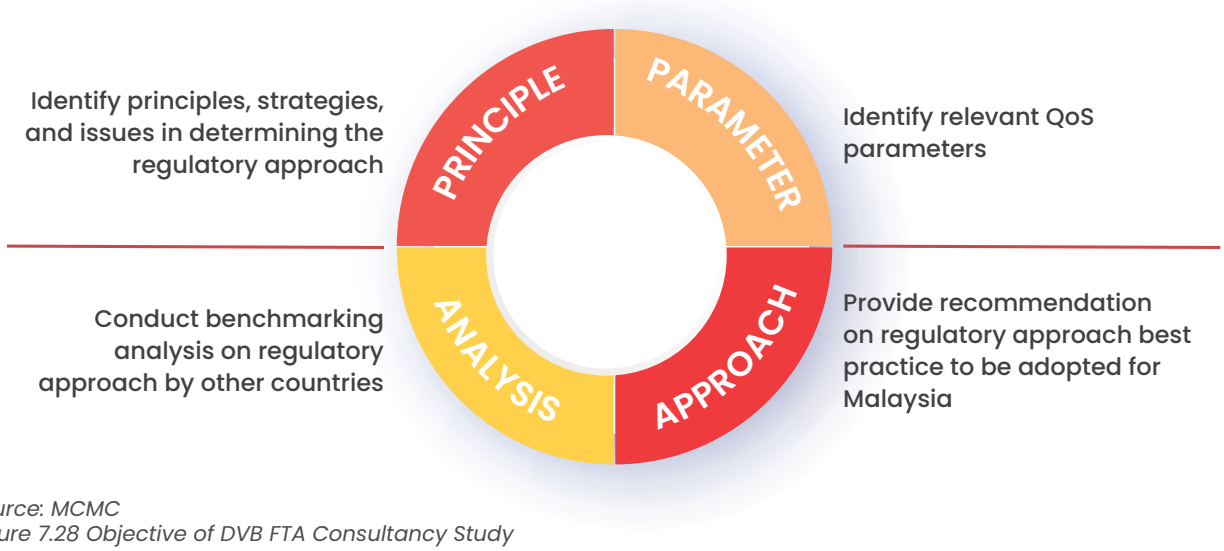
MCMC is responsible for safeguarding consumer rights by ensuring that licensees under the C&M industry offer high-quality services and consistently ensure compliance with the legal instruments under the CMA 1998 and Postal Services Act 2012 including the license conditions, Mandatory Standards, the General Consumer Code of Practice and any other subsidiary instrument established under the Acts.

Consultation study for Regulatory Approach on Quality of Service for FTA Digital Video Broadcasting

Malaysia embarked on a nationwide Digital Terrestrial Transmission (DTT) for Free-to-Air (FTA) TV in 2019; to date there are 44 DTT sites nationwide, reaching 95.3% of the population. The DTT platform is provided by MYTV Broadcasting as the Common Integrated Infrastructure Provider (CIIP). The remaining 4.7% of population coverage is supplemented using Direct to Home (DTH) service available at remote and blind spot areas. In 2020, MYTV has completed the frequency restacking of all DTT transmitters.

In Q3 2022, MCMC conducted a feasibility study on the Regulatory Approach for Malaysia FTA Digital Video Broadcasting (DVB). The four main objectives of the consultancy project are stated in Figure 7.28.

OBJECTIVE OF DVB FTA CONSULTANCY STUDY



Source: MCMC
Figure 7.28 Objective of DVB FTA Consultancy Study

Seven countries were selected for the case studies based on their DTT deployment, analogue switch-off (ASO) completion period, and the regulatory approach adopted. Status of the DTT deployment and regulatory approach for each country are summarised in Figure 7.29.

STATUS OF DTT DEPLOYMENT BY COUNTRY

No	Country	Single DTT Provider	ASO	DTT Technology	Regulatory approach
1	Australia	No	2012	DVB-T	Self-regulation
2	United Kingdom	No	2012	DVB-T/T2	Co-regulation
3	New Zealand	No	2013	DVB-T/T2	Self-regulation
4	Thailand	No	2020	DVB-T2	Co-regulation
5	Indonesia	No	2022	DVB-T2	Command and control
6	Ireland	Yes	2012	DVB-T	Co-regulation
7	Portugal	Yes	2012	DVB-T	Command and control

Source: MCMC
Figure 7.29 Status of DTT Deployment by Country

Australia and New Zealand adopted the self-regulation approach, whereby there is little or no involvement by the regulator. The QoS standards are specified in commercial contracts with service-level agreements. United Kingdom, Thailand and Ireland prefer the co-regulation approach whereby either the regulator or service provider may set the QoS standards. The service provider is responsible for monitoring QoS and providing reports to the regulator. The remaining two countries, Indonesia and Portugal, adopted a stringent approach by implementing command and control regulation. This is where the regulator sets the QoS standards and at the same time is actively involved in monitoring QoS performance.

Figure 7.30 illustrates the key factors in determining the regulatory approach. Effective competition in the market creates incentives for providers to ensure high QoS standards. Active monitoring is required especially for new networks after ASO and frequency restacking are completed. Lastly, the regulator needs to consider any specific DTT QoS issues that are present which require stringent regulatory intervention.

MCMC is planning to finalise the regulatory approach in 2023.

KEY FACTORS IN DETERMINING REGULATORY APPROACH

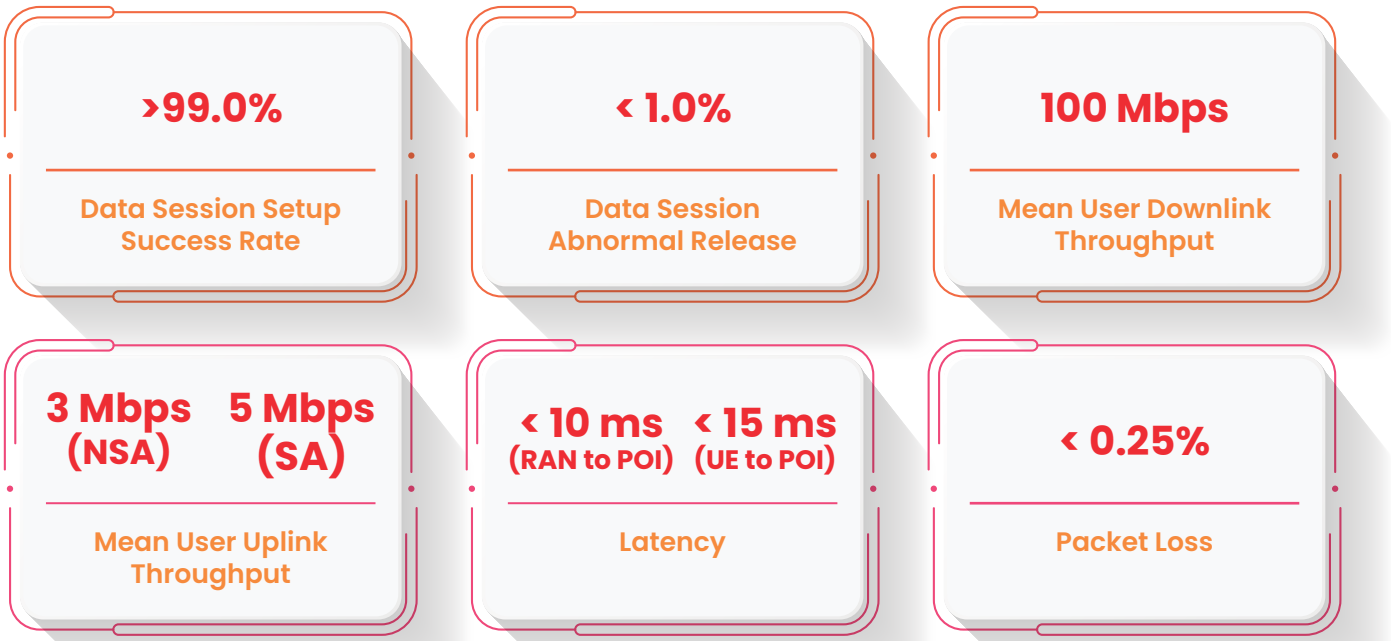
Source: MCMC
Figure 7.30 Key Factors in Determining Regulatory Approach

5G Wireless Broadband Access QoS Standards Development

In order to accelerate the deployment and adoption of 5G technology in Malaysia, the Government has decided on a Single Wholesale Network (SWN) approach, which was awarded to Digital Nasional Berhad (DNB). As a result, incumbent service providers will not need to invest heavily in infrastructure to provide 5G services to subscribers. Using the SWN 5G network access or last mile, service providers can provide 5G services to their consumers by connecting to the SWN.

In ensuring acceptable 5G service quality, MCMC worked together with DNB to develop the 5G SWN Reference Access Offer (RAO), which was released on 31 March 2022. Several Key Performance Indicators (KPI) are included in the RAO for retail service providers. The KPI commitment by DNB to retail service providers is described in Figure 7.31.

5G RAO NETWORK PERFORMANCE KPI



Note: NSA – Non-standalone, SA – Standalone, POI – Point of Interconnection, RAN – Radio Access Network, UE – User Equipment

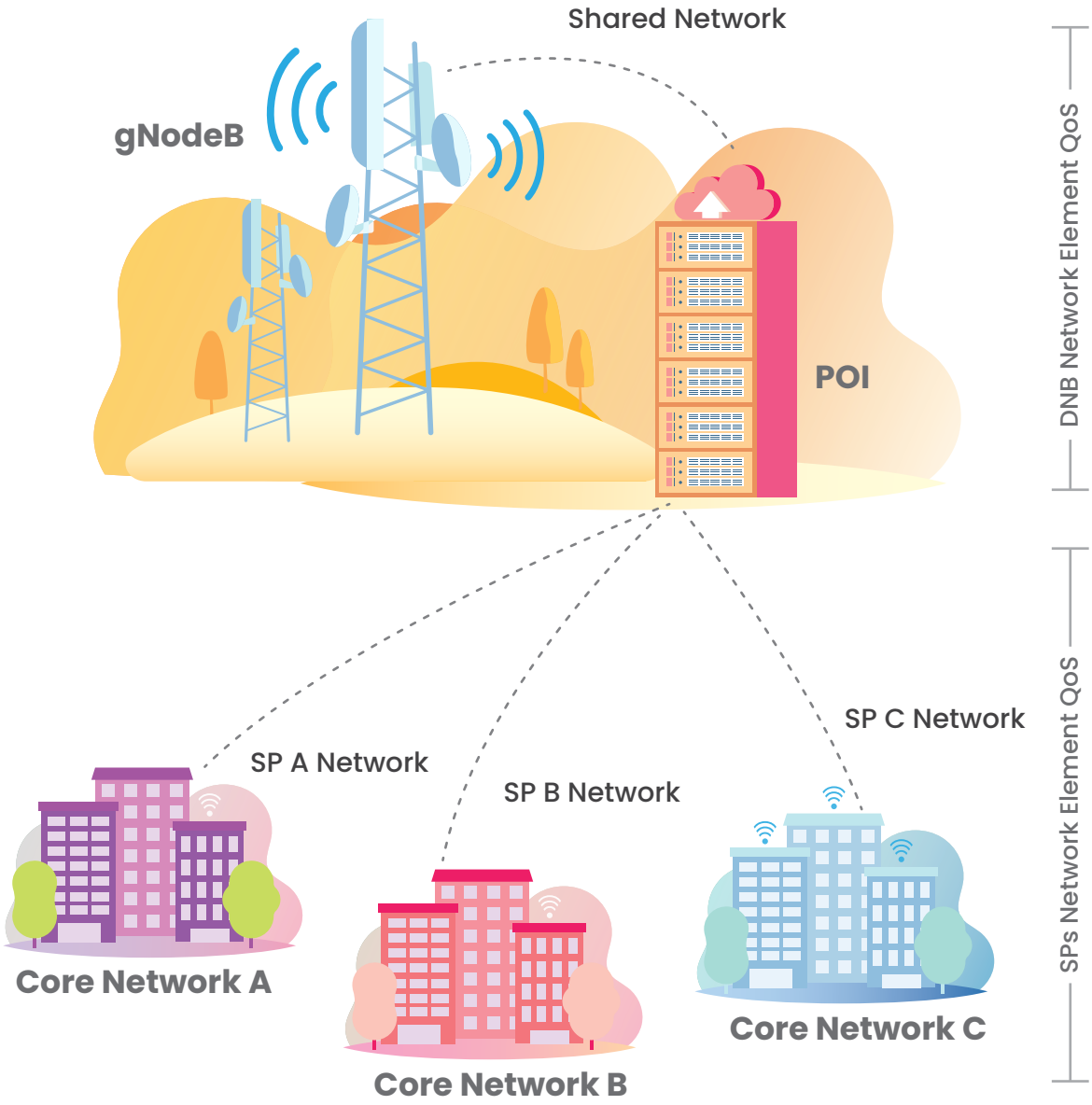
Source: MCMC
Figure 7.31 5G RAO Network Performance KPI

In addition to the RAO, MCMC plans to establish a regulatory instrument to ensure that consumers are able to enjoy 5G quality network. The work on developing MSQoS on 5G is underway, focusing mainly on conducting research and analysis on 5G regulations of other countries and understanding the limitation of SWN network. The work involves benchmarking of developed and developing countries on 5G broadband service network deployment and quality of service.

The International Telecommunication Union (ITU), in a report published (ITU-R M.2410), specified that one of the key components of 5G enhanced mobile broadband (eMBB) applications is the ability to provide users with a download throughput of at least 100 Mbps. On the application point of view, GSMA cited in their report (5G implementation guidelines) that from a business perspective, 4K video and VR are the typical 5G eMBB services, which require a downlink throughput of 50 to 100 Mbps and an uplink rate of 3 to 5 Mbps.

The deployment of 5G SWN in Malaysia is based on the Multi Operator Core Network (MOCN), where the radio access network (gNodeB) and spectrum are shared by all service providers. Retail service providers connect their networks at the Point of Interconnection (POI) where all traffic is handover between the SWN and service providers' network (Figure 7.32).

MALAYSIA 5G SWN MOCN ILLUSTRATION



Source: MCMC
Figure 7.32 Malaysia 5G SWN MOCN Illustration

The research and analysis of data will form the basis for MCMC's work in developing the 5G MSQoS standard in 2023. In addition, establishing the QoS standard for a SWN will be more challenging than for a single network provider. To ensure end-to-end service quality, wholesale network quality must match retail network demand.

MARKET REGULATION

The main role of Market Regulation is to develop policies, guidelines and regulatory instruments on competition and access for the C&M industry as well as the postal industry. In addition, it also monitors and implements the said policies to ensure compliance with the CMA 1998, Postal Services Act 2012, and its subsidiary legislations.

Key Activities in 2022

Merger and Acquisition between Digi.Com Bhd and Celcom Axiata Bhd

In September 2021, MCMC commenced Phase 1 assessment of the proposed merger between Celcom Axiata Berhad (Celcom) and Digi.Com Berhad, the parent company of Digi Telecommunications Sdn Bhd (Digi). The proposed merger involves the businesses of Celcom and Digi (collectively known as the CelcomDigi), which are the second and third largest mobile network operators in Malaysia. MCMC acknowledges that while mergers may increase efficiency arising from economies of scale and scope, it may also have the effect of substantial lessening of competition in the communications market.

Considering the potential of the proposed merged entity being a dominant position in several markets, MCMC carried out Phase 2 assessment which began in November 2021. Phase 2 assessment entails a comprehensive assessment of the effects and the efficiency that will be generated from the proposed merger, and whether the efficiency gain will offset the anti-competitive effects.

Following Phase 2 assessment, MCMC identified competition concerns in several markets. On 1 April 2022, MCMC had issued a Statement of Issues (SOI) to CelcomDigi to highlight preliminary views. The SOI is not a final decision but is intended to provide an opportunity for CelcomDigi to provide their feedback and submit remedies to address MCMC concerns. The key concerns include market concentration, spectrum imbalances, ability to raise prices and concentration of distribution channels.

To address MCMC concerns, CelcomDigi submitted an undertaking. In the said undertaking, CelcomDigi agreed to divest 70MHz of spectrum, establish a separate independent MVNO wholesale business, divest its prepaid brand Yoodo, remove exclusivity arrangements with distributors in the states where CelcomDigi occupies a dominant position and not enter into any new exclusivity arrangements and to establish a single corporate brand for Celcom and Digi prepaid and post-paid products.

