



Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission



INDUSTRY PERFORMANCE REPORT 2020

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 2020.

ACKNOWLEDGEMENT

MCMC would like to thank all licensees who responded to the IPR 2020 questionnaire, from which part of their feedback was collated and included in this publication.



MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION, 2021

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COVER RATIONALE

The unprecedented events of the year 2020 brought the entire communications spectrum to the centre stage as countries grappled with how best to navigate an environment that prevented social and physical gatherings. As a result of the pandemic, entire industries accelerated their digital transformation journeys, exponentially increasing the demand for quality communications and connectivity that is not only reliable but highly accessible in order to serve their customers. The MCMC has always been at the forefront in improving connectivity for the betterment of society, and we continue to accelerate digital connectivity in the new normal to ensure we remain true to this aspiration.

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.

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CHAIRMAN'S STATEMENT

2020 will always be remembered in history as a significant year like no other, during which the COVID-19 pandemic went global and changed everything we had deemed as normal. The changing rules of engagement known as the new normal had suddenly increased the reliance on digital applications and stretched the capacity of the digital networks. As such, this report shall be an interesting scope to gauge on how the communications and multimedia industries fared following the COVID-19 shock.



CHAIRMAN'S STATEMENT

As the first major wave of COVID-19 swept the world in the first quarter of 2020, Malaysia declared a nationwide lockdown under the Movement Control Order (MCO) on 17 March. The restriction caused the demand for network capacity to shift overnight from commercial areas to residential areas. The internet traffic demand in residential areas increased between 50% and 70% causing network congestions that resulted in 40% reduction in internet speed. Consequently, the number of complaints on network performance and coverage also increased by up to 70%. The service providers scrambled to realign their infrastructure and system to cope with the shift.

The extraordinary circumstances had caused a mild setback to the overall performance of the Communications and Multimedia (C&M) sector in the capital market. The market capitalisation of the C&M sector in Bursa Malaysia contracted slightly from RM144.01 billion (8.4%) in 2019 to RM142.96 billion (7.9%) in 2020. Nevertheless, the C&M sector remained resilient despite COVID-19 situation due to the continuing demand of essential services provided by the sector and partly cushioned by the impact from government stimulus packages.

As the new lifestyle patterns such as working from home, online meeting and learning, online trading, online food ordering, MySejahtera tracking and many others became more prevalent, MCMC and the industry players agreed that it was no longer business as usual. Something must be done to hasten the delivery of a robust network to meet the demand

by consumers, as well as preparing the nation for a major leap into the future of Digital Economy. Two of the most crucial foundations of a viable Digital Economy ecosystem namely, digital infrastructure and courier services, went under the microscope and up on the drawing board through the weeks-long National Digital Infrastructure Lab and the National Courier Industry Lab. MCMC, industry players, government agencies and various stakeholders took part to hatch the Jalanan Digital Negara (JENDELA) and Pelan Accelerator Kurier Negara (PAKEJ) as the detailed action plans to drive the industries forward to gear up for the digital future.

JENDELA and PAKEJ focus on bridging the Digital Divide and reinforce the Digital Transformation to enable all Malaysians, regardless of location and social status, to embrace new norms and provide a fair chance for everyone to ride the wave of new opportunities as the nation marches further into the Digital Economy. Beside expanding coverage, various support activities, in terms of training, consultation and subsidies, are provided to the Rakyat, particularly the B40 and the rural population, in order to achieve an inclusive growth as envisioned under the Wawasan Kemakmuran Bersama 2030. In this regard, MCMC set up 873 Pusat Internet Komuniti (PIK) nationwide to serve as digital catalysts in their surrounding communities, expanding from their earlier role as a point for collective access for the community. Major telecommunication companies too played their part in alleviating the crave for bandwidth under the new normal by offering daily free 1GB to all customers since April 2020, continuing into the second quarter of 2021.

Moving forward, 2021 will be a more exciting year where initiatives under JENDELA begin to take a more prominent shape and start to deliver visible results in improving the Quality of Experience for consumers and businesses in Malaysia. The major milestones on the 2021 watchlist are the 3G sunset and the commencement of commercial 5G service in major cities and strategic areas by the final quarter of 2021. All these under the umbrella of the MyDigital, a blueprint for Digital Economy and 4IR for Malaysia that was launched by the Prime Minister on 19 February 2021. This will certainly add further promise for the industry to move forward at a greater pace.

Having said the above, it is my honour to present the Industry Performance Report 2020.

DR. FADHLULLAH SUHAIMI ABDUL MALEK
Chairman

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

ECONOMIC PERFORMANCE OF THE C&M INDUSTRY

Market Capitalisation

▼ **RM142.96 billion**
(2019: RM144.01 billion)

Revenue

▼ **RM46.64 billion**
(2019: RM48.62 billion)

CAPEX

▲ **RM4.75 billion**
(2019: RM4.61 billion)

The Communication and Multimedia (C&M) industry continues to show considerable resilience albeit challenging and unprecedented market environment arising from combination of severe demand destructions and new trends due to the COVID-19 pandemic. The C&M industry market capitalisation has decreased 0.7% to RM142.96 billion in 2020 (2019: RM144.01 billion). The industry represents 7.9% or RM1,817.29 billion of the total market capitalisation of Bursa Malaysia in 2020 (2019: 8.4%), which is a slight decrease of 0.5 pp.

In terms of financial performance, the domestic C&M industry's revenue was at RM46.64 billion in 2020, declined 4.1% from RM48.62 billion in 2019, mainly contributed by the telecommunications sector, followed by the broadcasting sector. On a brighter note, postal and courier sector posted revenue growth, spurred by e-commerce as consumers' spending habits shifted from offline to online purchases due to the pandemic.

In 2020, the total telecommunications capital expenditure (capex) increased 3% to RM4.75 billion (2019: RM4.61 billion), as the service providers were spending more on upgrading infrastructure to support rising data demands. Overall, about 76% of the total capex was network-related expenditure. Based on Return On Assets (ROA), the telecommunications sector achieved 6.5% in 2020, a marginal increase from 6.3% in 2019. This demonstrates that the sector is relatively efficient in using its assets to generate earnings.

STATE OF CONNECTIVITY IN MALAYSIA

The COVID-19 situation has accelerated people's dependence on Internet services. As people are confined at home due to MCO, working and studying from home as well as shopping online are becoming a new norm. This caused a surge in data demands and drove mobile to fixed substitution as fixed broadband offers higher capacity, more stable speeds and reliability than mobile broadband, particularly for bandwidth intensive activities such as video streaming and online meetings. As a result, fixed broadband subscriptions increased by 13.6% to 3.35 million in 2020 (2019: 2.95 million).

In contrast, mobile cellular subscriptions declined 2% to 43.72 million in 2020 (2019: 44.6 million) along with mobile broadband subscriptions, 3.9% to 38.84 million in 2020 (2019: 40.43 million), with penetration rate per 100 inhabitants at 118.7%. The decline in both segments were caused among others by mobile-to-fixed broadband substitution, reduction of migrant workers in the country and closure of retail outlets due to MCO, thus affecting sales of new devices and activations of new subscriptions.

This led to a decline in total broadband subscriptions by 2.7% to 42.19 million in 2020 (2019: 43.38 million).

The expectation for high speed and seamless connectivity is inevitable as the nation is embracing new norm due to COVID-19. The current state of connectivity requires improvement to cater for the rising demands and prepare the nation towards digital economy.

In August 2020, Jalanan Digital Negara (JENDELA) plan was developed to provide comprehensive and high quality broadband coverage and set the foundation for 5G. The implementation of JENDELA is based on phased approach covering the period starting from 2020 until 2025, with the priority

to optimise the existing resources and infrastructure.

For 2020, JENDELA focused on expanding fibre coverage and the development of digital infrastructure in urban and suburban areas to improve the quality of 4G network services. As of 31 December 2020, JENDELA achieved 456,757 premises passed for Gigabit fibre broadband, built 876 new mobile broadband sites and upgraded 16,367 mobile broadband sites.

Moving into the year 2021, Phase 1 implementation will see the gradual termination of 3G network until the end of 2021 and migrating the spectrum for 4G-network deployment while strengthening the foundation for 5G.



Achieved

456,757

premises passed for gigabit fibre broadband

876

new mobile broadband sites

Upgraded

16,367

mobile broadband sites

CONTENT SERVICES

The digital switchover or analogue switch off is one of the primary initiatives under Malaysia digital transformation agenda to drive the nation towards digitalisation and to gain digital dividends from the use of spectrum.

Digital TV platform provides a better viewing experience compared to analogue. It can transmit more channels including radio channels and offers an array of choices ranging from information and entertainment content to TV home shopping opportunities for both audiences and retailers.

Year 2019 marked a milestone in Malaysia's journey towards a more integrated digital nation, whereby Malaysia successfully switched to full Digital TV transmission. Officially known as myFreeview, the platform offers more digital Free-To-Air (FTA) channels with more content genre for consumer needs and interests, sharper images, high quality sound and interactive services free of charge.

Channels on myFreeview

16 TV channels

14 radio channels

On Pay TV segment, the number of Pay TV subscriptions was at 7.34 million, up 3.1% as compared with 7.12 million in 2019, contributed by the growth of IPTV subscriptions. Pay TV typically offers a large number of channels constituting thematic channels such as movies, documentaries and sports. In addition, FTA TV channels which are on myFreeview are also available on Pay TV platforms.

With increasing pressure on revenues due to competition from Over-The-Top (OTT) and the unprecedented COVID-19 pandemic, both FTA and Pay TV service providers should consider new content and a reduction in cost to serve. Consequently, they are continually looking at new and innovative ways to provide content and services that meet consumer demand through integrated viewing solutions that have convenience at the core. This includes making their presence offline and online by entering into partnership with international online entertainment providers and expanding local content offerings to international market.

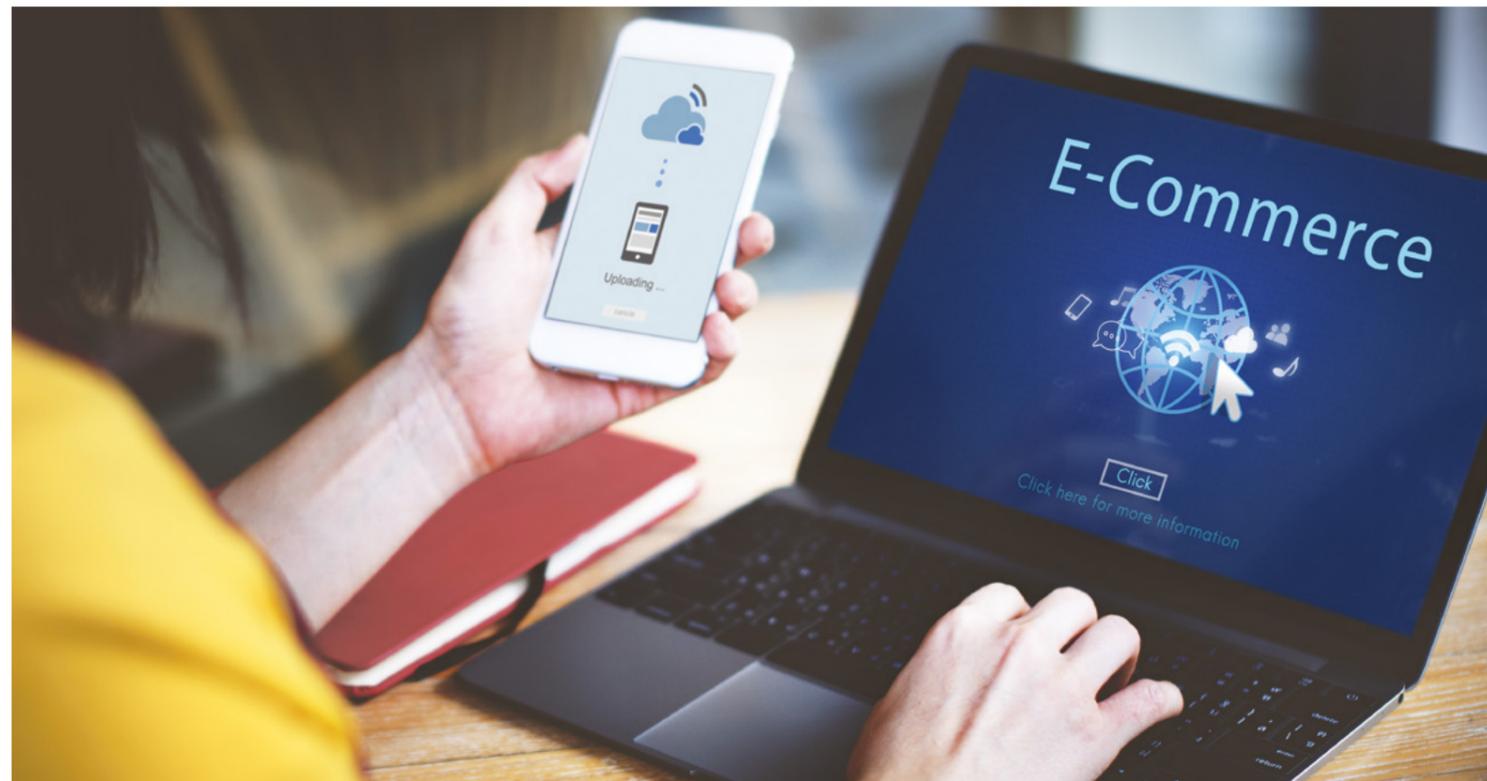
Across all demographics, traditional radio is still the most popular medium in Malaysia, outperforming podcasts and TV in the digital era. Radio listenership in Peninsular

Malaysia remains high reaching 93.6% of the total population, on an average week. During the MCO, radio remains a highly effective medium to reach out to a large audience. Aside from tuning in for their favourite music playlist, audiences are also looking to radio as a source of accurate and up to date information. Nevertheless, radio broadcasters are pursuing digital initiatives to remain relevant in the digital era, such as delivering high-quality music streaming services, Internet radio and podcasts via websites and smartphone apps.

In a related development, Malaysia advertising expenditure (ADEX) in 2020 dipped 15.7% to RM5.01 billion (2019: RM5.94 billion) due to cautious spending on the part of advertisers in COVID-19 climate. Furthermore, major sporting events such as the Tokyo Olympic Games and UEFA Europa League have been postponed due to the pandemic. On the other hand, as consumer behaviour and business adoption changes in this situation, the digital segment rose with increased traffic across digital platforms, thus creating media opportunities for brands to fight for screen time. In 2020, Digital ADEX recorded an increase of 19.4% to RM933 million compared to RM781 million that was recorded in 2019.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY



DIGITAL SERVICES

Malaysia's e-commerce market grows from strength to strength, driven by a relatively high internet penetration rate. According to GlobalData, e-commerce in Malaysia recorded a total of RM30.2 billion in 2020, which is an increase of 24.8% compared to RM24.2 billion in 2019. This upward trend is expected to continue in 2021, with estimated 20% growth at a total value of RM36.1 billion.

Usage of e-payment services also grew significantly during the year 2020. According to Bank Negara Malaysia (BNM), although the pandemic and movement restrictions triggered a decline in economic activities, the total number of e-payment transactions continued to record a double-digit growth of 14% to 5.5 billion transactions in 2020. On average, a person in Malaysia made 170 e-payment transactions in 2020, up from 150 transactions in 2019.