Following the commitments submitted by CelcomDigi in the said undertaking, on 28 June 2022, MCMC registered the undertaking in accordance with section 140(3) of the CMA 1998 and issued a notice of no objection on the proposed merger.

Complaints on Anti-Competitive Conduct

In 2022, MCMC received 12 complaints, of which 11 were on exclusivity arrangements between fixed broadband service providers and property developers or building management for high-rise residential complexes. The complainants were not satisfied that they could only subscribe to broadband packages offered by the appointed service provider in their respective residential areas. MCMC's assessment indicated that although there was only one service provider present in those residential areas, there were no exclusive rights granted to the said service provider. In view that these complaints also involved property developers or joint management bodies, MCMC collaborated with Malaysia Competition Commission (MyCC) to address the complaints.

With regards to the complaint on bundled broadband packages, MCMC's assessment revealed that even though the services are offered as a bundled package, there were no extra charges imposed for the additional services in the bundle. Furthermore, consumers have the option to subscribe to broadband services only or to the bundled services, according to their usage need and pattern.

Besides complaints on exclusivity, MCMC also assessed four anti-competitive cases involving three telecommunication service providers and one postal service provider. MCMC has completed its assessment on three cases, while one case is still under assessment.

Accounting Separation

Beginning 2013, vertically integrated telecommunications service providers are required to submit regulatory financial statement (RFS). The RFS provides information needed to investigate and analyse anti-competitive conducts. It is also a useful tool to identify the cost and profitability of the different services and what drives these costs.

MCMC has issued Guidelines on the Implementation of Accounting Separation in Malaysia to provide a structured approach to service providers' adherence when submitting the RFS and the related information to MCMC. Under the Guidelines, detailed RFS will apply to service providers whose revenue and total assets in Malaysia both exceed RM3 billion, while service providers whose revenue or total assets fall below this threshold are only required to submit simplified RFS.

In 2022, MCMC received RFS submissions from seven service providers for financial year ending 2021. Telekom Malaysia, Celcom Axiata, Digi Telecommunications, Maxis, and U Mobile, submitted detailed RFS on the wholesale and retail services, while TT dotcom and YTL Communications submitted simplified RFS on the wholesale and retail segments. Assessment by MCMC revealed that most of the revenue generated is from retail i.e., ranging between 34% and 96% while revenue generated from wholesale ranged between 4% and 50%.

Competition in the Retail Market

MCMC monitors the state of competition in the fixed, mobile and Pay TV markets to assess the level of competition in the market as well as to identify if there are any service providers engaging in price related anti-competitive practices.

In 2022, the mobile market consists of six MNOs and more than 10 MVNOs. As a result of many operators competing in the retail market, prices are competitive and consumers have a wide range of packages to select from to cater to their needs.

The main service providers in the fixed market are Telekom Malaysia, Maxis, and TIME. MCMC observed that competition is intensifying in the fixed broadband market with the entry of new players such as Celcom, Digi and U Mobile in year 2021, and ASTRO in 2022. Besides these service providers, there are several smaller service providers focusing in niche areas.

The Pay TV market is also competitive as consumers have various options available based on individual preference and affordability. Unifi TV's packages are bundled with high-speed fixed broadband services, while ASTRO offers stand-alone Pay TV packages or Pay TV packages bundled with high-speed fixed broadband. Apart from that, over-the-top (OTT) video streaming services such as Netflix, Disney+ Hotstar, Prime Video, Viu, WeTV, iflix, AppleTV, and others, are available to consumers with internet connectivity. While there are many avenues to select from, MCMC acknowledges that certain types of content may not be available on all platforms, for example sports. Hence, consumers who require such content, may need to subscribe to those content service providers accordingly.

Commission Determination on Access List, Commission Determination on Mandatory Standard on Access, and Commission Determination on Mandatory Standard on Access Pricing

In 2022, MCMC was actively implementing, monitoring and regulating the following instruments:

(a) Commission Determination on Access List, Determination No. 6 of 2021 which came into effect on 15 December 2021 (Access List);

(b) Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2017 which came into effect on 1 January 2018;

(c) Variation to the Commission Determination on the Mandatory Standard on Access Pricing (Determination No. 1 of 2017), Determination No. 1 of 2020 which came into effect on 1 January 2021; and

(d) Commission Determination on the Mandatory Standard on Access, Determination No. 1 of 2022 which came into effect on 1 November 2022 (MSA).

Access Agreements

MCMC reviews Access Agreements between Access Providers and Access Seekers to ensure that the Access Agreements are in compliance with the CMA 1998 and other relevant access instruments. In the event that the Access Agreements are not in compliance with the CMA 1998 and access instruments, both parties are required to amend the Access Agreements, or to enter into a new Access Agreement.

In 2022, a total of 77 Access Agreements have successfully been reviewed and registered pursuant to Section 150 of the CMA 1998.

Reference Access Offer

As mandated in the MSA, Access Providers who provide facilities and/or services listed in the Access List are obliged to publish a Reference Access Offer (RAO) on their respective website. MCMC carries out an assessment of the RAOs to ensure compliance with the access instruments, as well as with the CMA 1998. As at 31 December 2022, MCMC has assessed and reviewed 11 RAOs that have been published by Access Providers.

Engagement Sessions on Access Issues

On 3 March 2022, MCMC conducted an awareness session on access framework, with participation from 30 new and existing licensees. The awareness session was organised to provide insight into access framework and access instruments, as well as to educate licensees on their roles and obligations as an Access Provider.

In addition, pursuant to the review of Mandatory Standard on Access Pricing, a series of engagement sessions on development of cost modelling were held from 28 October to 9 November 2022 and attended by the main Access Providers, namely, Telekom Malaysia, TT dotcom, Digital Nasional Bhd, Celcom Axiata, Digi Telecommunications, Maxis Broadband, U Mobile, YTL Communications, Webe Digital, MyTV Broadcasting and infrastructure providers.

Reporting Obligations

In line with the Commission Determination on the Mandatory Standard on Access, Determination No. 3 of 2016, Access Providers who provide HSBB Network Services, Transmission Services, Network Co-Location Service, Duct and Manhole Access, Digital Terrestrial Broadcasting Multiplexing Service and MVNO Access are obliged to submit their reports to MCMC in April and October 2022. In 2022, a total of 105 reports for the said facilities and/or services were received from the relevant Access Providers and reviewed by MCMC, to ensure compliance with the Mandatory Standard on Access.

Based on the MSA which came into effect on 1 November 2022, additional facilities and/or services such as Infrastructure Sharing, Domestic Inter-Operator Roaming Service, 5G Services and IP Transit Service were included in the reporting obligations. In addition, the reporting obligations are amended whereby Access Providers are only required to submit report once a year instead of twice a year to reduce administrative burden on service providers.

Access Complaints and Access Disputes

One of MCMC's crucial roles is to mediate and resolve access complaints, as well as access disputes.

In 2022, MCMC received two notification of disputes, one general complaint and seven access complaints on facilities and/or services in the Access List, as well as on compliance with the MSA and Commission Determination on Mandatory Standard on Access Pricing. As a regulator, MCMC has carried out its role in facilitating the negotiations between Access Providers and Access Seekers to ensure there is effective competition in the market for the long-term benefit to the end users.

Review of Mandatory Standard on Access

MCMC has issued Public Inquiry Paper and Public Inquiry Report on Review of Mandatory Standard on Access on 13 June 2022 and 7 September 2022, respectively. On 21 September 2022, the MSA was published and it came into effect on 1 November 2022.

Review of Mandatory Standard on Access Pricing

MCMC has commenced a review of Commission Determination on Mandatory Standard on Access Pricing in 2022 to determine the prices for facilities and services listed in the Commission Determination on Access List.

In this review, five cost models were developed and a Public Inquiry Paper on Review of Access Pricing was issued on 5 October 2022. The industry was invited to provide feedback by 17 January 2023.

At the same time, the Commission Determination on Mandatory Standard on Access Pricing, Determination No. 1 of 2017 was varied to extend its validity until 31 March 2023.

CONTENT REGULATION

MCMC remains committed in improving the level of compliance of Content Application Service Provider Individual (CASP-I) licensees by strengthening monitoring activities to ensure that broadcast content reflects the culture, identity and norms of the society in accordance with CMA 1998, Content Code and other Acts applicable to them.

In 2022, a total of 18 complaints related to the content of radio and TV were referred to MCMC. There were eight complaints on Subscription TV (Pay TV), followed by six complaints on Free-to-Air TV (FTA TV) and four complaints on terrestrial radio as shown in Figure 7.33.

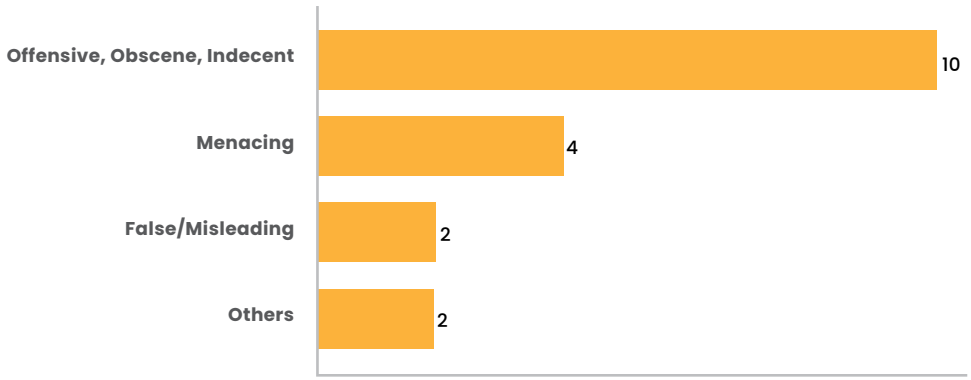
TREND OF COMPLAINTS RECEIVED BY PLATFORM

Platform	No. of Complaints			
	2019	2020	2021	2022
FTA TV	8	16	6	6
Pay TV	19	14	26	8
Terrestrial Radio	10	8	2	4
Total No. of Complaints	**37**	**38**	**34**	**18**

Source: MCMC
Figure 7.33 Trend of Complaints Received by Platform

Out of the 18 complaints received, 10 complaints were offensive/obscene/indecent, followed by four complaints under menacing content, two complaints under false or misleading content and two complaints related to non-compliance of the CASP-I special licence conditions.

CATEGORY OF COMPLAINTS RECEIVED IN 2022



Note: Others represent complaints related to non-compliance of the CASP-I special licence conditions.

Source: MCMC
Figure 7.34 Category of Complaints Received in 2022

As shown in Figure 7.35, all complaints received were related to content such as films/movies, dramas, news, talk shows and cartoon programmes. For 2022,, there are no complaints related to advertisements.

COMPLAINTS ON BROADCAST CONTENT BY CATEGORY

Category	No. of Complaints			
	2019	2020	2021	2022
Advertisements	-	1	-	-
Programme Content	37	37	34	18
Total No. of Complaints	**37**	**38**	**34**	**18**

Source: MCMC
Figure 7.35 Complaints on Broadcast Content by Category

In 2022, 18 enforcement actions were taken based the complaints received as shown in Figure 7.36. Six warning letters were issued and two First Information Reports (FIRs) were submitted for further investigation to the Enforcement and Investigation Department.

ENFORCEMENT ACTIONS ON THE CONTENT COMPLAINTS

Category	Quarter, 2022				Total
	1Q	2Q	3Q	4Q	
FIR	1	1	-	-	2
Warning/Advisory	1	3	2	-	6
No Breach	4	1	3	2	10
Total No. of Complaints	**6**	**5**	**5**	**2**	**18**

Source: MCMC
Figure 7.36 Enforcement Actions on the Content Complaints

Approval for Live or Delayed Telecast Applications (LDTA)

All CASP-I licensees, except for Measat Broadcast Network Systems (ASTRO Pay TV), are required to obtain approval from MCMC for live or delayed broadcast programmes. All applications must be applied through the LDTA system no less than 21 days prior to broadcast date. In 2022, a total of 178 applications were received and approved. The following is a summary of the applications received.

LDTA BY PLATFORMS

Platform	Quarter, 2022				Total
	1Q	2Q	3Q	4Q	
FTA TV	27	16	22	63	128
Pay TV	3	3	3	4	13
Terrestrial Radio	11	10	7	9	37

Source: MCMC
Figure 7.37 LDTA by Platforms

MCMC has taken proactive measures such as giving compliance briefings to broadcasters before a programme is aired as scheduled. In addition, MCMC also attends rehearsal sessions and live programmes to ensure that the broadcasting station complies with applicable provisions such as CMA 1998, Content Code and other related acts and provisions.

Public Service Announcement (PSA)

MCMC cooperates with the KKD as the focal point for disseminating materials and government messages to the private TV and radio stations for public awareness.

In 2022, 194 PSAs in the forms of video/ audio, crawlers, text announcements and infographics were disseminated and broadcasted by private broadcasters through their channels, as well as their digital platforms.

The PSAs were from the KKD, Prime Minister's Office (PMO), Ministry of Finance (MoF), Ministry of Health (MoH), National Disaster and Management Agency (NADMA), Department of Meteorology Malaysia (MET), and other Ministries and Agencies.

Throughout 2022, the most distributed PSA was on *Jelajah Aspirasi Keluarga Malaysia.* There were also PSAs on Malaysian Emergency Response Services 999 (MERS 999) and fake news to remind the public to be mindful of not making fake calls and avoid spreading false news.

Source: Department of Irrigation and Drainage (JPS)

Source: Ministry of Local Government Development (KPKT)

Source: Suruhanjaya Pilihan Raya (SPR)

Source: Ministry of Health (MoH)

Source: Prime Minister's Office (PMO)

Source: Ministry of Communications and Digital (KKD)

Key Projects in 2022

Development of Content Code 2022 (3rd Edition)

The Malaysian Communications and Multimedia Content Forum (Content Forum) is a self-regulatory body and industry forum. The Content Forum was designated by CMA 1998 in February 2001. The Content Forum operates under the auspices of MCMC to oversee and promote self-regulation of content over the electronic networked medium.

As an industry self-regulatory body, the Content Forum is made up of key practitioners in the communications and multimedia content industry, including broadcasters, advertisers, content creators/distributors, audiotext hosting service providers, Internet access service providers and civic groups. This dynamic representation of industry practitioners ensures that content standards continue to be developed with the aim of creating robust competition in the industry.

The Communications and Multimedia Content Code (Content Code) was developed not only for industry practitioners but also as a key reference for everyone involved in the content ecosystem – those who create, spread and consume it. This includes broadcasters, content creators, advertisers, social media influencers and consumers.

This Content Code is registered under CMA 1998 and developed by industry practitioners through public consultation to ensure content standards are fair and adaptable to the ever-changing landscape of the C&M industry. The main objective of the Content Code is to outline procedures of self-regulation that enhance creativity, innovation and support the healthy growth of a fast-evolving industry.

In 2021, the Content Forum embarked on an initiative to revamp the entire existing Content Code to ensure it remains in line with global best practice on the provision of electronic content. The revamp of the Content Code 2022 (3rd Edition) has taken into account feedback and/or comments from the public and stakeholders on proposed revisions.

The Content Code (3rd Edition) has been officially registered and became effective from 30 May 2022. It can be downloaded via the MCMC official website at the following link https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Content- Code-2022.pdf.

Broadcast Industry Guideline: Accessibility of Persons with Disabilities (PWDs) to TV Content

The Ministry of Women, Family and Community Development (KPWKM) established a Persons with Disabilities (OKUs) Policy (updated in 2016) that serves as a guideline for equal rights and opportunities for OKUs in the society. This policy prioritises the value of human rights such as dignity, honour, and freedom to enable them to live independently.

In line with the 2022 Budget announcement to encourage full participation from people with disabilities in society and increase the accessibility of this group to TV content, MCMC had issued a Broadcasting Industry Guideline: Accessibility of Persons with Disabilities (OKU) to TV Content on 30 May 2022.

This guideline was created by considering, fulfilling, and supporting the policy goals of the OKU and recognising the needs to:

i. Give recognition and acceptance of the principle that the disabled have equal rights and opportunities in society;

ii. Ensure that the disabled enjoy fair rights, opportunities, and access under the laws of the country; and

iii. Eliminate discrimination against a person because of his/her disability; and educate and improve community awareness about the rights of the OKU.

This guideline is also MCMC's effort and commitment to increase the level of accessibility of OKU to TV content as well as to improve the involvement of the private broadcasting industries in providing the following accessibilities but not limited to:

i. Malaysian Visual Sign Language

ii. Subtitles and closed captions, and SDH (subtitles for the deaf and hard of hearing)
   - Same language (intra-lingual) captioning
   - Foreign language (inter-lingual) captioning

iii. Audio description
   - Audio description (same language content)
   - Audio description broadcast mix
   - Audio description receiver mix
   - Separate device to deliver audio description
   - Audio captioning

iv. Augmentative and Alternative Communications (AAC)

COMMUNICATIONS AND MULTIMEDIA CONSUMER FORUM OF MALAYSIA

The Communications and Multimedia Consumer Forum of Malaysia (CFM) is a self-regulating body under CMA 1998 and under the purview of MCMC. CFM provides a platform for the resolution of complaints in relation to Communications and Multimedia services. CFM is tasked with, among others, the preparation of consumer codes that serve to promote high standards of service and protect consumer interest.

In 2022, CFM handled a total of 2,013 complaints that labelled as 'Reopened' for all service providers as tabulated below. Majority of the complaints received under 'reopened' are on billing and charging representing 52.55% of the complaints in 2022. After further analysis, almost all complaints under Billing dispute are mainly due to random charges, billing error, double billing, and several other minor issues.

GCC-RELATED COMPLAINTS ATTENDED BY CFM IN 2022

Categories	2022 GCC-related Complaints (Reopened Status)
Billing and Charging	1,058
Unfair Practice	183
Service Delivery	355
Misrepresentation of Service	286
Dispute Terms and Conditions	109
Pricing	22
Total Complaints	**2,013**

Source: CFM
Figure 7.38 GCC-Related Complaints Attended by CFM in 2022

CFM handled eight mediation sessions involving complaint dispute resolutions between CFM, complainant, and service providers to achieve a mutually agreed resolution. All complaints were successfully mediated by the CFM and are labelled as 'Resolved' and 'Closed' in the ICMS.

The General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia (GCC) is a self-regulating industry code under the purview of CFM that sets out the acceptable standards applicable in the C&M industry. GCC aims to be the point of reference for consumers that must be adhered to by service providers to ensure efficient and quality delivery of services.

The GCC has gone through several cycles of review to ensure effective implementation of the Code by addressing the gaps between current issues on consumer protection and its existing provisions to fit today's telecommunications setting. The GCC was successfully registered on 30 November 2022, replacing the GCC of 2003.

HIGHLIGHTS FROM GCC 2022

CONSUMER WITH SPECIAL NEEDS

A Code Subject shall accommodate Consumer with special needs in a manner that the information can be used to make an informed decision

CONTRACTUAL TERMS & CONDITIONS - VARIATION & RENEWAL

A Code Subject shall communicate changes in a Contract to affected subscribers especially if contract variation/renewal results in an increase in Charges or impacts Service

COMPENSATION

Code Subjects must offer compensation to the Consumer in cases of breach of a Consumer Code and any relevant mandatory standards. Compensation packages may be in monetary or non-monetary form

RESPONSIVENESS OF COMPLAINT HANDLING

Improved timeline to address Consumer complaints. Code Subjects shall advise Subscriber on proposed resolution according to categories of simple or complex cases

CRITICAL INFORMATION SUMMARY (CIS)*

A Code Subject shall provide a summary of service packages offered to allow Consumers compare among Code Subjects. Summary should include Description of Service, Term, Limitations of Service, Charges & Contact details of Customer Service

**CIS must be concise, written for and easily accessible to Consumers prior to sale*

FORCE MAJEURE

Force Majeure is included to remove liability for unforeseeable and unavoidable catastrophes that interrupts the delivery of services from Code Subjects to its consumers and unable to fulfill obligations in the contract

**Code Subject is referred to as the Service Provider*

Source: CFM
Figure 7.39 Highlights from GCC 2022

CFM RANGERS

CFM Rangers was established with the aim of setting up a volunteer base programme nationwide to conduct outreach programmes with local communities and collate information on C&M issues that is channelled back to CFM, MCMC, and other stakeholders. CFM Rangers encourages effective two-way communication where local communities' voices are amplified for the stakeholders of the industry to provide fast and accurate responses. In December 2022, CFM successfully recruited more than 100 CFM Rangers, a mixture of university students and the public.

PERSIDANGAN PENGGUNA

CFM organised a conference titled *Persidangan Pengguna Komunikasi & Multimedia 2022 – "Pengguna Berilmu, Pengguna Bijak"* on 2-3 December at M Resort & Hotel, Kuala Lumpur. It gathered industry players, academicians, and professionals to deep dive into and discuss the emerging and trending issues surrounding consumerism in the communications and multimedia industry. These sessions brought exceptional insights from these experts and academicians of various backgrounds. Together, they are striving towards improved policies to promote a conducive balance between consumerism and the C&M industry.

In carrying out various activities, the Council[2] decided that the CFM should portray a more mature look reflecting an organisation that has existed in the C&M industry for the past 21 years. The rebranding exercise comprising the final version of its logo was approved on 4 December 2022.

CFM REBRANDING EXERCISE

BEFORE

AFTER

Source: CFM
Figure 7.40 CFM Rebranding Exercise

[2] The Council comprises members from demand and supply stakeholders. Supply stakeholders are individual licensees, and demand stakeholders are Public Interest Groups.

COMMUNICATIONS AND MULTIMEDIA CONTENT FORUM OF MALAYSIA

The Content Forum advocates for consumer protection and houses a Complaints Bureau to address all complaints relating to content disseminated over electronic networks. The Complaints Bureau is empowered to investigate possible breaches of Content Code 2022, mediate disputes, adjudicate cases, publish orders and impose sanctions where necessary. Additionally, it plays an advisory role to any party requiring guidance on Content Code 2022.

The Content Forum's Complaints Bureau received a total number of 734 cases via Content Forum's complaints portal, emails, or letters from complainants on various content issues. The largest portion of cases received was regarding Internet Content (518 cases). This constitutes 71% of the total number of cases received by the Complaints Bureau as at 31 December 2022. The breakdown of cases by category in 2022 is shown in Figure 7.41.

CONTENT FORUM BREAKDOWN OF CASES BY CATEGORY IN 2022

Advertising Content	Mobile Content/ Services	Broadcasting Content (TV & Radio)	Internet Content	Others (Non-Content Related)	Total Cases
0	34	3	518	179	734

Source: Content Forum
Figure 7.41 Content Forum Breakdown of Cases by Category in 2022

There has been an increasing number of complaints received by the Content Forum's Complaints Bureau in 2022 as compared to 2021 whereby they received 600 complaints. It can be attributed to the fact that more people are aware about the Content Forum and their rights to lodge a report for any misconduct that happens in the Internet realm. This shows that the public is gaining awareness on the need of self-regulation and demonstrates the success of the Content Forum's initiatives in engaging the public throughout the year.

In addition, in March 2022, the Content Forum was entrusted by MCMC to handle Tier 1 New Media Content Related complaints – comprising complaints not related to the 3R (Religion, Race & Royalty) or high-profile cases. The breakdown of cases handled by the Content Forum during this period is as below:

TIER 1 NEW MEDIA COMPLAINTS HANDLING

Open	Resolved/On Hold	Total Cases (March – December)
1,108	12,071	14,225

Source: Content Forum
Figure 7.42 Tier 1 New Media Complaints Handling

Awareness, Public & Stakeholder Engagement

In 2022, Content Forum intensified its efforts in educating the public and industries on the importance of self-regulation. Throughout the year, Content Forum actively conducted dialogues and forum sessions, disseminated press releases and held awareness programmes with institutions of higher learnings, key opinion leaders/ influencers, industries and schools via its social media platforms and on-the-ground events. The purpose of these events are to increase awareness of self-regulation and highlight relevant societal issues that are part of Content Code 2022. Figure 7.43 describes some Content Forum engagement sessions.

CONTENT FORUM ENGAGEMENT SESSIONS

Date	Engagement
10 Jan	Meeting with TechKnow Solutions Sdn Bhd
26 Jan	The Content Forum and MCMC Co-Organised and Hosted a Webinar on 'Ethics in the News'
23 Feb	Dialogue With KPDNHEP Advertising Committee Members
11 Mar	Dialogue with Manis FM
11 Apr	Meeting with Netflix
12 Apr	Dialogue with Medicines Advertisement Board, MOH

Source: Content Forum
Figure 7.43 Content Forum Engagement Sessions

POSTAL FORUM

Postal Forum is a self-regulating body designated by MCMC in February 2020, as stipulated under Sections 49 and 50 of the Postal Services Act 2012. The Forum is entrusted with functions within its ambit of responsibilities, including developing code of practice for the industry, and providing feedback and recommendations to MCMC on any postal and courier services issues affecting consumers.

The proliferation of e-commerce has led to an increase in consumer awareness and demand for postal and courier services, making it more challenging to meet consumers' expectations. In this regard, the Postal Forum plays a crucial role in safeguarding both the industry and consumers.

Key Highlights

Consumer Code Framework

The submission of the Consumer Code Framework to MCMC on 1 June 2022 marks an important step in carrying out one of the Postal Forum's main functions to protect consumer rights and interests. The framework outlines the approach to consumer protection and matters related to both industry and consumer. This is crucial in building trust and confidence in the industry, apart from sustaining the economy ecosystem.

Consumer-related Awareness Programmes

In 2022, Postal Forum launched several initiatives to increase consumer awareness. Through offline media partnerships such as Berita Harian, New Straits Times, and Mingguan Malaysia, the postal and courier services-related information were disseminated to more than half a million readers nationwide.

As a newly established independent body under the purview of MCMC, Postal Forum has raised industry and consumer awareness of its existence and functions. Through awareness campaigns, consumers were informed on the guidelines for understanding the terms and conditions, good parcel packaging, extended protection for valuable parcels, alternative ways to receive parcels via *Rangkaian PAKEJ*, and filing complaints. These campaigns were derived from complaints lodged by consumers, aiming to encourage and inculcate consumers to assume responsibility of their own package safety and make informed decisions.

In addition, Postal Forum has produced a quarterly consumer bulletin highlighting issues related to postal and courier services. This demonstrates the Postal Forum's dedication to enhancing consumer experience and eventually nurturing industry's well-being.

Industry Development Programme

Postal Forum also ensures the industry remains competitive and sustainable by promoting the industry's interests through stakeholders' involvement programmes such as brainstorming labs, workshops, training sessions, and seminars. In 2022, over 200 participants attended the programmes organised by the Forum.

Consumer Advisory Tools

Consumer Advisory Tools are important mechanism to gauge the Postal Forum's effectiveness in managing consumer complaints and improving service quality. Under Complaint Escalation Management, Postal Forum is required to escalate and follow-through on complaints with service providers within three business days.

In 2022, the Postal Forum managed more than 30,000 complaints or approximately 85% of the total complaints received from Aduan MCMC. Most complaints received were related to late delivery, poor service delivery and lost letters or parcels. Notably, complaints related to lost letters or parcels reduced by an average of 5%, compared to 2021.

SELECTED POSTAL FORUM ACTIVITIES IN 2022

Date	Event
24 Mar	Postal Forum Brainstorming Lab with MCMC & AMEC
31 Mar	Launch Quarterly Consumer Bulletin
22 Jun	Postal Forum Industry Engagement for Customer Service
6 Jul	Introduction to Dangerous Goods for the Postal & Courier Services Industry
8 Nov	Consumer Focus Group Brainstorming Session
21 Dec	Postal Forum trainees' visit to GDEX Berhad

Source: Postal Forum
Figure 7.44 Selected Postal Forum Activities in 2022

POSTAL FORUM AWARENESS ADS

MALAYSIAN TECHNICAL STANDARDS FORUM BERHAD

The Malaysian Technical Standards Forum Berhad (MTSFB) was incorporated on 8 June 2004 and subsequently designated and registered by MCMC as the Technical Standards Forum pursuant to Sections 94 and 184 of CMA 1998 on 27 November 2004.

The primary role of MTSFB is to develop technical codes for the adoption by the C&M industry. In line with CMA 1998, MTSFB is tasked to develop technical codes which shall include, but not limited to, the requirements for network interoperability and the promotion of safety of network facilities.

As at 31 December 2022, the MTSFB has developed a total of 69 technical codes that have been registered under the CMA 1998 which are still active, out of which 26 technical codes are for the purpose of certifying communications equipment under the Communications and Multimedia (Technical Standards) Regulations 2000. For 2022, nine technical codes have been registered, four of which are for the purpose of communications product certification. The registered technical codes in 2022 are listed in Figure 7.45.

REGISTERED TECHNICAL CODES IN 2022

No	Technical Codes
1.	MCMC MTSFB TC G034:2022 - Internet Protocol version 6 (IPv6) - Deployment Requirements to Complete Transition to IPv6
2.	MCMC MTSFB TC G035:2022 - Radiocommunications Network Facilities - Minor Communications Infrastructure
3.	MCMC MTSFB TC G036:2022 - Fuel Cell System - General Operational and Safety Requirements
4.	MCMC MTSFB TC G037:2022 - Fuel Cell System - Stationary Backup Power Solution for Telecommunication Sites
5.	MCMC MTSFB TC G038:2022 - End-to-End (E2E) Quality of Service (QoS) and Quality of Experience (QoE) using Crowdsource Application Approach
6.	MCMC MTSFB TC T004:2022 - Specification for Digital Terrestrial Television (DTT) Broadcast Receiver (Second Revision)
7.	MCMC MTSFB TC T006:2022 - Specification for Direct-to-Home (DTH) Broadcast Receiver for Set Top Box (STB) (Second Revision)
8.	MCMC MTSFB TC T014:2022 - Digital Terrestrial Television (DTT) - Active Indoor Antenna (First Revision)
9.	MCMC MTSFB TC T015:2022 - IMT Advanced (Long Term Evolution) - User Equipment (First Revision)

Source: MCMC
Figure 7.45 Registered Technical Codes in 2022

Throughout 2022, MTSFB has organised four public awareness programmes for technical codes registered by MCMC. The programme brought together a group of committed subject matter experts that shared their expertise on eight technical codes. The details of technical code awareness programmes conducted in 2022 are listed in Figure 7.46.

LIST OF TECHNICAL CODE AWARENESS PROGRAMMES CONDUCTED IN 2022

No	Technical Code Awareness Programme	Date
1.	TCMatters2022 • Information and Network Security – Cloud Service Provider Selection (First Revision) (MCMC MTSFB TC G017:2021) • Information and Network Security – Personal Information Management Systems (MCMC MTSFB TC G030:2021)	30 Jun 2022
2.	TCMatters2022 • IMT-2020 (Fifth Generation) – User Equipment (MCMC MTSFB TC T016:2021) • IMT-2020 (Fifth Generation) – Base Station (MCMC MTSFB TC T017:2021)	16 Aug 2022
3.	TCMatters2022 • IMT-2020 (Fifth Generation) – System Architecture & Specifications (MCMC MTSFB TC G027:2021) • IMT-2020 (Fifth Generation) – Security Requirements (MCMC MTSFB TC G028:2021)	27 Sep 2022
4.	TCMatters2022 • Prediction and Measurement of RF EMF Exposure from Base Station (MCMC MTSFB TC G032:2021) • Prediction and Measurement of RF EMF Exposure from Terrestrial Radio and Television Broadcasting Transmitter Station (MCMC MTSFB TC G033:2021)	14 Dec 2022

Source: MCMC
Figure 7.46 List of Technical Code Awareness Programmes Conducted in 2022

In conjunction with World Telecommunications and Information Society Day 2022 (WTISD 2022), the MTSFB has also embarked on collaborations with strategic partners/ standards developing organisations (SDOs) such as the Institute of Electrical and Electronics Engineers (IEEE) and the Telecommunications Standards Development Society India (TSDSI). The purpose of the collaboration is to identify opportunities for future collaborations between academia and industries, and exchange information between organisations with a view to share best practices.

OUTLOOK

1. DIGITAL READINESS

A productive digital economy is tethered to a country's technology foundation. Malaysia continues to make strides in its pursuit of digital economic growth despite still experiencing aftershocks from the COVID-19 pandemic, along with other macroeconomic challenges. In 2022, the country's digital economy accounted for nearly 23% of its GDP according to MDEC, showcasing its resilience and the positive impact of various transformative initiatives aimed at digitalising the nation.