NEW TRENDS

New trends in technologies provide technical innovations which represent progressive developments within a field for competitive advantage. New emerging digital technologies are catalysts for change, offering extraordinary new business capabilities and new business models that would disrupt traditional practices.

Emerging technologies such as artificial intelligence (AI), the Internet of Things (IoT), cloud computing, block chain and robotic process automation continue to grow at an increasing pace, changing the ways in which we experience the world.

The Malaysian telecommunications industry is going through a transformational phase of development to acclimatise itself to new technological and cloud trends. Locally, all major mobile and fixed telecommunications service providers have adopted big data analytics for business efficiency. Five out of six service providers have adopted cloud computing. In contrast, only two of them indicated that they had adopted augmented reality/virtual reality in their business.

CONSUMER PROTECTION AND QUALITY OF SERVICE

Consumer protection is the practice of safeguarding and protecting consumer interest. The main objectives of consumer protection within the ambit of MCMC are to promote consumer confidence and satisfaction in quality of service.

Malaysia's MCO 1.0 was in place for six weeks in the first quarter of 2020 to curb the spread of COVID-19, causing an unprecedented spike in data traffic as people relied on connectivity while being confined at home. Malaysians accelerated their adoption of technologies from purchasing online and deliveries to online education and working from home via video conferencing. Many also streamed video sites as a means of passing time.

These activities during MCO led to the increase in internet traffic demand in residential areas between 50% and 70% causing network congestions that resulted in 40%

reduction in Internet speed. Consequently, there was a surge by 72% in the number of complaints on network performance and coverage as consumers expected high speed and seamless connectivity.

The first wave of COVID-19 already stretched the network capabilities beyond its limits and was a stress test on the national digital infrastructure. In view of addressing this issue as the nation is embracing the new norm as well as preparing towards digital economy, JENDELA was developed in August 2020. JENDELA is a comprehensive plan aimed at addressing the needs and demands for better quality and total coverage.

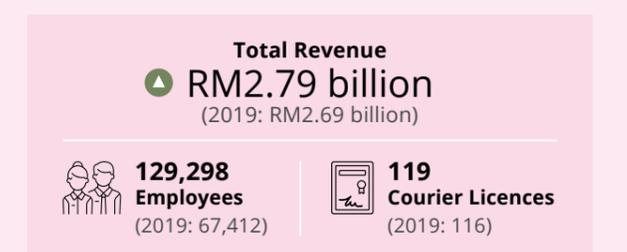
Details on JENDELA is available in Chapter 3 of this report.

POSTAL AND COURIER SERVICES

The postal and courier services industry has been the backbone of delivery and communications services for a long time. In 2020, postal and courier sector represented by Pos Malaysia Bhd, GDEX Bhd and Nationwide Express Holdings Bhd, recorded a total revenue of RM2.79 billion, an increase of 3.7% compared with RM2.69 billion in 2019. The growth was underpinned by strong demand for courier services following a surge in online shopping.

The new norm accelerated digitalisation and proliferation of online shopping in the aftermath of the COVID-19 contributed positively for the parcel delivery segment. However, the industry is facing new challenges of an overly crowded playing field with 119 courier services licensees in 2020. Cut-throat competition resulting in razor-thin margins for the courier business calls for a regulatory reform in this industry.

MCMC has taken a proactive approach by setting a moratorium period of two years for any issuance of new courier service licences effective from 14 September 2020 to 15 September 2022. Throughout the moratorium period, MCMC will not accept new licence applications of all categories to carry out courier services.



The implementation of the moratorium aims to provide an opportunity for the government, together with the postal and courier licensees to formulate new plans for the sector that faces various challenges from technological changes and market trends. In addition, MCMC will review the licensing framework towards ensuring the postal and courier industry remains competitive, inclusive and relevant to current global developments.

During the moratorium period, MCMC has mobilised the energy and capabilities of stakeholders while ensuring all coordination and involvement of stakeholders, both internally and externally through the National Postal and Courier Industry Lab (NPCIL). NPCIL sets a strategic aspiration to improve the performance and capacity of the postal and courier industry toward providing quality of service in delivery and seamless coverage.

The converged licensing framework under the Communications and Multimedia Act 1998 (CMA) encompasses a technology-neutral and service-neutral licensing regime to better regulate the industry. This framework provides greater transparency for growth and development for the benefit of both businesses and consumers.

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 with regards to their compliance with roll-out conditions within 12 months from the date of issuance.

CHAPTER 1 :

LICENSING

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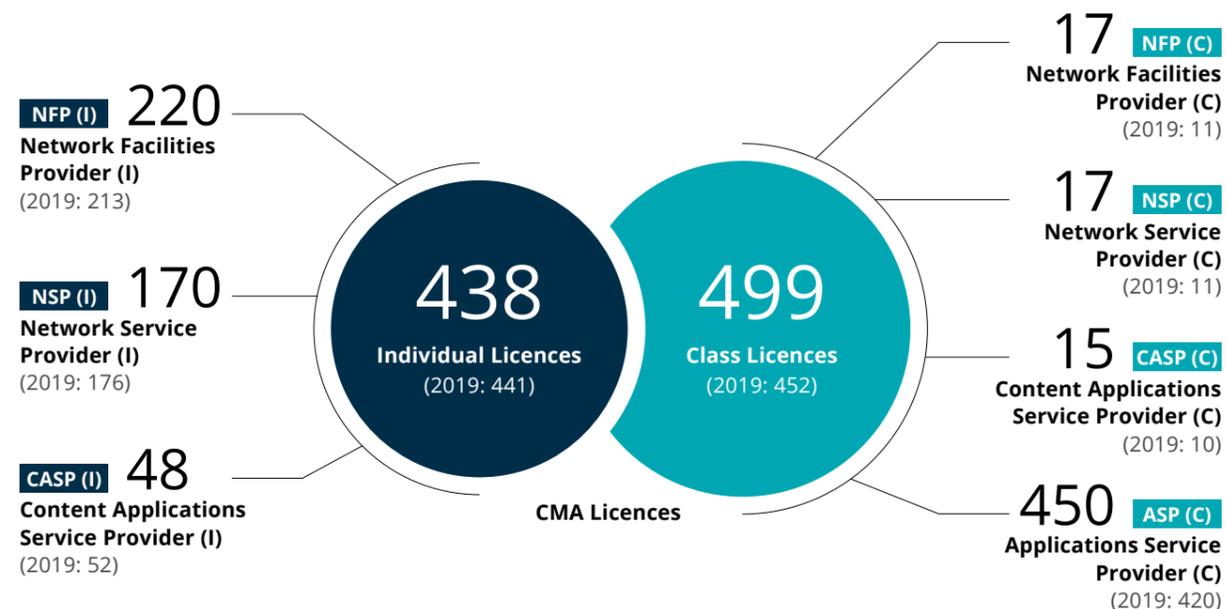
OVERVIEW



The licensing provision under the Communications and Multimedia Act 1998 (CMA) enables flexibility in 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 that are both technology and service-neutral, which creates opportunities for expansion of the industry and the promotion of more effective utilisation of network infrastructure.

Economic and social disruptions triggered by COVID-19 have influenced people to rely heavily on technology for information and working from home. It is envisaged that with the impending introduction of 5G telecommunications technology, more sites for base stations, antennas and transmission equipment will be required to facilitate low latency architecture. These developments have encouraged licence applications and created demand for new entrants into the C&M industry in the year 2020.