The completion of Phase 1 of the JENDELA initiative in 2022 marked a significant milestone in Malaysia's digital transformation journey, having bridged the connectivity gap in the country. Malaysia now boasts a robust and reliable connectivity backbone that has greatly improved internet penetration and network quality. These advancements have had a positive impact on both businesses and individuals throughout the country, fostering greater opportunities for digital engagement and growth. The Department of Statistics Malaysia (DOSM) revealed that more than 90% of households and over 97.4% of individuals have internet access in 2022, reflecting the widespread availability and adoption of digital connectivity.

The advancements in connectivity have also led to an increase in the adoption of various digital services. The usage of digital financial services has witnessed remarkable growth since the COVID-19 pandemic, and this trend has continued, particularly benefitting those residing in non-urban areas. Moreover, the widespread availability of high-speed internet has fuelled the utilisation of social media and digital commerce platforms. The convergence of these three services within the digital landscape has led to opportunities for small-scale entrepreneurs to leverage these platforms to reinvent their businesses, enabling more prospects across different or new digital channels.

The enterprise space has made significant strides as well. Post–COVID-19 recovery and challenging macro-economic conditions have led enterprises to double down on improving overall operational efficiencies and improving their customer experience. Findings from Omdia revealed that ICT spending in Malaysia reached MYR29.7 billion in 2022 because more enterprises invested in their ICT infrastructure. Cloud services made up 27% of the total spend in 2022, which was the largest contributor to Malaysia's ICT spending. It was followed by Business Process Outsourcing (BPO) with 22.7% and Application services with 16.6%. The five key verticals that predominantly constitute Malaysia's ICT spending encompass manufacturing, retail banking, the retail sector, the public sector, and telecommunications.

Malaysia is set to achieve its goal of having its digital economy make up 25.5% of its GDP by 2025. Initiatives by government agencies are on track and have successfully progressed to the next phases. These include MyDIGITAL, JENDELA, and PEDi, which will receive further elaboration in the later sections. In the coming years, there will be increased collaboration across industries, driving Malaysia's digital readiness. This will result in the expansion of digital infrastructure, faster internet speeds, broader coverage, and the adoption of new technologies. Ultimately, these advancements will enhance productivity that will benefit the overall economy and improve the living standards for Malaysians.

1.1. Malaysia Digital

The Government of Malaysia launched the "Malaysia Digital" initiative on July 4, 2022, which will succeed the 25-year-old Multimedia Super Corridor (MSC Malaysia) agenda with a more updated and strategic approach. The Malaysia Digital initiative prioritises nine key sectors that are pivotal for the growth and development of Malaysia's digital economy: digital trade, digital agriculture, digital services, digital cities, digital health, digital finance, digital content, digital tourism, and Islamic digital economy.

These key sectors will leverage digital tools and technologies like Artificial Intelligence (AI), digital twins, IoT, and 5G to enhance productivity. For example, AI, machine learning (ML), and cognitive automation will play a significant role across various industries and workloads, with major transformative effects expected over the next several years. AI/ML are advanced technologies and can be integrated into different processes across enterprises. While initial successes have been seen in customer-focused areas and the launch of new services, the focus in the near-to-medium term is expected to shift towards improving operational efficiencies, leading to productivity gains.

The focus on the nine key sectors, together with the adoption of productivity-enhancing technologies, presents opportunities for fostering innovation and developing ground-breaking solutions that will position Malaysia as a prominent investment destination, fuelling economic growth and generating new employment prospects in the era of the Fourth Industrial Revolution (IR4.0) and beyond. Malaysia will require a reliable connectivity backbone to facilitate its success, and thus introduced the JENDELA initiative.

1.2. JENDELA

Phase 2 of the JENDELA initiative takes place from 2023 to 2025. The initiative aims to deliver fibre connection to around 9 million premises, 100% internet connectivity for populated areas, and an increase in mobile broadband speed to 100Mbps. Additionally, Phase 2 of the JENDELA initiative will also focus on a quick rollout and wide availability of the 5G network. With increasing awareness of digitalisation and the importance of reliable connectivity, the penetration rates of mobile and fixed broadband services are expected to continue growing until 2027.

MOBILE AND FIXED BROADBAND PENETRATION RATES

Service	Metric (%)	2022	2023	2024	2025	2026	2027
Mobile	Penetration (population) - mobile	140.3	141.4	142.6	143.8	144.9	146.1
Fixed Broadband	Penetration (household) - subscribers	49.6	54.0	59.1	64.1	68.9	73.5

Source: Omdia
Figure 8.1 Mobile and Fixed Broadband Penetration Rates

Mobile penetration rates in Malaysia remain on a growth trajectory, driven by consumers opting for high-value plans that offer more data. Despite this growth, Malaysia will remain a prepaid-dominant market. However, telecommunication companies will continue their efforts to expand their base of postpaid subscribers by offering differentiated value-added plans. As for 5G, when standalone 5G becomes more widespread, operators will have the capability to offer a wide range of services, including augmented or virtual reality (AR/VR) experiences, cloud gaming, and 4K video streaming over mobile networks.

Fixed broadband growth is expected to continue in the coming years, and internet connectivity is one of the main catalysts for economic growth. Customers increasingly demand higher speeds, lower latencies, and reliable services in line with their evolving digital lifestyles. Additionally, the increasing availability of digital services for enterprises and consumers within the country further contributes to this growth.

The wide availability of mobile and fixed broadband internet connections will create new avenues for Malaysians to actively participate in the expansion of the digital economy, particularly through the increasing prevalence of social media and e-commerce platforms. Recognising the immense potential, the government has made a strategic decision to strengthen its commitment to the *Pusat Ekonomi Digital* (PEDi) initiative, aiming to maximise the benefits and opportunities presented by the digital landscape.

1.3. PEDi

The PEDi initiative was founded to help non-urban entrepreneurs digitalise and scale their businesses by expanding their businesses from offline to online. This initiative was founded to bridge the digital divide, especially for those residing in sub-urban or rural areas, where advancing digital literacy can be a challenge. In these areas, resource centres have been established across the country. Locals in these areas can easily access learning materials, advisory services, training, and other resources that can help them transform their businesses. Some activities are available for free, while others like memberships and training certifications require a minimum fee.

Given the importance of aiding non-urban Malaysians to play a role in the digital economy, the PEDi initiative remains one of the prominent initiatives that will receive increased investments in 2023. Announced during the 2023 Budget, the Malaysian government has committed to an addition to the number of PEDi centres across the nation through the '1 DUN 1 PEDi program'. As of May 2023, 911 PEDi centres have been established and 186 centres additional centres will be set up by the end of 2023, bringing the total to 1,097 centres.

By the end of the year, the expansion of PEDi centres in strategic locations will effectively ease some challenges for aspiring entrepreneurs looking to take their first steps. Together with improved internet coverage via the JENDELA initiative, these developments will foster the rise of more online entrepreneurs, transcending traditional boundaries and enabling individuals from various backgrounds regardless of age or gender, including students, housewives, regular employees, and gig workers, to aspire for success in the growing digital economy.

This will give rise to the use of digital commerce, social media platforms, digital financial services (e.g., digital wallets, digital banking, etc.), and various digital tools (e.g., cloud, data analytics, generative AI, etc.). Entrepreneurs with a passion for innovation and equipped with the necessary knowledge to leverage these platforms and tools will have the opportunity to explore new ideas and emerging trends. By doing so, they can potentially enhance their businesses and set new trends for others to follow. The outcome of PEDi contributes to all three phases of Malaysia's digital economy roadmap, MyDIGITAL.

1.4. MyDIGITAL

MyDIGITAL is a transformative initiative aimed at bridging the digital divide by accelerating Malaysia's digital transformation, propelling the nation towards high-income status, and establishing its leadership in the regional digital economy. With this, the Malaysian Digital Economy Blueprint (MDEB) was developed to realise the aspirations of the MyDIGITAL initiative by outlining key objectives that will contribute to the sustainable growth of Malaysia's digital economy by 2030.

Phase 1, which began in 2021 and ended in 2022, focused on strengthening the foundation by creating awareness about digitalisation and promoting the widespread adoption of digital tools as standard practice in the public sector. Entering Phase 2 from 2023 to 2025, Malaysia's digital transformation will extend its reach beyond the public sector and encompass enterprises of all scales, with a particular focus on micro, small, and medium-sized enterprises (MSMEs). Efforts have been made to collaborate with various agencies to expedite the nation's digital transformation journey.

As Phase 2 takes effect, it will drive a rapid expansion of the ICT sector across various industries in Malaysia, particularly in key sectors such as manufacturing, agriculture, transportation and logistics, healthcare services, and utilities. The expansion of the ICT sector will be fuelled by the adoption of transformative technologies, including AI, IoT, blockchain, cloud computing, and big data analytics, as well as the deployment of 5G networks. These developments demonstrate that Malaysia is actively participating in the global technology race, positioning itself as a competitive player in the tech industry.

This will help attract increased foreign investments into Malaysia's digital services. For example, Malaysia has successfully attracted investments from companies such as Google, Microsoft, and Amazon Web Services (AWS). Notably, AWS has announced its plans to invest over RM25 billion in Malaysia from 2023 until 2037, offering developers, startups, entrepreneurs, enterprises, governments, and various other public and private institutions the ability to leverage its data centres located within Malaysia, thus providing enhanced capabilities for running applications and serving end users.

As Malaysia's reliance on digital technology grows, it becomes increasingly crucial for the country to prioritise the development of robust cybersecurity solutions that align with its digitalisation efforts. This is essential to proactively protect Malaysian citizens and organisations from security incidents and breaches. Recognising this need, Malaysia has taken proactive measures, including conducting comprehensive studies and regulatory reviews, to strengthen the regulatory framework. The aim is to strike a balance between safeguarding the data privacy of Malaysian citizens while still having an environment that fosters innovation. These efforts will lay the groundwork for Phase 3 of MyDIGITAL, which is set to take place from 2026 to 2030, during which Malaysia aims to establish itself as a regional leader in digital content and cybersecurity, propelling the nation to the next level of technological advancements and security.

1.5. 5G Development

In addition to improved 4G network coverage and quality nationwide, Malaysian consumers finally got to experience 5G services at the end of 2022. Through Digital Nasional Berhad (DNB), 5G coverage in populated areas reached over 62% as of 31 May 2023. By the end of 2023, DNB will have achieved an 80% coverage of populated areas, one year ahead of its intended schedule. Additionally, a second wholesale network provider for 5G will be introduced in early 2024 after DNB has achieved its 2023 target to ensure fairness in the market through healthy competition between the two 5G network providers.

The consumer 5G landscape in Malaysia is still in its early stages and will require a few more years to reach maturity. However, as the awareness and availability of 5G network grow, users will finally be able to experience faster speeds and take advantage of new applications that will be introduced. Malaysians will gain access to a range of innovative and improved applications, including 4K-enabled movie apps, cloud gaming platforms, and AR/VR experiences. They will be able to actively explore new ways to enhance their daily lives, whether it is for work, studies, or leisure, with the wide range of applications available through 5G technology. By 2028, Omdia projects that 5G subscribers will make up nearly 40% of total mobile subscriptions.

As for the enterprise space, 5G is favoured for its potential to drive business outcomes, particularly in terms of real-time decision-making and enhanced productivity. Enterprises will see it as an enabling solution rather than just another connectivity solution because it offers advantages beyond better speeds, such as better security, greater bandwidth, and cost efficiency. As such, 5G will be driven by industry-wide partnerships and collaborations between communication service providers, regulatory bodies, research institutions, tech vendors, and industry associations.

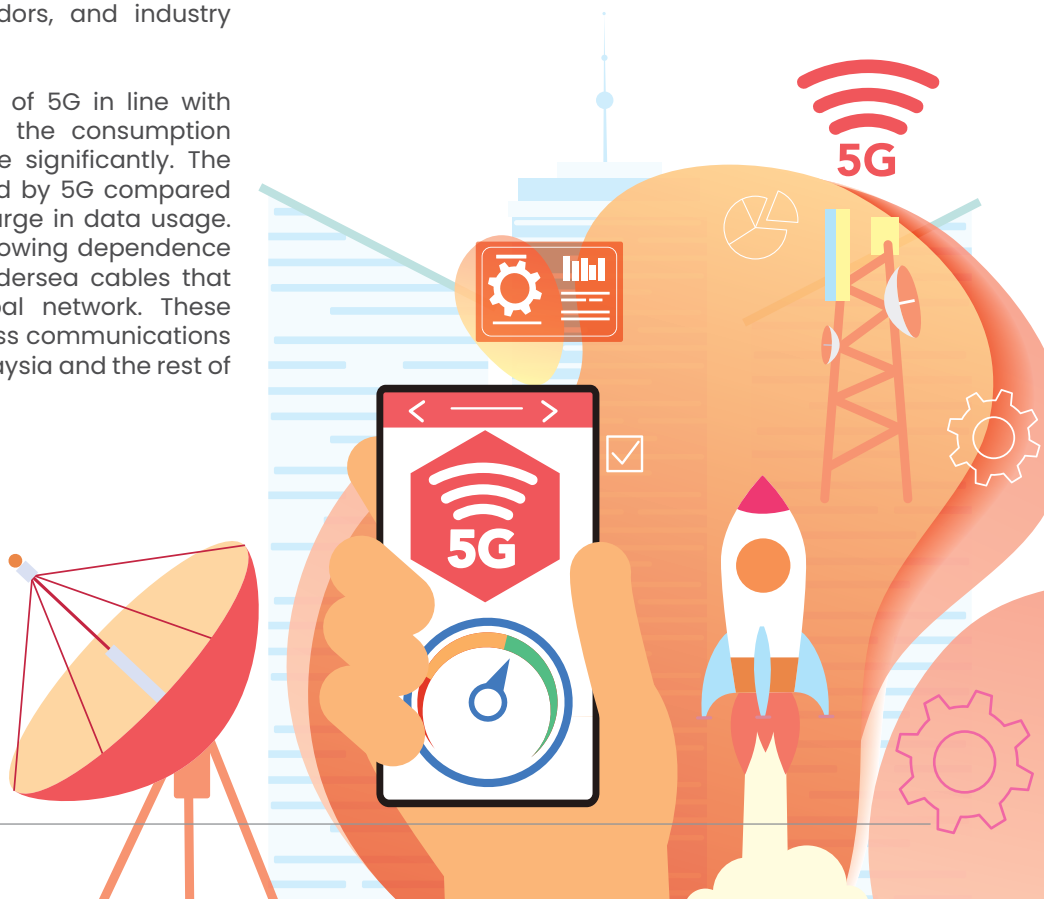
With the accelerating adoption of 5G in line with Malaysia's digitalisation efforts, the consumption of data is expected to increase significantly. The faster processing speeds offered by 5G compared with 4G will contribute to this surge in data usage. Consequently, there will be a growing dependence on the extensive network of undersea cables that connect Malaysia to the global network. These undersea cables ensure seamless communications and data transfers between Malaysia and the rest of the world.

1.6. International Connectivity

In line with Malaysia's ongoing digital transformation plans, which have been further accelerated by the impact of COVID-19, the government and MCMC have acknowledged the importance of enhancing global connectivity to facilitate this transformation. To address this need, the MCMC has devised a strategic initiative known as the National Interconnection Ecosystem Lab (NIEL).

The NIEL initiative involves collaborations with 75 organisations, including government agencies and industry players, to strengthen the digital connectivity ecosystem. Through these collaborations, it was determined that an additional component known as JENDELA+ would be necessary to complement the existing JENDELA initiative as well as support the MyDIGITAL blueprint. JENDELA+ specifically focuses on the development of data centres, Internet Exchange Points (IXPs), and international connectivity within Malaysia. Its primary objective is to bolster the country's internet coverage and support the ever-evolving digital landscape.

Under MyDIGITAL, Malaysia aims to have the most submarine cable landings in Southeast Asia by 2025. Progress is well underway with the construction of four new undersea cables, namely the Bay to Bay Express (BtoBE) Cable System, MIST Cable System, IAX Cable System, and BaSICS Cable System, scheduled for completion in 2023. This will enable Malaysia to keep up with the growing demand for data locally, especially with the emergence of bandwidth-intensive applications such as video streaming applications, video conferencing, and AR/VR applications.



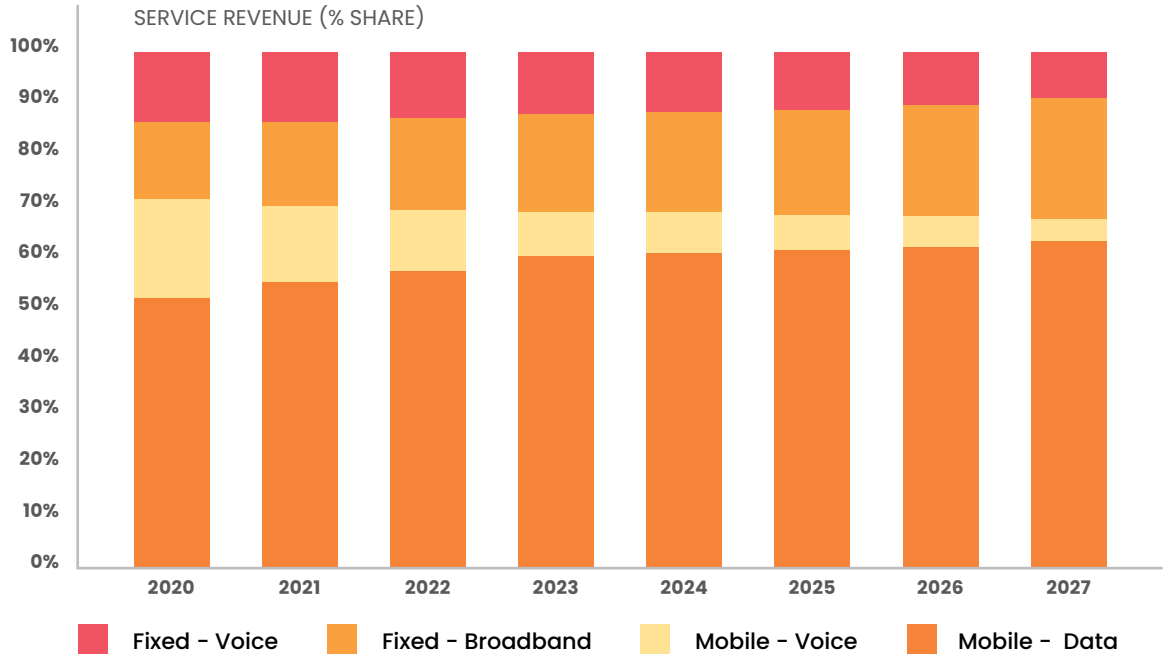
2. TELECOMMUNICATIONS

2.1 Telecom Services Revenue Forecasts

Based on Omdia's World Information Series that tracks the telecommunications market, the Malaysian telecommunications market is poised for a positive outlook, primarily driven by the increasing usage and adoption of Mobile Data and Fixed Broadband services. The changes in consumer behaviour, particularly since the COVID-19 pandemic, coupled with the government's initiatives to bridge the digital divide have played a significant role in the continuous growth of service revenues in these segments, with consecutive year-over-year increases and a projected compound annual growth rate (CAGR) of 4.1% for Mobile Data and 7.0% for Fixed Broadband from 2022-2027.

On the other hand, legacy services such as Mobile Voice and Fixed Voice have naturally given way to the more practical alternatives mentioned earlier. Consequently, the annual service revenues for these legacy services are less optimistic, with a projected CAGR of -8.1% for Mobile Voice and -3.4% for Fixed Voice. However, the overall service revenues in the market remain positive, with a CAGR of 2.7% from 2022-2027 due to the strong performance of Mobile Data and Fixed Broadband, which offset the decline in Mobile Voice and Fixed Voice.

TELECOMMUNICATIONS SERVICE REVENUE SHARE IN MALAYSIA, 2020 - 2027



Source: Omdia
Figure 8.2 Telecommunications Service Revenue Share in Malaysia, 2020 - 2027

Service Revenue (RM billion)	2020	2021	2022	2023	2024	2025	2026	2027	CAGR (2022-2027)
Mobile - Data	15.22	16.92	18.57	19.76	20.67	21.39	22.05	22.68	4.1%
Mobile - Voice	5.29	4.15	3.42	2.99	2.71	2.51	2.37	2.24	-8.1%
Fixed - Broadband	4.64	5.13	5.69	6.10	6.57	7.05	7.53	7.99	7.0%
Fixed - Voice	3.83	3.95	4.02	3.8	3.7	3.6	3.5	3.4	-3.4%
Total	28.98	30.15	31.70	32.62	33.65	34.56	35.47	36.29	2.7%

Source: Omdia

In the future, the expansion of Malaysia's 5G network is expected to be another major driver of increased data consumption. However, widespread adoption of 5G will depend on factors such as the availability of affordable 5G smartphones and the implementation of competitive plans by local telecommunication companies.

As for the fixed broadband market, its expansion can be attributed to the increased availability of fibre connectivity across the country as well as the entry of more broadband providers into the market. According to Omdia, fibre broadband is the preferred choice among Malaysians, with a 94.4% market share at the end of 2022, and will maintain its share at above 96% in 2023 and beyond as older technologies like DSL are retired.

2.2. Telco to Tech-Co Transformation

Across the globe, the traditional communications service provider business model is under pressure as telecoms markets mature. Fortunately, the deployment of high-speed broadband, particularly 5G and fibre, and the emergence of new technologies have provided service providers with new opportunities. Telecoms operators also have assets such as a customer base, distribution network, and the financial resources to perform acquisitions that can be used to develop new services that can create synergies in their ecosystem and capture opportunities in the digital era.

In Malaysia, local service providers have been part of the trend, offering a range of digital services such as media and entertainment, enterprise solutions, digital financial services, and marketing technology. A notable example is TM, which has revealed its strategic direction for 2023, transitioning from being a "Converged Telco" to a "Human-centred TechCo." This new strategy focuses on harnessing the power of digital tools and technologies to empower communities as well as private and public entities throughout Malaysia in their digital transformation journey.

The expansion of service providers into new domains beyond communication services presents opportunities to attract investments from vendors seeking collaborations with these emerging businesses. This shift also promotes the adoption of cutting-edge technologies, such as AI, blockchain, digital twin, and more, in these diversified services that service providers have invested in. There is ample space for further advancements. For example, service providers across the globe continue to explore various digital services, including cybersecurity, digital health, digital education, and IoT. The potential for growth and innovation in these areas is boundless, and more service providers in Malaysia are expected to update their strategies, enabling them to not only bridge the digital divide but also address other gaps.

3. CONTENT SERVICES

With a growing OTT market and the government's agenda to push for higher broadband speeds and wider 4G and 5G coverage in the country, cord-cutting is still very much an ongoing trend in 2023 as more users embrace online video services and the advantage of personalisation that comes with these subscriptions. This will continue to affect traditional Pay TV players, namely ASTRO and TM (Unifi TV), with total Pay TV subscriptions growth to remain stagnant or increase slightly. While there may be a sufficient rise in IPTV service subscriptions to offset the decline in satellite TV subscribers, Omdia projects that the declining subscriptions from satellite TV services will contribute to an overall decrease in Pay TV subscription revenue from RM4.84 billion in 2022 to RM4.79 billion at end-2023. Additionally, as Pay TV packages are constantly being updated or launched, prices will also change accordingly, sometimes lowering to cheaper rates. These often come with minimum subscription periods of up to two years.

Meanwhile, OTT subscriptions will continue growing steadily and hit the four-million mark in 2023. By 2026, online video is expected to surpass the Pay TV market with 6.07 million subscriptions. According to Omdia, subscriptions revenue generated from SVoD reached RM582.2 million in 2022 and is expected to increase further to RM693.6 million in 2023.

The past few years have seen accelerated underlying changes in consumer behaviour in terms of time spent on screens, downloads, attention span, and personalisation of content. This change has mostly been driven by digital natives and Gen-Z users, who are spending more time glued to their smartphones, tablets, computers, or TVs. In addition, this consumer group has easier access to online video services such as Netflix, Disney+ Hotstar, Amazon Prime Video, HBO, Apple TV, Astro Sooka, and others. Another key reason behind the higher signups for online video services is competitive and contract-free pricing, which allows subscribers to easily switch between service providers without incurring penalty charges. Structural changes are also afoot, intermingling traditional media with newer online alternatives. In Malaysia, local telecommunication companies have long sought strategic partnerships with SVoD providers to provide bundled access to streaming services along with regular mobile, broadband, and TV services. In recent years, the bundled segment of the SVoD market has grown quickly. In 2019, 100,000 SVoD subscriptions were via telco bundles, reflecting 7% of the Malaysian SVoD market. At the end of 2023, the bundled segment will increase to 785,000 or 22% of all SVoD subscriptions. By 2028, Omdia expects one-third of the Malaysian SVoD market to be bundled (1.7 million subscriptions).

In a related development, data shows that 99% of individuals and households in Malaysia have access to TV. This demonstrates that free-to-air (FTA) TV remains a vital source of information and entertainment for the public, particularly among those who seek free TV content. Despite this situation, viewers are shifting to consuming content via both free and paid online video services, leading FTA TV viewership to decline gradually. Although there will likely be occasional spikes in viewer numbers in cases such as public service announcements and broadcasts of major sporting events such as the Olympics, FTA service providers are persistently creating compelling content to attract attention and increase TV ratings.

As for radio broadcasting, Commercial Radio Malaysia highlighted that research has shown 9 out of 10 Malaysians tune in to the radio for an average of 16 hours a week, indicating that radio remains a popular and influential medium for communication and entertainment despite the growth of other digital alternatives, such as music streaming services and podcasts. Radio will continue to be a relevant advertising medium and the advertising revenue is projected to increase to RM289.1 million in 2023.

4. ADVERTISING EXPENDITURE

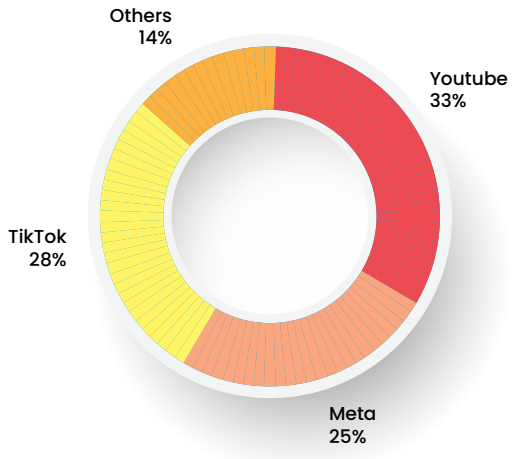
Looking ahead, Omdia projects online net advertising revenue to increase further to RM4.2 billion in 2023, up from RM4.03 billion in 2022. As businesses switch to digital advertising, traditional media net advertising revenues are expected to continue on a downward trend, declining to RM1.55 billion in 2023.

Growth in online advertising revenue has been driven by consumers relying more on digital platforms as opposed to traditional channels. In 2023, the total online net advertising revenue will hold a 73% share of the total media segment for net advertising revenue, trumping other traditional media such as TV (10.7%), radio (5%), print (4.8%), out-of-home (5.2%), and cinema (1.3%).

The general push for ad-funded online video services is happening globally. It is driven by major SVOD services such as Netflix launching affordable subscriptions tiers with advertising and the expansion of FAST[1] services, while major SVOD services are expected to launch hybrid models in the coming years. Similarly in Malaysia, the premium ad-supported online video market is anticipated to disrupt FTA TV and compete for TV advertising spending in the future.

In terms of video advertising revenue, Omdia projects that YouTube, Meta, and TikTok will have a combined share of 86.3% of the online video market in 2023, an increase from 85.6% in 2022. TikTok is rapidly gaining market share and is expected to overtake Meta by 2023 and YouTube by 2025.

MALAYSIA: ONLINE VIDEO ADVERTISING REVENUE MARKET SHARE, 2023



Source: Omdia
Figure 8.3 Malaysia: Online Video Advertising Revenue Market Share, 2023

[1] FAST refers to Free Ad-supported Streaming TV services that offer a linear viewing experience in the OTT environment.

5. POSTAL AND COURIER

The postal and courier industry is expected to continue its growth trajectory in the coming years at a CAGR of 14.03% from USD1.32 billion or approximately RM6.15 billion in 2023 to USD2.55 billion (RM11.88 billion) in 2028[1]. Growth is expected to moderate after experiencing significant acceleration during the pandemic years. E-commerce has been driving the growth in parcel delivery volumes, particularly in emerging markets like Malaysia where adoption is still growing. Other factors include increased consumer expectations for fast and reliable delivery services which further propel industry growth. In addition, the industry will remain vital to the nation while providing job opportunities especially in a growing gig economy with a flexible working setting.

Though competition is highly intense with over 120 licensees in the market, service providers understand that their success and sustainability essentially depend on volume and efficiency. In this regard, several initiatives are currently being implemented under *Pelan Accelerator Kurier Negara* (PAKEJ) to enhance efficiency and service quality through collaboration with service providers, including resource sharing, technological advancements, and initiatives to strengthen the postal and courier licensing regulatory framework. Through e-commerce and strategic collaboration, the country is on track to achieve 30 parcels per capita by 2025, up from the projection of 28.1 parcels per capital by end of 2023[2].

As customers continue to demand faster deliveries and have high expectations of reliability and transparency, service providers are continuously finding ways to improve the efficiency of their services. Integrating the adoption of digital technologies like automation, tracking systems and route optimisation solutions, with real-time data will be the key to efficient parcel handling and delivery. Pos Malaysia rolled out a digitally enabled initiative that allows customers to self-serve customs clearance from any device and significantly reduces the time taken to clear goods. Other service providers such as Ninja Van Group made huge investments in automation technology and systems across their network in Southeast Asia to establish a seamless business process.

The surge in last-mile deliveries has led to a rise in carbon emissions, necessitating sustainable practices to balance industry growth. Industry leaders namely GDEx and DHL Express introduced electric vehicles (EV) to their fleet for last mile deliveries, and more service providers are expected to follow suit. DHL Express, specifically, anticipates a 33% reduction in annual carbon emissions with a total of 61 EV by the end of 2023. Likewise, Pos Malaysia aims to procure over 200 e-bikes and 140 e-vans by the end of 2023[3]. Following to the growth of EV integration, Pos Malaysia announced their partnership with Yinson GreenTech on 22 June 2023 to establish EV charging stations at selected post offices pioneering sustainable mobility solutions.

On the other hand, this industry is being battered by price-dumping activities by some service providers that are increasing their volume to capture more market share. In consequent, they are operating on a slim profit margin. For this reason, MCMC introduced a new Courier Service Price Guideline that came into effect in April 2022 and service providers are required to periodically declare their prices to MCMC. The MCMC shall develop appropriate policies in the future based on this information.

CONCLUSION

Malaysia's digital transformation journey is progressing well and gaining momentum with increasing consumer demand for digital convergence, supported by continuous initiatives and robust infrastructures. These initiatives are on track and poised to strengthen Malaysia's digital landscape, attracting greater opportunities for economic growth and innovation.

With 5G's advent and Phase 2 of the JENDELA initiative kicking off in 2023, Malaysia will witness a significant boost in industry-wide collaborations across all sectors and verticals. This collaboration will facilitate the adoption of cutting-edge technologies like AI/ML, hybrid cloud and multicloud, IoT, robotics, edge computing, AR/VR, and others. By fostering innovation and developing practical use cases, Malaysia will solidify its position in the digital era and propel its growth in the digital economy.

[1] Malaysia Courier, Express and Parcel (CEP) Market Analysis by Mordor Intelligence.

[2] MCMC Parcel Analytics as at 12 June 2023.

[3] Pos Malaysia Charges Forward with EV Charging Stations Pioneering Logistic Sustainability. Business Today, 22 June 2023.

APPENDIX 1

NOTE

1. Where a table is not accompanied by a source acknowledgement, that table carries data that emanated solely from the Malaysian Communications and Multimedia Commission (MCMC).

2. Preliminary figures are italicised.

3. Revised figures are underlined.

4. Figures presented in tables are as at the end of the period. Hence the penetration rate for a given year is calculated using the number of subscriptions and estimated population as at the end of the year. This is different from the Malaysian demographic practice of using mid-year population as the the population for that year. If the practices need to be syncronised to the demographic norm, then the penetration rates as at the end of June of that year must be used.

5. The added total may differ due to rounding.

6. Wilayah Persekutuan includes Federal Territory Kuala Lumpur, Federal Territory Labuan and Federal Territory Putrajaya.