KEY HIGHLIGHTS IN 2020



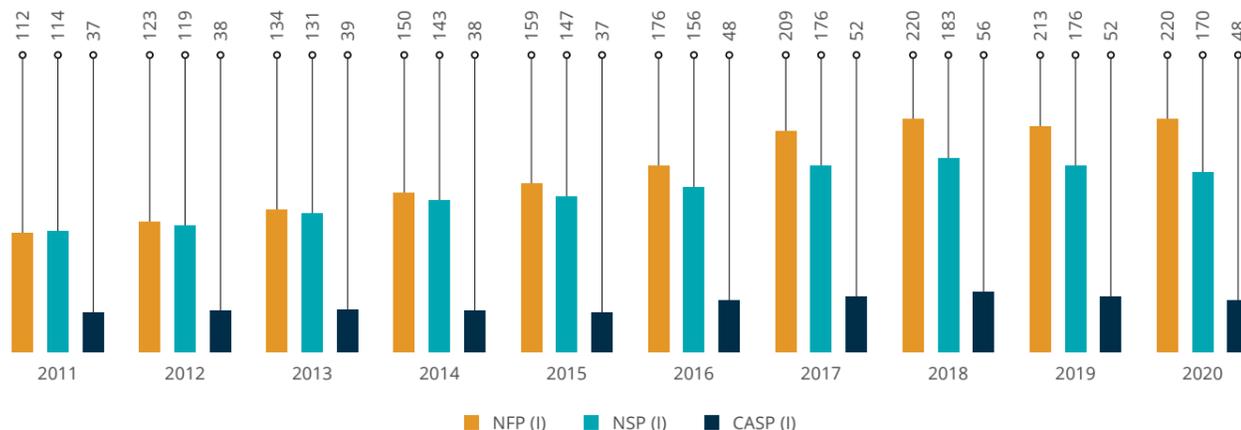
LICENSING PROFILE OVER THE YEARS

In 2020, Individual licences comprised 220 NFP (I), 170 NSP (I) and 48 CASP (I). In total, there was a 1% decrease in the number of licences compared to year 2019 due to the surrender of 14 Individual licences and the expiry of eight Individual licences. The licensees surrendered the licences as they had no future plans that involved the utilisation of the Individual licences.

Overall, 61 Individual licences were approved and renewed by the Minister of the Ministry of Communications and Multimedia Malaysia (KKMM). A total of 26 new Individual licences comprising 17 NFP (I), six NSP (I) and three CASP (I) licences were issued, while 18 NFP (I), 12 NSP (I) and five CASP (I) licences were renewed.

Figure 1.1: CMA Licences (Individual) 2011 – 2020

Number of Licences



Source: MCMC

Details of the infrastructure and services offered by the new and renewed licensed service providers in 2020 are shown in Figure 1.2.

Figure 1.2: New and Renewed Licences in 2020

Infrastructure and Services	Company	New (N)/ Renewed (R)	NFP (I)	NSP (I)	CASP (I)
Deployment of communications infrastructure to support cellular & broadband services as well as provision of bandwidth services	Merah Network Sdn Bhd	N	✓	✓	
	Trackgain Concept Sdn Bhd	N	✓	✓	
	Volksbahn Technologies Sdn Bhd	N	✓	✓	
	Extreme Broadband Sdn Bhd	R	✓	✓	
	Measat Broadcast Network Systems Sdn Bhd	R	✓	✓	
	Speedcast Malaysia Sdn Bhd	R	✓	✓	
	Pr1ma Communications Sdn Bhd	R	✓	✓	
	SEDCO Communications Sdn Bhd	R	✓	✓	
	Theta Telecoms Sdn Bhd	R	✓	✓	
	Advanced Research Communication Sdn Bhd	R	✓	✓	
	Fenomena Majukaya Sdn Bhd	R	✓	✓	
	XMT Technologies Sdn Bhd	R	✓	✓	
	Deployment of communications infrastructure to support cellular & broadband services	SHCORP Sdn Bhd	N	✓	
Somnium Technologies Sdn Bhd		N	✓		
Amanra Engineering & Trading Sdn Bhd		N	✓		
Prasarana Niaga Sdn Bhd		N	✓		

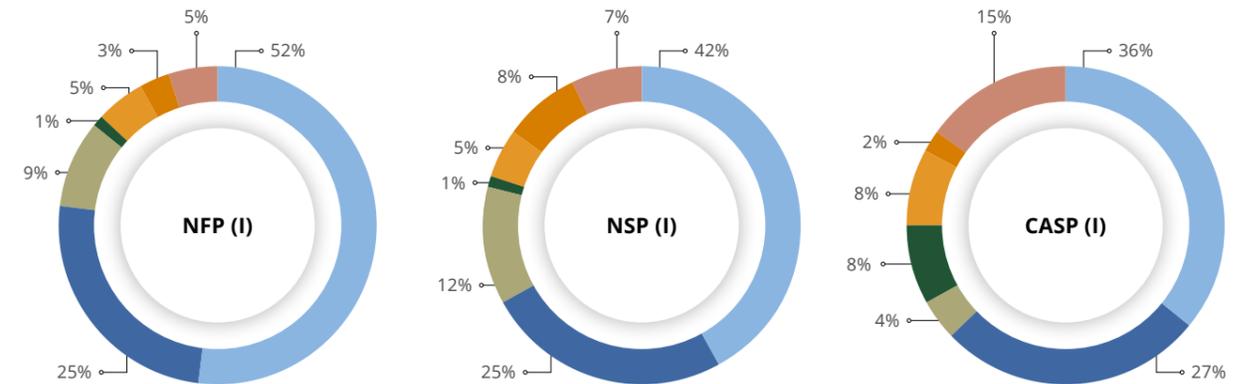
Infrastructure and Services	Company	New (N)/ Renewed (R)	NFP (I)	NSP (I)	CASP (I)
Deployment of communications infrastructure to support cellular & broadband services (cont'd)	Prosontech Sdn Bhd	N	✓		
	OAM Engineering Sdn Bhd	N	✓		
	Ennova Sdn Bhd	N	✓		
	Telfra Communication Sdn Bhd	N	✓		
	NIP Global Logistics (Malaysia) Sdn Bhd	N	✓		
	Handalan Enterprise Sdn Bhd	N	✓		
	Virtech Engineering Sdn Bhd	N	✓		
	Umeran Resources Sdn Bhd	N	✓		
	Colla Engineering Sdn Bhd	N	✓		
	Rich Comm Sdn Bhd	N	✓		
	Touch Matrix Sdn Bhd	R	✓		
	Xair Networks Sdn Bhd	R	✓		
	Wasilah Engineering Sdn Bhd	R	✓		
	Inforient Infrastructure Sdn Bhd	R	✓		
	Medini Iskandar Malaysia Sdn Bhd	R	✓		
	Ohana Communications Sdn Bhd	R	✓		
	Bullish Aim Sdn Bhd	R	✓		
Celltrax Technologies Sdn Bhd	R	✓			
OCK Telco Infra Sdn Bhd	R	✓			
Provision of bandwidth services/ access application services and switching services	IP Core Network Sdn Bhd	N		✓	
	Datastream Sacofa Telecommunications Alliance Sdn Bhd	N		✓	
	Navigate Global Network Sdn Bhd	N		✓	
	Telstra Global (Malaysia) Sdn Bhd	R		✓	
	Hitachi Sunway Data Centre Services Sdn Bhd	R		✓	
Provision of cellular mobile services	Red One Network Sdn Bhd	R		✓	
Provision of non-subscription broadcasting via DTTB platform	Sarawak Media Group Sdn Bhd	N			✓
	Al Hijrah Media Corporation	R			✓
Provision of non-subscription broadcasting via DTTB platform and terrestrial radio broadcasting	Pertubuhan Berita Nasional Malaysia	N			✓
Provision of terrestrial radio broadcasting	Media Digital An Nur MAINJ Sdn Bhd	N			✓
	Cense Media Sdn Bhd	R			✓
	Husa Network Sdn Bhd	R			✓
	Rimakmur Sdn Bhd	R			✓
Provision of subscription broadcasting and non-subscription broadcasting	Ansar Broadcast Sdn Bhd	R			✓
TOTAL			35	18	8

Source: MCMC

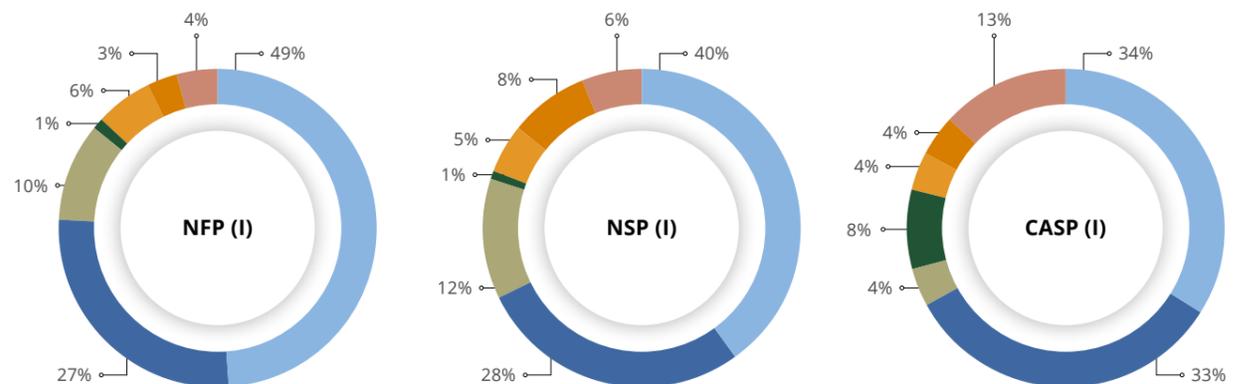
An analysis of Individual licensees' shareholdings shows that 46% of total Individual licensees in 2020 were Bumiputera-owned companies (2019: 45%). The shareholding composition by type of licence is shown below:

Figure 1.3: Individual Licences – Shareholding Composition by Type of Licences 2019 and 2020

Shareholding Composition 2020



Shareholding Composition 2019



■ Bumiputera ■ Non-Bumiputera ■ GLC ■ SB & GA ■ SGOV ■ Foreign ■ Others

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 and senior management and to 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

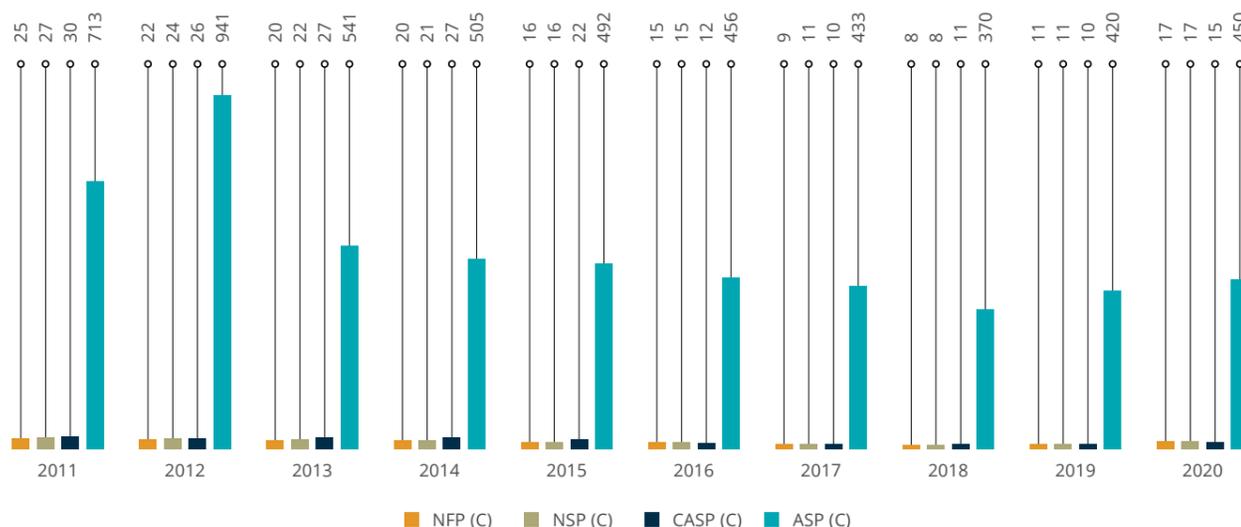
A TOTAL OF 499 CLASS LICENCES WERE REGISTERED BY THE MCMC IN 2020

The Class licence is a relatively light-handed form of regulation, 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 the business landscape that is developing in Malaysia, the number of ASP (C) licences has outnumbered all other categories. The issuance of Class licences is expected to accelerate in the coming 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 499 Class licences were registered by the MCMC in 2020, comprising 17 NFP (C), 17 NSP (C), 15 CASP (C) and 450 ASP (C). Overall, there was an increase of 47 licences compared to 452 in 2019.



Figure 1.4: CMA Licences (Class) 2011 – 2020
Number of Licences



Source: MCMC



499

Total of Class Licences were registered

(2019: 452)

ROLL OUT STATUS IN 2020

Licences that are granted are monitored for compliance with roll out conditions, that is, under special licence condition Part B 1.2. Under this special licence condition, the compliance requirements include:

- a) The licensee is to commence the provision of facilities or services within 12 months from the date the licence is issued;
- b) However, the Minister may grant an extension of time to the licensee upon appeal and genuine progress being made towards the provision of facilities or services.

As at end-2019, a total of eight companies were issued with five NFP (I) and six NSP (I) licences (Figure 1.5) compared to 23 individual licences issued in 2018.

Figure 1.5: New Licensees/Service Providers

No.	Company	NFP (I)	NSP (I)
1	KS IT Solutions Sdn Bhd	✓	✓
2	Mulia Property Development Sdn Bhd	✓	
3	X86 Network Sdn Bhd		✓
4	Smartsel Sdn Bhd	✓	✓
5	Borneo Restu Sdn Bhd		✓
6	Excel Commerce Solutions Sdn Bhd		✓
7	OSI Technology Sdn Bhd	✓	
8	Syarikat Sesco Bhd	✓	✓
TOTAL		5	6

Source: MCMC

All eight new service/facilities providers have complied with the special licence condition to roll out their facilities and services within 12 months from the date of the issuance of the licence. The service/facilities providers, type of licence and facilities/services deployed are as follows:

Figure 1.6: Facilities/Services Deployed Within 12 Months of Licence Issued

No.	Company	Type of Licence	Facilities/Services Deployed
1	KS IT Solutions Sdn Bhd	NFP (I) & NSP (I)	Towers/Poles, Radiocommunication Transmitter Link, Dark Fibre & Bandwidth services
2	Mulia Property Development Sdn Bhd	NFP (I)	Dark Fibre (Last Mile) & Radiocommunication Transmitter Link
3	X86 Network Sdn Bhd	NSP (I)	Bandwidth Services
4	Smartsel Sdn Bhd	NFP (I) & NSP (I)	Towers/Poles & Bandwidth Services
5	Borneo Restu Sdn Bhd	NSP (I)	Bandwidth Services
6	Excel Commerce Solutions Sdn Bhd	NSP (I)	Bandwidth Services
7	OSI Technology Sdn Bhd	NFP (I)	Towers/Poles
8	Syarikat Sesco Bhd	NFP (I) & NSP (I)	Dark Fibre

Source: MCMC

Only one licensee, namely Rich Infra Sdn Bhd (formerly known as Euro Masjaya Resources Sdn Bhd), has requested for an extension of time to provide its services/facilities. The COVID-19 pandemic and the subsequent Movement Control Order (MCO) were among the reasons cited for the delay in the deployment.