SYMBOLS AND ABBREVIATIONS

DOSM	Department of Statistics, Malaysia
MCMC	Malaysian Communications and Multimedia Commission

TABLE 1: MALAYSIA BASIC INDICATORS

Year	Quarter	Population	Households	Domestic Product (GDP)		Consumer Price Index (CPI)
				Current prices	Constant prices	
		(million)	('000)	(RM billion)	(RM billion)	
Note		a	b		c	d
2020	4	32.7	8,181.8	379.3	358.3	120.3
2021	1	32.8	8,187.6	371.0	343.2	122.5
	2	32.7	8,163.9	372.1	336.1	123.1
	3	32.7	8,167.0	377.1	336.2	122.6
	4	33.2	8,307.2	425.1	371.3	124.1
2022	1	33.4	8,346.4	422.4	360.2	125.2
	2	32.7	7,974.6	442.7	366.2	126.6
	3	32.9	8,027.7	455.8	383.8	128.1
	4	33.0	8,062.1	467.3	397.2	128.9

Source: DOSM, MCMC

Explanatory notes

a. Population projections as at end of period, based on census 2020.

b. Number of households derived by dividing populations by average household size.

A household consists of related and/or unrelated persons who usually live together and make common provisions for food and other essentials of living.

c. Base year is 2015.

d. Base year is 2010.

The CPI reported against a quarter, refers to the average index for the period spanning 1st January to the end of that quarter.

TABLE 2: PENETRATION RATES AT A GLANCE (%)

Year	Quarter	Fixed-broadband per 100 premises	Mobile-broadband per 100 inhabitants	Mobile-cellular per 100 inhabitants	Pay TV per 100 households
Note		a	b	c	d
2020		37.2	118.7	133.6	83.4
2021	1	39.0	120.1	135.7	82.6
	2	41.0	124.2	139.8	82.6
	3	39.9	127.4	142.1	82.2
	4	40.8	126.4	144.0	81.1
2022	1	42.9	124.1	139.2	78.4
	2	45.3	127.9	143.1	82.6
	3	46.4	128.9	143.7	81.4
	4	47.6	131.0	145.3	80.6

Explanatory notes 1

a. The fixed-broadband penetration rate per 100 premises is calculated by dividing the total fixed-broadband by total number of premises and multiplying by 100. Number of premises include household and non-household. Public Wi-Fi subscriptions are not taken into account. Only subscriptions with speed of 1Mbps and above is taken into account for calculation.

b. The mobile-broadband penetration rate per 100 inhabitants is calculated by dividing the total mobile-broadband by total number of population and multiplying by 100. A penetration rate over 100% can occur because of multiple subscriptions.

c. The mobile-cellular penetration rate refers to the total subscriptions divided by total number of population and multiplied by 100. A penetration rate over 100% can occur because of multiple subscriptions.

d. The pay TV penetration rate per 100 households is calculated by dividing the number of household subscriptions by the number of households and multiplied by 100.

Explanatory notes 2

Broadband penetration rate per 100 inhabitants is no longer published by MCMC. Commencing 2020, MCMC publishes fixed-broadband penetration rate per 100 premises and mobile-broadband penetration rate per 100 inhabitants.

TABLE 3: FIXED-BROADBAND PENETRATION RATE PER 100 PREMISES BY STATE (%)

Year	2020	2021				2022			
Quarter		1	2	3	4	1	2	3	4
Note									
State									
Johor	37.2	35.6	37.4	36.1	35.9	38.3	39.6	40.7	42.0
Kedah	23.3	25.3	27.1	26.2	27.9	29.9	31.3	32.4	33.4
Kelantan	13.8	15.5	16.9	15.6	16.9	19.2	21.2	22.5	23.6
Melaka	37.6	38.0	40.4	39.8	40.1	42.5	43.5	44.6	46.0
Negeri Sembilan	37.1	37.2	39.8	38.3	38.6	39.1	39.4	40.7	42.0
Pahang	22.5	23.6	25.5	23.5	25.1	25.9	27.6	28.8	29.9
Perak	31.1	32.0	34.2	33.0	34.7	36.1	36.8	37.9	39.0
Perlis	23.5	24.8	26.6	26.0	26.3	27.4	26.6	28.3	30.0
Pulau Pinang	45.1	46.3	48.7	47.7	49.5	52.1	54.5	55.7	56.7
Sabah	17.4	19.2	20.9	20.0	20.7	22.5	27.0	27.9	28.8
Sarawak	24.7	26.7	28.4	27.5	29.5	31.3	36.3	37.2	38.0
Selangor	53.8	52.9	55.7	55.6	53.0	57.7	59.9	60.3	61.2
Terengganu	21.9	24.5	26.2	25.1	26.9	28.5	31.9	33.0	34.2
Wilayah Persekutuan	61.0	61.6	59.3	56.2	59.0	57.1	56.0	57.6	58.7
Malaysia	**37.2**	**39.0**	**41.0**	**39.9**	**40.8**	**42.9**	**45.3**	**46.4**	**47.6**

Explanatory notes

Please see note (a) in Table 2.

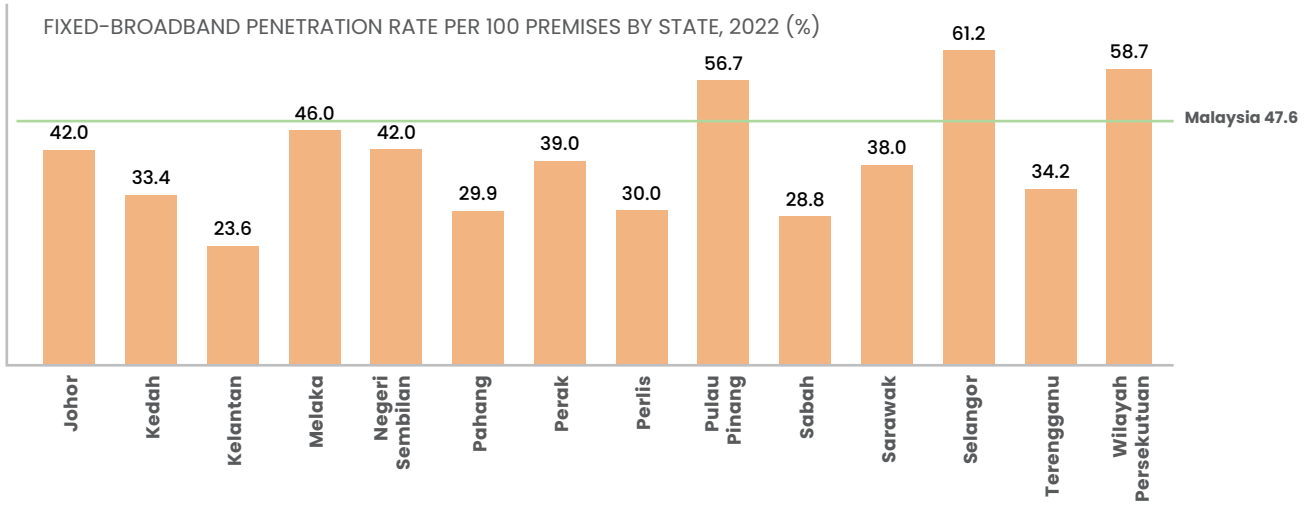


TABLE 4: MOBILE-BROADBAND PENETRATION RATE PER 100 INHABITANTS BY STATE (%)

Year	2020	2021				2022			
Quarter		1	2	3	4	1	2	3	4
Note									
State									
Johor	130.2	131.5	136.0	140.7	133.3	128.5	130.3	132.8	139.0
Kedah	102.2	104.8	109.4	112.1	114.4	111.3	111.6	111.1	112.6
Kelantan	98.1	100.9	106.2	108.1	110.4	107.3	113.3	111.9	113.0
Melaka	113.3	116.5	120.3	124.1	118.4	115.0	112.5	114.4	121.9
Negeri Sembilan	133.4	139.1	146.1	149.1	143.4	140.6	140.9	144.2	144.9
Pahang	103.6	105.8	109.7	112.9	117.6	115.9	119.5	118.1	121.3
Perak	113.6	114.5	119.8	121.6	122.8	121.8	120.4	120.1	123.6
Perlis	111.1	113.1	116.4	120.8	119.4	118.8	115.0	113.3	107.9
Pulau Pinang	141.4	139.2	147.2	147.3	153.8	152.6	153.4	160.8	163.1
Sabah	80.9	83.2	88.0	90.6	90.5	88.0	101.7	100.4	100.7
Sarawak	102.1	103.1	105.2	110.4	115.5	112.8	128.0	127.7	129.0
Selangor	121.1	121.3	122.5	125.2	117.5	115.6	119.3	121.7	123.4
Terengganu	97.9	99.9	103.9	108.4	111.3	107.9	114.7	114.1	115.7
Wilayah Persekutuan	213.0	215.9	223.1	228.0	218.8	215.7	208.2	207.4	206.6
Malaysia	**118.7**	**120.1**	**124.2**	**127.4**	**126.4**	**124.1**	**127.9**	**128.9**	**131.0**

Explanatory notes

Please see note (b) in Table 2.

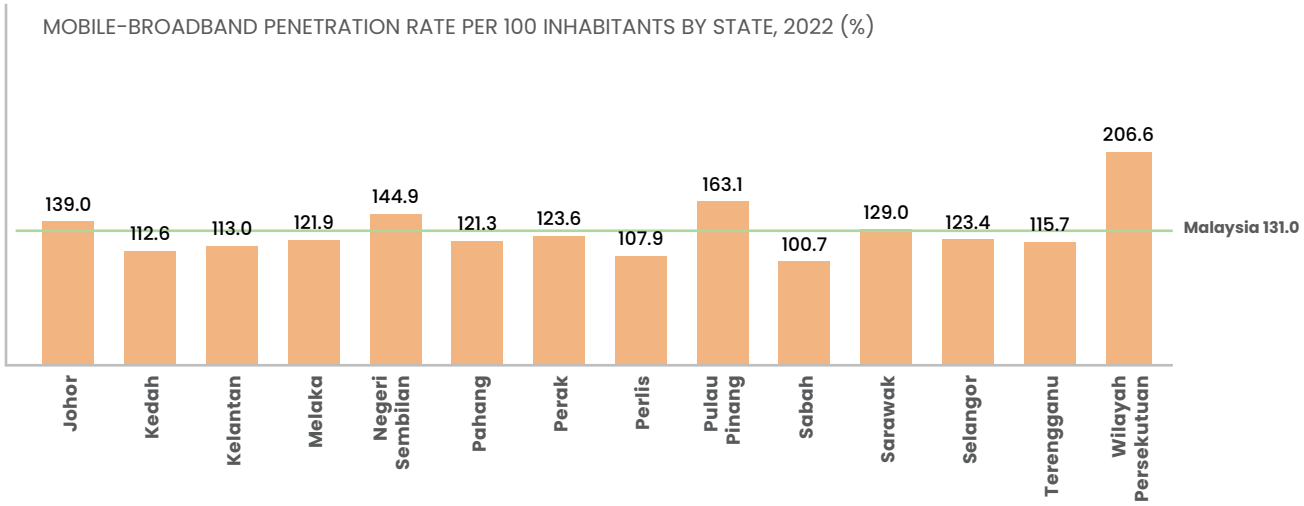


TABLE 5: NUMBER OF BROADBAND SUBSCRIPTIONS

Year	Quarter	Fixed-broadband	Mobile-broadband	Total	Fixed-broadband penetration rate per 100 premises	Mobile-broadband penetration rate per 100 inhabitants
		(million)			(%)	(%)
Note		a	b		c	d
2020		3.35	38.84	42.19	37.2	118.7
2021	1	3.51	39.34	42.85	39.0	120.1
	2	3.68	40.57	44.25	41.0	124.2
	3	3.58	41.63	45.21	39.9	127.4
	4	3.73	42.02	45.74	40.8	126.4
2022	1	3.85	41.45	45.30	42.9	124.1
	2	3.98	41.77	45.74	45.3	127.9
	3	4.10	42.37	46.47	46.4	128.9
	4	4.22	43.24	47.46	47.6	131.0

Explanatory notes

The added total may differ due to rounding.

a. Includes ASDL, SDSL, VDSL, Satellite, FTTH, Fixed wireless and GigaWire.

b. Includes prepaid, postpaid, and pay-per-use.

c. Please see note (a) in Table 2.

d. Please see note (b) in Table 2.

TABLE 6: NUMBER OF FIXED-BROADBAND SUBSCRIPTIONS BY SPEED RANGE

Year	Quarter	1 - 30 Mbit/s	30 - 50 Mbit/s	50 - 100 Mbit/s	100 - 500 Mbit/s	500 Mbit/s - 1 Gbit/s	≥ 1 Gbit/s
		(million)					
Note							
2020		0.66	0.88	0.06	1.30	0.43	0.02
2021	1	0.60	1.00	0.06	1.40	0.44	0.02
	2	0.68	0.95	0.06	1.51	0.47	0.02
	3	0.38	1.01	0.05	1.63	0.49	0.02
	4	0.31	1.09	0.05	1.74	0.51	0.02
2022	1	0.25	1.16	0.07	1.82	0.54	0.02
	2	0.19	1.22	0.08	1.90	0.56	0.02
	3	0.13	1.28	0.10	1.98	0.60	0.02
	4	0.10	1.32	0.11	2.04	0.64	0.02

Explanatory notes

The added total may differ due to rounding.

Each speed range includes the lower bound speed; i.e. 1 Mbit/s - 10 Mbit/s means 1 Mbit/s to less than 10 Mbit/s.

TABLE 7: NUMBER OF FIXED-BROADBAND SUBSCRIPTIONS BY TECHNOLOGY

Year	Quarter	Fibre optic	Copper	Others
		(million)		
Note		a	b	c
2020		2.51	0.55	0.29
2021	1	2.72	0.48	0.31
	2	2.96	0.41	0.31
	3	3.22	0.34	0.03
	4	3.42	0.27	0.03
2022	1	3.61	0.21	0.03
	2	3.79	0.15	0.03
	3	3.97	0.10	0.03
	4	4.12	0.07	0.03

Explanatory notes

The added total may differ due to rounding.

a. Includes FTTH/B and VDSL.

b. Includes ADSL and SDSL.

c. Includes Satellite, Fixed wireless and GigaWire.

TABLE 8: NUMBER OF MOBILE-BROADBAND SUBSCRIPTIONS BY TECHNOLOGY

Year	Quarter	At most 3G	At most 4G	At most 5G
		(million)		
2020		2.90	35.93	N/A
2021	1	2.40	36.94	N/A
	2	2.41	38.16	N/A
	3	2.20	39.43	N/A
	4	1.14	40.88	N/A
2022	1	0.75	40.60	0.10
	2	0.60	41.02	0.15
	3	0.52	41.75	0.11
	4	0.17	42.67	0.40

Explanatory notes

The added total may differ due to rounding.

TABLE 9: NUMBER OF MOBILE-CELLULAR SUBSCRIPTIONS AND PENETRATION RATE

Year	Quarter	Postpaid	Prepaid	Total	Penetration rate per 100 inhabitants
			('000)		(%)
Note					
2020		13,571	30,153	43,724	133.6
2021	1	13,561	30,871	44,432	135.7
	2	13,837	31,800	45,636	139.8
	3	13,963	32,444	46,407	142.1
	4	14,179	33,023	47,202	142.1
2022	1	14,171	32,500	46,671	139.2
	2	14,226	32,502	46,728	143.1
	3	14,264	32,975	47,239	143.7
	4	14,294	33,658	47,952	145.3

Explanatory notes

Please see note (c) in Table 2.