One CASP (I) licensee, namely Awesome Broadcasting Sdn Bhd, has successfully rolled out its Free-to-Air (FTA) services on the Digital Terrestrial Television (DTT) platform. The new channel, branded as "Awesome TV", premiered on 3 August 2020 on Channel 112, MyFreeview. There are nine other CASP (I) licensees expected to launch their services on the DTT platform by 30 June 2021.

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

CHAPTER 2 :

ECONOMIC PERFORMANCE OF C&M INDUSTRY

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ECONOMIC PERFORMANCE OF C&M INDUSTRY

ECONOMIC PERFORMANCE OF C&M INDUSTRY

OVERVIEW



The C&M industry continues to operate in a challenging and unprecedented market environment arising from a combination of severe demand disruptions and new trends due to the COVID-19 pandemic. Amid the challenges, the C&M industry remained resilient following the surge in demand for its services due to the increase in online transactions, online shopping, entertainment and educational and work from home activities.

KEY HIGHLIGHTS IN 2020

MARKET CAPITALISATION

▼ **0.7%**
RM142.96 billion
 (2019: RM144.01 billion)

▼ **0.5 pp**
7.9% of Bursa Malaysia market capitalisation of RM1,817.29 billion
 (2019: 8.4%)

▲ **0.3%** **RM134.42 billion Telecommunications Sector**
 (2019: RM134.01 billion)

▼ **27.4%** **RM5.29 billion Broadcasting Sector**
 (2019: RM7.29 billion)

▲ **19.9%** **RM3.25 billion Postal & Courier Sector**
 (2019: RM2.71 billion)

REVENUE

▼ **4.1%**
RM46.64 billion
 (2019: RM48.62 billion)

▼ **4.0%** **RM38.47 billion Telecommunications Sector**
 (2019: RM40.06 billion)

▼ **8.3%** **RM5.38 billion Broadcasting Sector**
 (2019: RM5.87 billion)

▲ **3.7%** **RM2.79 billion Postal & Courier Sector**
 (2019: RM2.69 billion)

CAPITAL EXPENDITURE

▲ **3.0%**
RM4.75 billion
 (2019: RM4.61 billion)

14.2%
capex to revenue ratio, below the global average of 17.3%
 (2019: Malaysia – 13.2%, Global – 17.2%)

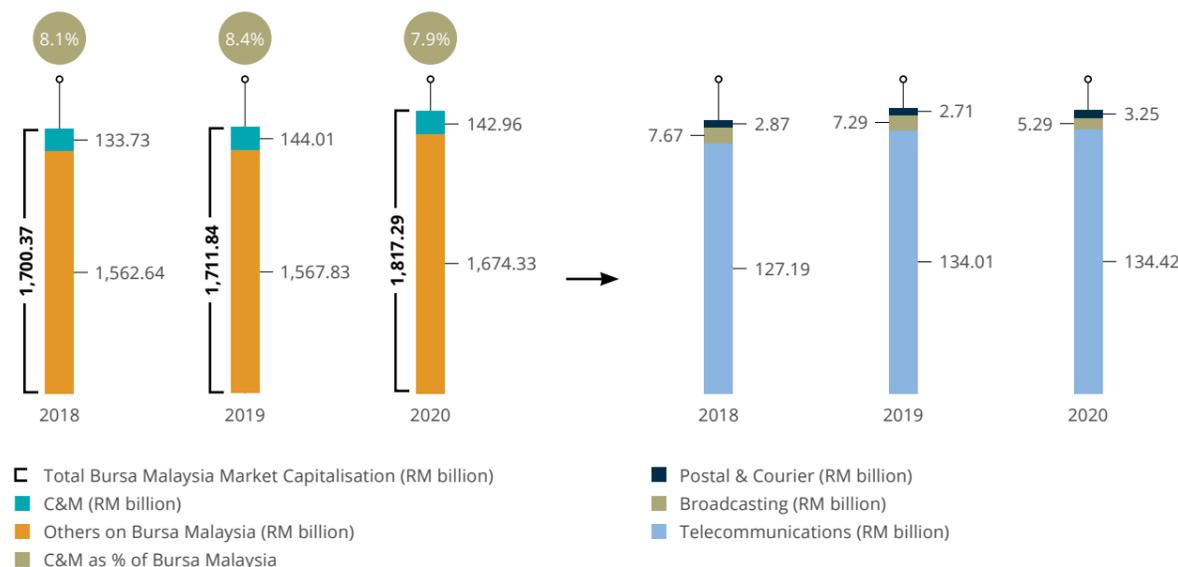
▲ **0.7%** **Mobile Service Providers RM3 billion**
 (2019: RM2.98 billion)
14.1% capex to revenue ratio
 (2019: 13.4%)

▲ **7.4%** **Fixed Service Providers RM1.75 billion**
 (2019: RM1.63 billion)
14.5% capex to revenue ratio
 (2019: 13%)

C&M INDUSTRY MARKET PERFORMANCE

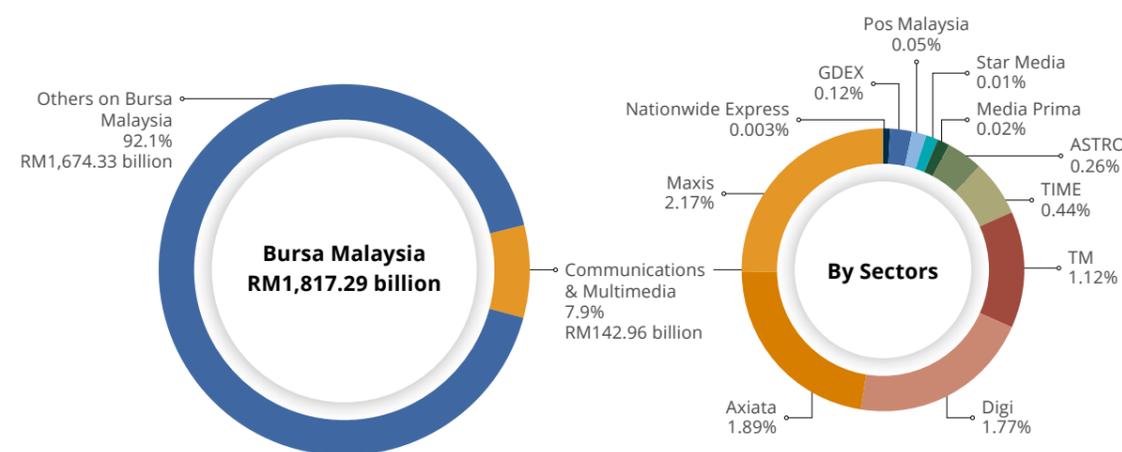
The C&M industry represented 7.9% or RM142.96 billion of Bursa Malaysia's total market capitalisation of RM1,817.29 billion in 2020 (2019: 8.4% or RM144.01 billion). The C&M industry's market capitalisation decreased by 0.7% in 2020 compared with 2019, due to COVID-19 headwinds.

Figure 2.1: C&M Industry Market Capitalisation by Sector 2018 – 2020



Source: Bloomberg

Figure 2.2: C&M Companies' Contribution to Bursa Malaysia 2020 (As at 31 December 2020)



Source: Bloomberg

The telecommunications sector demonstrated its relative resilience as it withstood the impact of COVID-19. Technological adoption was accelerated during the pandemic as people were confined to their homes and had to work from home, learn online, shop online and spend more time on entertainment. Thus, investor sentiment remained positive over this sector outlook due to the increasing demand for connectivity during the MCO.

In addition, various initiatives from the government, including stimulus packages and plans to enhance digital infrastructure for better connectivity, cushioned the impact of the pandemic on this sector. As a result, the telecommunications sector's market capitalisation saw a slight increase of 0.3% to RM134.42 billion in 2020 (2019: RM134.01 billion).

ECONOMIC PERFORMANCE OF C&M INDUSTRY

The postal and courier sector recorded significant growth due to an increase in parcel volume amid growing e-commerce demand. The implementation of the MCO and social distancing accelerated the shift in consumers' shopping habits from physical stores to online platforms for almost all types of goods, including daily essentials. This in turn boosted investors' confidence toward the sector, which saw its market capitalisation increasing by 19.9% to RM3.25 billion in 2020 (2019: RM2.71 billion).

On the other hand, the broadcasting sector continued to face a gloomy advertising outlook as advertisers adopted a more cautious stance during the pandemic, coupled with the cancellation of major sporting events such as the Tokyo Olympic Games and UEFA Europa League. Furthermore, competition from OTT players continued to erode the sector. These factors led to a decline in market capitalisation by 27.4% to RM5.29 billion in 2020 (2019: RM7.29 billion).

Figure 2.3: C&M Companies' Market Capitalisation 2018 – 2020

Company	Market Capitalisation (RM billion)			Change (%)	
	2020	2019	2018	2020 – 2019	2019 – 2018
Maxis	39.51	41.61	41.82	-5.0%	-0.5%
Axiata	34.29	37.94	35.65	-9.6%	6.4%
Digi	32.19	34.68	34.99	-7.2%	-0.9%
TM	20.42	14.38	10.00	42.0%	43.8%
TIME	8.01	5.40	4.73	48.3%	14.2%
Telecommunications	134.42	134.01	127.19	0.3%	5.4%
ASTRO	4.72	6.62	6.78	-28.7%	-2.4%
Media Prima	0.32	0.31	0.38	3.2%	-18.4%
Star Media	0.25	0.36	0.51	-30.6%	-29.4%
Broadcasting	5.29	7.29	7.67	-27.4%	-5.0%
Pos Malaysia	0.95	1.16	1.35	-18.1%	-14.1%
GDEX	2.25	1.52	1.48	48.0%	2.7%
Nationwide Express	0.05	0.03	0.04	66.7%	-25.0%
Postal and Courier	3.25	2.71	2.87	19.9%	-5.6%
TOTAL C&M	142.96	144.01	137.73	-0.7%	4.6%

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) and Nationwide Express Holdings Bhd (Nationwide Express)

Source: Bloomberg

ECONOMIC PERFORMANCE OF C&M INDUSTRY

Maxis Remains Among Top 10 in Market Capitalisation

Financial and utilities sectors continued to rank highly in terms of market capitalisation in 2020. The healthcare sector, which benefitted from the COVID-19 outbreak, saw Top Glove and Hartalega entering the top 10 by market capitalisation rankings for the first time. The telecommunications sector lost ground, with only Maxis remaining in the top 10 list and moving two notches down to 9th place from 7th place in 2019, while Axiata dropped out from the list to 12th place with market capitalisation of RM34.29 billion in 2020.

Figure 2.4: Top 10 Companies by Market Capitalisation 2019 – 2020



*As at 31 December

Notes: 1. The top 10 largest stocks were from the largest 30 companies on the 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) and Hong Leong Bank Bhd (Hong Leong Bank)

Source: Bloomberg

ECONOMIC PERFORMANCE OF C&M INDUSTRY

ECONOMIC PERFORMANCE OF C&M INDUSTRY

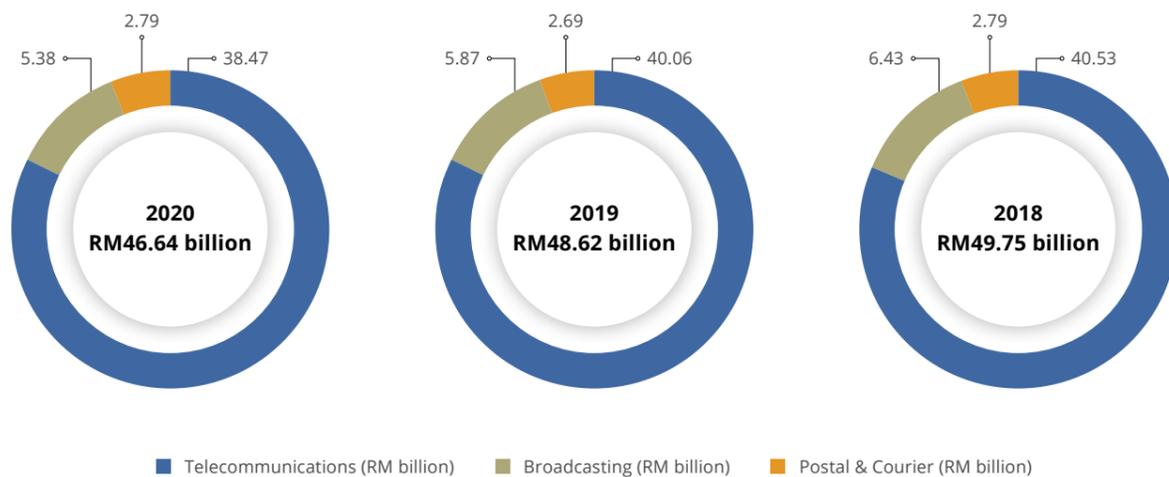
C&M INDUSTRY FINANCIAL PERFORMANCE

The outbreak of the COVID-19 pandemic introduced new challenges to the C&M industry in addition to the intense competition, causing industry revenue in 2020 to decline by 4.1% to RM46.64 billion from RM48.62 billion in 2019. The decline was contributed mainly by the telecommunications sector, followed by the broadcasting sector.

The impact of the MCO took a toll on revenue, particularly for roaming services, due to the international travel ban, while retail closures and weaker spending power affected new device sales and activations. The prepaid segment was mainly affected by a reduction in migrant workers. Furthermore, reduced spending by customers led to some downgrading of their subscription plans. As a result, the telecommunications sector's revenue witnessed a decline of 4% to RM38.47 billion in 2020 (2019: RM40.06 billion).

4.1%
RM46.64 billion
C&M Industry Revenue
 (2019: RM48.62 billion)

Figure 2.5: Domestic C&M Industry Revenue 2018 – 2020



Source: Industry

Digital mediums are increasingly becoming the preferred choice of both consumers and advertisers. The economic downturn resulting from the pandemic also led to some subscribers downgrading their Pay TV subscription packages. These developments affected broadcasters' advertising and Pay TV subscription revenue. In 2020, broadcasting sector revenue decreased by 8.3% to RM5.38 billion (2019: RM5.87 billion).

On a brighter note, the postal and courier sector recorded an increase in revenue of 3.7% to RM2.79 billion in 2020 (2019: RM2.69 billion). This was contributed by a surge in demand for courier services due to the increase in online shopping during the MCO and the festive or monthly sales promotions on online sales platforms such as Shopee and Lazada.

Telecommunications Sector

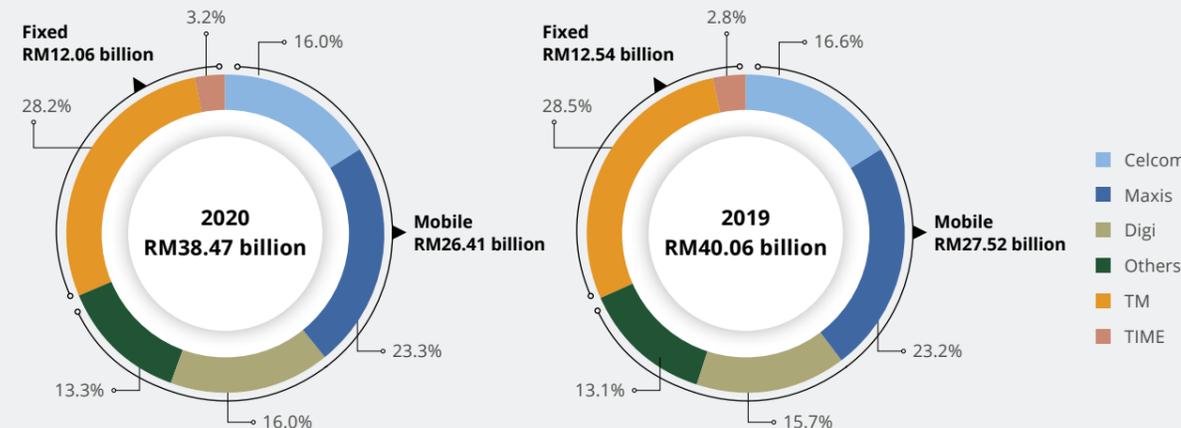
The impact of COVID-19 and ongoing competition weighed on telecommunications sector revenue. Border closures and travel restrictions led to weaker roaming revenue and subscriptions from migrant segments. The impact of retail closures due to the MCO disrupted device sales, new activations and physical reloads. In addition, the adverse economic environment reduced consumer spending, with consumers either downgrading subscription packages or cancelling services, thus lowering subscriptions.