TABLE 10: MOBILE-CELLULAR PENETRATION RATE PER 100 INHABITANTS BY STATE

State	2020	2021	2022
	%		
Johor	146.4	148.8	153.9
Kedah	115.7	131.2	125.4
Kelantan	112.5	125.9	126.0
Melaka	126.4	132.0	134.0
Negeri Sembilan	146.3	157.1	157.7
Pahang	116.1	132.0	133.4
Perak	129.0	140.2	139.5
Perlis	126.2	136.3	122.3
Pulau Pinang	158.5	177.6	185.0
Sabah	87.5	98.5	108.4
Sarawak	114.7	130.7	143.0
Selangor	135.2	131.0	136.9
Terengganu	110.6	125.0	128.4
Wilayah Persekutuan	243.3	247.3	231.2
Malaysia	**133.6**	**142.1**	**145.3**

TABLE 11: MOBILE NUMBER PORTABILITY

Year	Quarter	Number of porting request	Successful porting
		('000)	
2020		1,130.4	484.7
2021	1	1,053.3	452.4
	2	878.0	354.8
	3	910.1	349.9
	4	920.4	365.8
2022	1	883.4	341.3
	2	820.1	298.7
	3	824.6	310.1
	4	895.4	329.7

TABLE 12: PERCENTAGE OF MOBILE-CELLULAR SUBSCRIPTIONS BY GENDER

Year	Male	Female
	('000)	
2018	63.4	36.6
2019	63.4	36.6
2020	61.9	38.1
2021	61.8	38.2
2022	60.3	39.7

TABLE 13: NUMBER OF SHORT MESSAGE SERVICES

Year	Quarter	Total (million)	Per subscription
Note		a	
2020		511.6	11.7
2021	1	725.0	16.3
	2	762.8	16.7
	3	734.2	15.8
	4	710.5	15.1
2022	1	633.9	13.6
	2	471.6	10.1
	3	450.2	9.5
	4	405.3	8.5

Explanatory notes

a. Figure refers to the number of SMSes sent within the period.

TABLE 14: NUMBER OF PAY TV SUBSCRIPTIONS AND PENETRATION RATE

Year	Quarter	Number of subscriptions			Penetration rate per 100 households
		Households	Non households	Total	
		('000)			(%)
Note					a
2020		6,870.3	10.2	6,880.5	83.4
2021	1	6,809.8	9.5	6,819.3	82.6
	2	6,786.7	7.6	6,794.3	82.6
	3	6,753.4	7.7	6,761.2	82.2
	4	6,691.2	8.3	6,699.5	80.0
2022	1	6,620.5	8.2	6,628.8	78.4
	2	6,584.6	8.3	6,592.9	82.6
	3	6,536.9	8.6	6,545.6	81.4
	4	6,499.8	9.6	6,509.4	80.6

Explanatory notes

Pay TV is inclusive of IPTV and Satellite TV.

a. Please refer to note (d) in Table 2.

TABLE 15: NUMBER OF CERTIFICATION AUTHORITIES

Year	Quarter	Number of licences
Note		a
2020		4
2021	1	4
	2	4
	3	4
	4	4
2022	1	4
	2	4
	3	4
	4	4

Explanatory notes

Refers to Certification Authorities licenced under the Digital Signature Act 1997.

TABLE 16: NUMBER OF CERTIFICATES ISSUED BY TYPE

Year	Quarter	Domestic holder			Foreign holder	Total
		Individual	Organisation		Organisation	
			Corporate	Government	Government & Corporate	
				('000)		
2020		53.4	533.5	14,898.1	1.2	15,486.1
2021	1	53.4	566.6	15,314.0	1.2	15,935.1
	2	53.4	592.8	15,922.4	1.2	16,569.8
	3	54.2	622.7	16,126.3	1.2	16,804.4
	4	56.2	646.1	16,208.1	1.2	16,911.3
2022	1	58.6	674.8	16,738.4	1.2	17,473.0
	2	60.4	696.5	17,469.5	1.2	18,227.6
	3	60.4	744.5	17,654.0	1.2	18,460.0
	4	60.4	778.4	17,735.8	1.2	18,575.7

APPENDIX 2

NOTE

1. Commencing 2018, statistics from courier services were collected from all active courier licensees who conducted courier activity. Prior 2018, data was collected from top 10 courier licensees in terms of traffic and revenue.

2. Where a table is not accompanied by a source acknowledgement, that table carries data that emanated solely from MCMC.

3. Preliminary figures are italicised. Revised figures are underlined.

4. The added total may differ due to rounding.

5. Wilayah Persekutuan includes Federal Territory Kuala Lumpur, Federal Territory Labuan and Federal Territory Putrajaya.

TABLE 1: POSTAL INFRASTRUCTURE

Year	Post office	Mini post office	Postal agent	Stamp vendor	Mobile post office
Note	a	b	c	d	e
2017	694	227	107	1,112	32
2018	687	227	237	1,114	32
2019	681	215	235	1,058	32
2020	674	136	232	381	21
2021	662	126	231	381	9
2022	638	227	225	381	9

Source: Pos Malaysia Berhad

Explanatory notes

a. Post office refers to post office with online system.

b. Mini Post Office is privately run by third party individual or business (eg. Sundry shops) to provide retail postal services similar to a post office. However, a Mini Post Office does not provide services by *Amanah Saham Nasional Berhad* (ASNB) and *Jabatan Pengangkutan Jalan* (JPJ).

c. A postal agent is typically a representative appointed within a community to whom Pos Malaysia Berhad delivers mails on behalf of his/her community. The community will then come to the agent's premise to collect their mails.

d. A stamp vendor is a third party (individual/businesses) who is authorised by Pos Malaysia Berhad to sell postage stamps on its behalf.

e. Mobile post office refers to post offices installed in a train, a road transport vehicle or a boat which serve regions without permanent post offices. They deliver mail and offer post office counter services. This category also includes rural delivery staff providing post office counter services on their rounds. Users can deposit parcels, letters or express items with them or make payments to them.

TABLE 1: POSTAL INFRASTRUCTURE (CONT'D)

Year	Post office accepting financial transaction	Sorting office	International office of exchange
Note	f	g	h
2017	694	29	1
2018	687	22	1
2019	681	21	1
2020	674	20	1
2021	662	15	1
2022	638	8	1

Source: Pos Malaysia Berhad

Explanatory notes

f. Post offices accepting financial transactions include permanent offices and mobile offices (including rural delivery personnel) providing financial services (money orders, Cash on Delivery (COD), payments, etc.).

g. Sorting centres are infrastructure whose main activity is sorting. Sorting sections of post offices open to the public and delivery offices are not included in this category.

h. A processing hub for international inbound and outbound postal and courier items.

TABLE 2: POST OFFICE BY STATE

Year	State	Post office			Mini post office		
		Urban	Rural	Total	Urban	Rural	Total
2020	Johor	53	25	78	3	6	9
	Kedah	29	17	46	6	4	10
	Kelantan	7	21	28	1	11	12
	Melaka	28	0	28	3	0	3
	Negeri Sembilan	19	20	39	0	1	1
	Pahang	14	27	41	9	15	24
	Perak	50	33	83	3	6	9
	Perlis	9	0	9	1	0	1
	Pulau Pinang	38	1	39	7	0	7
	Sabah	14	28	42	2	4	6
	Sarawak	21	39	60	18	5	23
	Selangor	77	15	92	16	4	20
	Terengganu	13	15	28	3	6	9
	Wilayah Persekutuan	61	0	61	2	0	2
	Total	**433**	**241**	**674**	**74**	**62**	**136**
2021	Johor	56	20	76	1	8	9
	Kedah	33	11	44	4	6	10
	Kelantan	7	21	28	3	9	12
	Melaka	26	0	26	2	0	2
	Negeri Sembilan	18	21	39	0	1	1
	Pahang	18	23	41	9	14	23
	Perak	47	36	83	4	5	9
	Perlis	9	0	9	0	0	0
	Pulau Pinang	38	0	38	7	0	7
	Sabah	11	30	41	0	6	6
	Sarawak	22	38	60	0	22	22
	Selangor	83	8	91	14	2	16
	Terengganu	13	15	28	4	3	7
	Wilayah Persekutuan	58	0	58	2	0	2
	Total	**439**	**223**	**662**	**50**	**76**	**126**
2022	Johor	54	20	74	16	10	26
	Kedah	33	11	44	8	6	14
	Kelantan	6	21	27	4	10	14
	Melaka	25	0	25	4	0	4
	Negeri Sembilan	18	21	39	1	1	2
	Pahang	17	23	40	5	18	23
	Perak	45	36	81	7	6	13
	Perlis	8	0	8	0	1	1
	Pulau Pinang	38	0	38	12	0	12
	Sabah	10	29	39	0	14	14
	Sarawak	18	38	56	0	35	35
	Selangor	80	8	88	39	5	44
	Terengganu	12	15	27	8	5	13
	Wilayah Persekutuan	52	0	52	12	0	12
	Total	**416**	**222**	**638**	**116**	**111**	**227**

Source: Pos Malaysia Berhad

TABLE 3: POSTAL EMPLOYMENT

Year	Administrative	Call centre	Pick up & despatch	Sorting crew	Others	Total
Note					a	b
2017	..	..	..	..	..	19,366
2018	7,140	1,499	9,717	2,213	1,151	21,720
2019	7,836	899	9,787	2,266	760	21,548
2020	8,327	255	10,625	3,105	550	22,862
2021	8,372	192	8,569	2,385	303	19,821
2022	7,098	140	7,902	1,493	795	17,428

Source: Pos Malaysia Berhad

Explanatory notes

a. Others include supervisor of postmen and *wakil posmen*.

b. Commencing 2018, the calculation for number of postal employment consist of full time and part time employees established or unestablished employees under contract to the designated operator, INCLUDING persons employed by contractors, or temporary employee taken on during holiday periods or for occasional events. However, retired employees as well as workers in subsidiaries abroad (if applicable) should be EXCLUDED. Prior 2018, the calculation for number of postal employment EXCLUDES persons employed by contractors, or temporary employee taken on during holiday periods or for occasional events.However,retired employees as well as workers in subsidiaries abroad (if applicable) should be EXCLUDED.

Full time employees means all employees performing their functions during normal working hours. Normal working hours means the number of working hours per week set by the designated operator for full time employment.

Part time employees include employees working for less than the normal working hours each week.

TABLE 4: POSTAL DELIVERY

Year	Average number		Percentage	
	Deliveries PER WORKING day in urban areas	Deliveries PER WEEK in rural areas	Population having mail DELIVERED at home	Population having to COLLECT mail from a postal establishment
2017	1	5	94	6
2018	1	5	94	6
2019	1	5	94	6
2020	1	5	94	6
2021	1	5	80	20
2022	1	5	94	6

Source: Pos Malaysia Berhad

TABLE 4: POSTAL DELIVERY (CONT'D)

Year	Number			
	Letter box	Post office box	Postal establishments having post office box	Automated parcel locker
2017	2,919	95,481	254	73
2018	2,664	94,981	254	111
2019	2,679	95,047	254	169
2020	2,486	95,047	254	170
2021	2,440	95,514	233	153
2022	1,967	95,483	233	94

Source: Pos Malaysia Berhad

TABLE 5: POSTAL COVERAGE AND SERVICE

Year	Average area covered by a permanent post office (km^2)	Average number of inhabitant served by a permanent post office
2017	347	33,631
2018	351	34,850
2019	356	35,413
2020	356	35,413
2021	444	51,833
2022	465	52,594

Source: Pos Malaysia Berhad

TABLE 6: POSTAL VEHICLE

Year	Motorcycle	Van	Lorry/Truck	Trailer	Aircraft
Note	a	a, b	c		
2017	7,384	2,910	376	..	2
2018	7,088	3,084	352	6	3
2019	7,064	3,155	358	6	0
2020	7,198	4,288	354	6	0
2021	6,473	4,150	325	6	0
2022	5,457	2,845	318	6	0

Source: Pos Malaysia Berhad

Explanatory notes

a. Commencing 2018, number of vehicles refer to vehicles owned by Pos Malaysia Berhad and vehicles owned by outsource contractors elated to postal and courier activities. Prior to 2018, number of vehicles refers to vehicles owned by Pos Malaysia Berhad only.

b. Commencing 2019, number of vans includes 14 Pos On Wheels (POW) vans in Peninsular Malaysia.

c. Commencing 2019, number of lorries/trucks includes 6 Go2U (Pos Laju mobile units) and 18 POW lorries in Sabah & Sarawak.

TABLE 7: POSTAL MACHINE

Year	Number				
	Post automated machine	Franking machine	Cancelling machine	Facing cum cancelling machine	Sorting machine with automatic address reading
2017	88	8,419	30	4	7
2018	93	8,001	30	4	7
2019	93	3,139	30	3	7
2020	94	3,330	30	3	7
2021	94	3,336	30	3	7
2022	94	3,409	30	3	6

Source: Pos Malaysia Berhad

TABLE 8: POSTAL TRAFFIC

Year	Number of letter post item ('000)			Number of express item ('000)			Others ('000)	
	Domestic service	International service - issued	International service - received	Domestic service	International service - issued	International service - received	Advertising item - domestic service	Users of digital mailbox item
2017	738,135.2	29,646.3	11,168.6	3,629.8	19.6	260.0	19,218.5	18.6
2018	672,340.0	27,430.0	9,416.2	1,623.7	731.3	633.7	17,675.9	25.1
2019	596,529.7	36,513.1	6,710.6	1,053.2	996.9	952.2	7,491.0	27.6
2020	456,868.0	23,682.6	7,216.9	462.8	2,899.9	593.0	5,955.8	27.6
2021	364,957.0	8,259.1	4,743.0	48.6	453.7	544.6	899.6	0.0
2022	362,085.2	5,283.6	5,220.1	1.8	611.4	307.0	2,269.5	0.0

Source: Pos Malaysia Berhad

TABLE 9: POSTAL TRAFFIC - SPECIAL TREATMENT

Year	Number of post free item, domestic service ('000)	Number of registered item ('000)		
		Domestic service	International service - issued	International service - received
2017	2,756.8	21,715.0	8,283.2	994.3
2018	2,101.6	19,404.2	5,596.1	868.7
2019	1,191.6	16,730.9	3,323.7	578.0
2020	2,321.9	19,262.0	1,289.0	523.4
2021	2,339.1	15,410.9	1,111.8	510.3
2022	1,784.7	17,886.1	865.3	351.4

Source: Pos Malaysia Berhad

TABLE 10: POSTAL PARCEL SERVICE

Year	Ordinary parcel ('000)			Insured parcel	
	Domestic service	International service - issued	International service - received	Domestic service	International service - issued
2017	1,040.3	169.8	170.2	61	15
2018	910.2	166.1	176.7	81	6
2019	945.6	170.4	160.2	292	0
2020	793.6	83.8	150.5	183	0
2021	750.5	19.4	169.7	1,468	0
2022	170.2	40.5	133.4	1,325	0

Source: Pos Malaysia Berhad

TABLE 11: FINANCIAL SERVICE

Year	Money order ('000)					
	Domestic service		International service			
	Number	Value - issued (RM)	Number - issued	Value - issued (RM)	Number - received	Value - received (RM)
2017	285.0	136,502.7	0.8	580.1	0.009	15.8
2018	305.1	135,072.6	0.1	47.3	0.003	16.0
2019	219.3	93,481.0	0.04	1.7	0.000	0.0
2020	129.4	33,329.3	0.02	0.3	0.000	0.0
2021	152.4	59,949.5	0.00	0.0	0.000	0.0
2022	181.7	50,853.9	0.002	0.01	0.000	0.0

Source: Pos Malaysia Berhad

TABLE 12: PHILATELY

Year	Stamp issue			SODA ('000)	
	Special	Commemorative	Definitive	New member	Total member
Note	a	b	c	d	
2017	15	9	1	5.6	99.5
2018	18	2	2	5.6	105.1
2019	13	1	0	2.9	108.0
2020	5	1	1	2.6	111.3
2021	7	2	0	2.7	114.2
2022	9	2	0	3.0	117.1

Source: Pos Malaysia Berhad

Explanatory notes

a. Shows the beauty, uniqueness, pride, heritage, art, culture, personality, development of science and technology, civilisation, history as well as the uniqueness of flora and fauna of Malaysia.

b. Commemorates important events in history which took place locally or internationally or events that are significant such as inaugural ceremony, anniversary and etc.

c. Featuring national aspects such as agriculture, crops and so on. Normally, it will change once every 5 years.

d. Standing Order Deposit Account. For purchase of philatelic items including first day covers via order whereby customer can register as a member and the order will be sent to the customer's address each time new themed stamps are launched.

TABLE 13: COURIER INFRASTRUCTURE

Year	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note	a	b	c	d	e	f	g	h	i	j	k		l
2017	18	323	10	39	47	322	454	129	-	-	-	-	-
2018	217	1,105	27	52	48	1,567	1,178	273	-	-	-	-	-
2019	332	1,182	35	112	73	1,864	2,814	343	-	-	-	-	-
2020	380	1,219	35	203	17	4,129	5,881	381	-	-	-	-	-
2021	363	1,704	37	471	13	10,734	7,923	-	681	34	1,119	37	19
2022	393	1,155	48	507	13	10,472	8,317	-	648	31	2,038	54	19

Explanatory notes

a. Hub refers to location to consolidate shipments on the large scale at major terminals and to redistribute the smaller scale of shipments to their respective destinations. In the field of logistics and supply chains, however, the hub concept has been often introduced in various terms in accordance with functionality: for example, logistics centre, logistics zone, freight terminal, distribution centre and warehouse.

b. Branch refers to other than an office of a company which is located somewhere other than the company's main office location. A branch office is simply another location, and is still involved in the business activities of the company.

c. Gateway refers to a point at which freight moving from one area to another is interchanged between transportation lines (airport).

d. Franchise refers to a legal and commercial relationship between the owner of a trademark, service mark, trade name, or advertising symbol and an individual or group wishing to use that identification in a business.

e. In logistic industry cases, the terms affiliate and associate are used synonymously to describe a company whose parent only possesses a minority stake in the ownership of the company.

f. An appointed agent other than at the principal office who is responsible for all of the logistical aspects of transporting materials or parcels, including scheduling, packing, routing, documentation, tracking, customs clearance, compliance, client communications, and negotiating on behalf of principal office the best terms and pricing.

g. Drop-in-centre refers to delivery of shipment to a transporter, without passing through the warehouse or through the normal logistic supply chain. Some logistics companies or couriers use the word Drop-off-center.

h. Others includes service centre, kiosk, etc.

i. Parcel locker refers to automated parcel lockers are strategically located at post offices, petrol stations, supermarkets, universities, train stations and residential areas. It provides a convenient (self-service), secure and automated service to customers to collect and drop their items for shipment that is available 24/7.

j. Kiosk refers to kiosk that operate in strategic locations such as shopping malls, petrol stations and LRT stations. The counters may open for extended hours (according to the premise owners) and focused on serving customers who are located within these facilities.

k. Service center refers to special services such as counters, distribution centre, counter, courier hub, retail point, service point, lodge in located at selected shop lots to provide convenience and priority to customers.

l. Drive-thru refers to a drive-through counter concept for ease of customers to lodge an item or purchase products without having to leave their vehicle.

** Commencing Q4 2021, there are five (5) new categories collected under courier infrastructure – service centre, kiosk, drive thru and office. Prior Q4 2021, these new categories were captured under Others.

TABLE 14: COURIER INFRASTRUCTURE BY STATE

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
	Johor	2	41	1	9	6	25	14	12	-	-	-	-	-
	Kedah	0	16	0	3	2	12	10	3	-	-	-	-	-
	Kelantan	0	11	0	2	1	22	16	1	-	-	-	-	-
	Melaka	0	13	0	1	3	5	3	4	-	-	-	-	-
	Negeri Sembilan	0	18	0	1	2	6	6	3	-	-	-	-	-
	Pahang	1	21	0	3	2	26	7	1	-	-	-	-	-
	Perak	1	29	0	8	6	15	14	4	-	-	-	-	-
2017	Perlis	0	4	0	0	0	3	1	1	-	-	-	-	-
	Pulau Pinang	2	20	3	0	2	2	9	6	-	-	-	-	-
	Sabah	0	23	0	0	3	43	10	2	-	-	-	-	-
	Sarawak	0	23	1	4	6	52	10	0	-	-	-	-	-
	Selangor	11	63	5	3	8	67	203	55	-	-	-	-	-
	Terengganu	0	11	0	4	3	11	3	0	-	-	-	-	-
	Wilayah Persekutuan	1	29	0	1	3	33	148	37	-	-	-	-	-
	Total	**18**	**322**	**10**	**39**	**47**	**322**	**454**	**129**	**-**	**-**	**-**	**-**	**-**

TABLE 14: COURIER INFRASTRUCTURE BY STATE

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
2018	Johor	14	126	1	15	6	121	42	12	-	-	-	-	-
	Kedah	5	60	0	3	3	62	19	4	-	-	-	-	-
	Kelantan	4	68	0	2	0	65	16	3	-	-	-	-	-
	Melaka	4	30	0	1	5	34	13	7	-	-	-	-	-
	Negeri Sembilan	3	59	0	0	2	43	28	7	-	-	-	-	-
	Pahang	7	70	0	4	4	90	10	3	-	-	-	-	-
	Perak	7	99	1	8	8	101	31	6	-	-	-	-	-
	Perlis	0	21	0	0	1	31	0	1	-	-	-	-	-
	Pulau Pinang	13	72	3	1	2	68	83	7	-	-	-	-	-
	Sabah	16	92	4	2	0	154	11	4	-	-	-	-	-
	Sarawak	24	80	6	6	1	188	10	3	-	-	-	-	-
	Selangor	94	179	11	6	15	291	504	113	-	-	-	-	-
	Terengganu	8	48	0	4	1	74	1	4	-	-	-	-	-
	Wilayah Persekutuan	18	100	1	0	0	245	410	99	-	-	-	-	-
	Total	**217**	**1,104**	**27**	**52**	**48**	**1,567**	**1,178**	**273**	**-**	**-**	**-**	**-**	**-**

TABLE 14: COURIER INFRASTRUCTURE BY STATE (CONT'D)

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
2019	Johor	33	132	2	27	6	149	252	34	-	-	-	-	-
	Kedah	12	67	0	7	3	88	39	5	-	-	-	-	-
	Kelantan	9	75	0	5	0	78	33	3	-	-	-	-	-
	Melaka	8	32	0	3	5	39	22	10	-	-	-	-	-
	Negeri Sembilan	8	62	0	5	2	56	57	7	-	-	-	-	-
	Pahang	16	71	0	5	4	82	22	5	-	-	-	-	-
	Perak	16	101	0	16	17	95	81	17	-	-	-	-	-
	Perlis	1	21	0	1	1	55	2	1	-	-	-	-	-
	Pulau Pinang	21	70	3	0	4	63	222	11	-	-	-	-	-
	Sabah	20	100	5	5	0	161	37	4	-	-	-	-	-
	Sarawak	30	84	7	11	4	199	52	4	-	-	-	-	-
	Selangor	121	208	15	15	17	444	1,313	130	-	-	-	-	-
	Terengganu	11	51	0	9	1	64	9	7	-	-	-	-	-
	Wilayah Persekutuan	26	108	3	3	9	291	673	105	-	-	-	-	-
	Total	**332**	**1,182**	**35**	**112**	**73**	**1,864**	**2,814**	**343**	**-**	**-**	**-**	**-**	**-**

TABLE 14: COURIER INFRASTRUCTURE BY STATE (CONT'D)

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
2020	Johor	44	154	1	42	0	368	875	40	-	-	-	-	-
	Kedah	16	70	1	10	1	167	155	8	-	-	-	-	-
	Kelantan	12	76	0	8	0	187	81	6	-	-	-	-	-
	Melaka	12	40	0	5	0	112	274	10	-	-	-	-	-
	Negeri Sembilan	13	66	0	4	0	151	298	9	-	-	-	-	-
	Pahang	18	93	0	10	1	128	197	7	-	-	-	-	-
	Perak	20	138	0	24	10	234	353	20	-	-	-	-	-
	Perlis	2	16	0	0	0	61	32	2	-	-	-	-	-
	Pulau Pinang	28	83	3	14	3	222	490	14	-	-	-	-	-
	Sabah	21	83	6	12	1	245	76	7	-	-	-	-	-
	Sarawak	20	82	7	15	0	354	82	6	-	-	-	-	-
	Selangor	137	154	16	40	1	1,220	2,031	135	-	-	-	-	-
	Terengganu	9	60	0	6	0	95	43	9	-	-	-	-	-
	Wilayah Persekutuan	28	104	1	13	0	585	894	108	-	-	-	-	-
	Total	**380**	**1,219**	**35**	**203**	**17**	**4,129**	**5,881**	**381**	**-**	**-**	**-**	**-**	**-**

TABLE 14: COURIER INFRASTRUCTURE BY STATE (CONT'D)

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
	Johor	41	193	2	82	0	1,450	913	-	18	6	157	2	1
	Kedah	14	97	2	31	1	475	281	-	2	0	49	0	2
	Kelantan	15	99	0	41	0	327	173	-	0	0	63	2	1
	Melaka	11	52	0	15	0	441	293	-	4	0	39	3	2
	Negeri Sembilan	10	73	0	14	0	471	363	-	9	2	69	2	1
	Pahang	19	107	0	30	0	456	248	-	2	0	52	1	1
	Perak	20	181	0	60	7	666	605	-	10	1	65	1	0
2021	Perlis	1	17	0	5	0	108	35	-	0	0	12	0	1
	Pulau Pinang	28	103	4	29	3	666	421	-	9	2	58	1	2
	Sabah	18	100	5	15	0	583	307	-	4	1	16	1	0
	Sarawak	25	107	7	15	0	363	156	-	2	0	30	4	0
	Selangor	129	372	15	76	1	3,226	2,733	-	325	14	323	15	5
	Terengganu	13	84	0	32	0	196	123	-	4	0	46	1	2
	Wilayah Persekutuan	19	119	2	26	1	1,306	1,272	-	292	8	140	4	1
	Total	**363**	**1,704**	**37**	**471**	**13**	**10,734**	**7,923**	**-**	**681**	**34**	**1,119**	**37**	**19**

TABLE 14: COURIER INFRASTRUCTURE BY STATE (CONT'D)

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others	Parcel locker**	Kiosk**	Service centre**	Office**	Drive-thru**
Note		a	b	c	d	e	f	g	h	i	j	k		l
2022	Johor	45	144	2	96	0	1,390	1,049	-	17	5	284	3	1
	Kedah	16	67	2	45	1	496	367	-	5	0	87	1	2
	Kelantan	16	43	0	54	0	386	256	-	0	0	102	2	1
	Melaka	11	34	0	22	0	430	325	-	4	0	74	2	2
	Negeri Sembilan	13	40	0	23	0	465	367	-	9	2	108	2	1
	Pahang	24	75	0	29	0	460	263	-	0	0	87	1	1
	Perak	28	114	0	50	7	663	671	-	2	1	146	2	0
	Perlis	1	11	0	4	0	126	41	-	0	0	23	0	1
	Pulau Pinang	27	83	4	34	3	745	529	-	11	2	112	2	2
	Sabah	23	84	7	12	1	592	337	-	5	1	37	5	0
	Sarawak	27	84	11	14	0	378	117	-	1	0	67	9	0
	Selangor	128	262	18	70	1	2,971	2,595	-	328	13	615	18	4
	Terengganu	16	42	0	34	0	232	163	-	1	0	64	1	2
	Wilayah Persekutuan	18	72	4	20	0	1,138	1,237	-	265	7	232	6	2
	Total	**393**	**1,155**	**48**	**507**	**13**	**10,472**	**8,317**	**-**	**648**	**31**	**2,038**	**54**	**19**

Explanatory notes

Please see note table 13.

TABLE 15: COURIER EMPLOYMENT

Year	Administrative	Call centre	Pick up & despatch	Sorting crew	Others	Total employees
Note					a	b
2017	1,450	2,199	7,945	992	1,674	14,260
2018	10,844	3,696	25,732	5,737	6,863	52,872
2019	12,227	3,317	37,486	6,969	7,413	67,412
2020	13,167	2,757	94,565	10,926	7,883	129,298
2021	14,430	3,042	110,071	15,026	11,753	154,322
2022	11,811	2,942	118,327	17,114	11,792	161,986

Explanatory notes

a. Others in courier employment include employees in sales, marketing, finance, internship and non-operational, etc.

b. Commencing 2018, the calculation for number of courier employment consist of full time and part time employees established or unestablished employees under contract to the designated operator, INCLUDING persons employed by contractors, or temporary employee taken on during holiday periods or for occasional events. However, retired employees as well as workers in subsidiaries abroad (if applicable) should be excluded.

Prior 2018, the calculation for number of courier employment EXCLUDES persons employed by contractors, or temporary employee taken on during holiday periods or for occasional events. However,retired employees as well as workers in subsidiaries abroad (if applicable) should be excluded.

Full time employees means all employees performing their functions during normal working hours. Normal working hours means the number of working hours per week set by the designated operator for full time employment.

Part time employees include employees working for less than the normal working hours each week.

TABLE 16: COURIER VEHICLE

Year	Motorcycle	Van	Car	Lorry/Truck	Trailer	Bulk carrier vessel	Aircraft
2017	9,601	3,712	..	2,372	..	..	2
2018	13,354	5,536	540	4,857	140	45	162
2019	21,169	6,916	787	5,770	173	44	162
2020	34,490	9,842	37,505	7,249	138	2	166
2021	51,821	10,627	39,694	8,923	166	4	26
2022	71,115	9,976	33,605	8,674	172	4	32

Explanatory notes

a. Commencing 2018, number of vehicles refers to vehicles owned by courier companies, outsource contractors and employees' personal vehicles used for courier activities. Prior 2018, number of vehicles refers to vehicles owned by courier companies only.

TABLE 17: COURIER TRAFFIC

Year	Document ('000)		Parcel ('000)		Others ('000)	
Note	Domestic	International	Domestic	International	Domestic	International
2017	52,763.4	2,611.6	34,260.5	4,915.6	22,119.2	303.3
2018	87,311.7	2,711.4	85,674.8	11,610.2	31,213.8	476.6
2019	91,633.2	2,221.5	120,297.4	9,316.7	23,445.3	724.7
2020	107,301.1	2,525.7	303,160.7	19,658.0	28,498.8	888.0
2021	94,623.4	2,026.0	623,178.2	31,185.5	19,559.1	204.3
2022	60,959.4	1,687.1	617,798.2	15,023.1	11,243.6	162.2

Explanatory notes

a. Includes non-priority mail, walk-in courier, prepaid, post express, etc.

LIST OF FIGURES

LIST OF ABBREVIATIONS

3G	3rd Generation
4G LTE	4th Generation Long Term Evolution
5G	5th Generation

A

ACE	"Access", "Certainty", "Efficiency"
ADEX	Advertising Expenditure
ADSL	Asymmetric Digital Subscriber Line
AI	Artificial Intelligence
ARPU	Average Revenue Per User
ASP	Applications Service Provider

C

C&M	Communications and Multimedia
CA	Certification Authority
CAGR	Compound Annual Growth Rate
CASP	Content Applications Service Provider
CCID	Commercial Crime Investigation Department
CFM	Communications and Multimedia Consumer Forum of Malaysia
CMA 1998	Communications and Multimedia Act 1998

D

DTH	Direct-to-Home
DTTB	Digital Terrestrial Television Broadcasting

F

FTA	Free-To-Air
FYE	Fiscal Year End

G

GA	Government Agency
GCC	General Consumer Code of Practice for the Communications and Multimedia Industry Malaysia
GLC	Government-linked Company
GLIC	Government-linked Investment Company

I

ICT	Information and Communications Technology
IoT	Internet of Things
IPTV	Internet Protocol Television
ISP	Internet Service Provider
ITU	International Telecommunication Union

L

LTE	Long Term Evolution

M

Mbps	Megabits Per Second
MCS	Mobile Content Services
MNC	Multi-National Companies
MNO	Mobile Network Operator
MNP	Mobile Network Portability
MO	Modus Operandi
MSA	The Commission Determination on the Mandatory Standard on Access, Determination No. 3 of 2016
MSAP	The Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2017
MSMCS	Mandatory Standards for the Provision of Mobile Content Services, Determination No. 4 of 2009
MSQoS	Mandatory Standards for Quality of Service
MVN	Mobile Virtual Network
MyIX	Malaysia Internet Exchange

N

NFP	Network Facilities Provider
NSP	Network Service Provider

O

OTT	Over-the-Top

Q

QoS	Quality of Service

R

RAO	Reference Access Offers

S

SGOV	State Government
SIM	Subscriber Identity Module
SMS	Short Messaging Service
SVoD	Subscription Video on Demand

U

UPU	Universal Postal Union
USD	United States Dollar
USP	Universal Service Provision

V

VAS	Value-Added Services

Y

YoY	Year on Year

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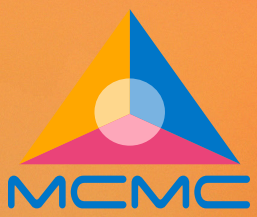

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