The ongoing competition from OTT messaging apps such as WhatsApp and Telegram continued to erode revenue. Competition among service providers also continued as they engaged in price wars offering greater product

differentiation and more attractive packages, ranging from unlimited data plans to bundled packages with smart devices, to attract new consumers and retain existing ones.

In 2020, the telecommunications sector recorded RM38.47 billion in revenue, a decline of 4% (2019: RM40.06 billion). From the total, 69% was contributed by mobile service providers, while the remaining 31% was contributed by fixed service providers. Mobile service providers recorded a decline of 4% in revenue to RM26.41 billion in 2020 (2019: RM27.52 billion), while fixed service providers revenue declined by 3.8% to RM12.06 billion in 2020 (2019: RM12.54 billion).

Figure 2.6 Telecommunications Sector Revenue 2019 – 2020



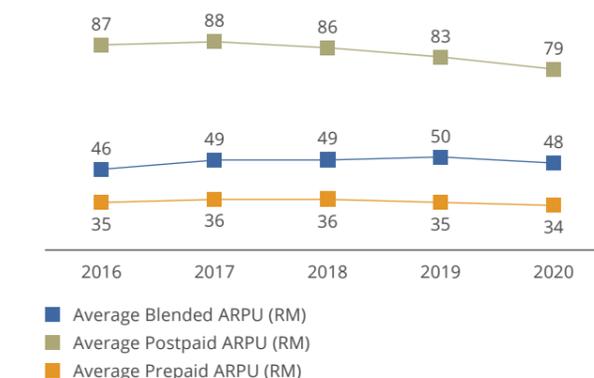
Notes: 1. Others comprise non-public listed mobile operators and MVNOs.
 2. Revenue inclusive retail and wholesale revenue.
 Source: Industry

Average Revenue Per User (ARPU)

Blended ARPU for three mobile service providers averaged RM48 per month in 2020, a decrease of RM2 compared with RM50 per month in 2019.

Price competition, mobile market saturation and OTT services eroding voice and SMS revenues were among other factors causing the decline in ARPU for year 2020.

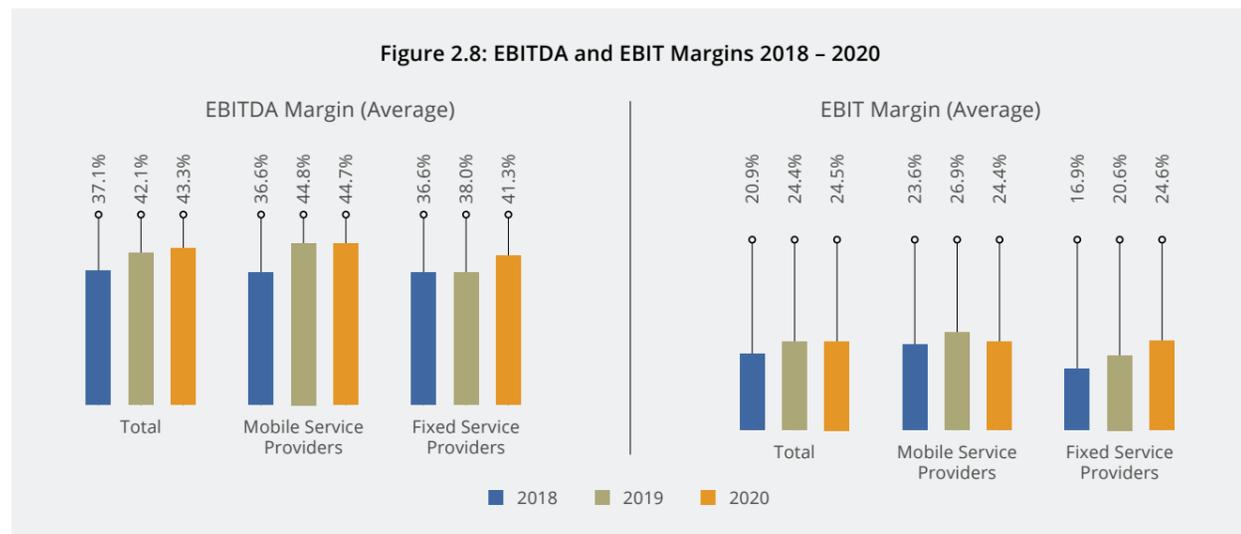
Figure 2.7: Average Mobile ARPU 2016 – 2020



Note: ARPU from major public listed companies only
 Source: Industry

Profitability: EBITDA and EBIT Margins

In 2020, the telecommunications sector total EBITDA¹ and EBIT margins saw improvement, with EBITDA margin averaging 43.3% (2019: 42.1%) and EBIT² margin averaging 24.5% (2019: 24.4%). Fixed service providers' profitability improved, with EBITDA and EBIT margins expanding to 41.3% and 24.6%, respectively, in 2020, driven by lower operating costs as a result of cost optimisation initiatives. In contrast, mobile service providers' EBITDA and EBIT margins reduced to 44.7% and 24.4%, respectively, in 2020 due to lower revenue and higher operating costs.

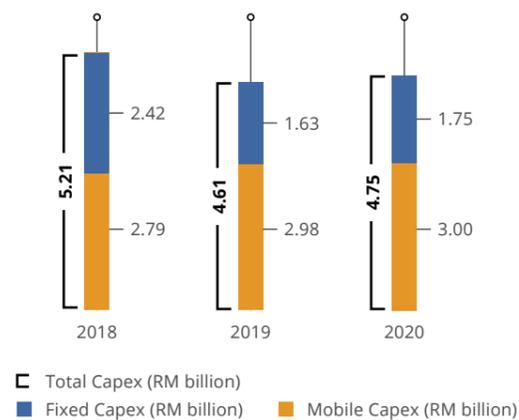


Note: Margins from major public listed companies only
Source: Industry

Capital Expenditure (Capex)

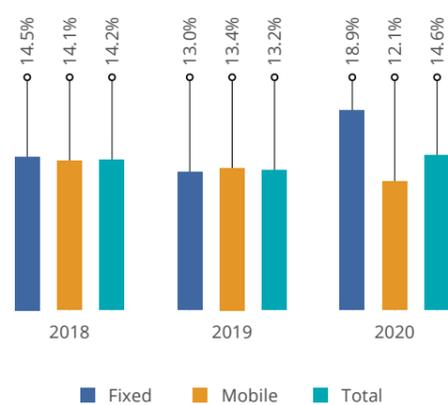
In 2020, the total telecommunications capex increased by 3% to RM4.75 billion (2019: RM4.61 billion). The increase was due to service providers spending more on infrastructure to support rising data demand. Overall, about 76% of the total capex was network-related spending.

Figure 2.9: Capex 2018 - 2020



Note: Capex from major public listed companies only
Source: Industry

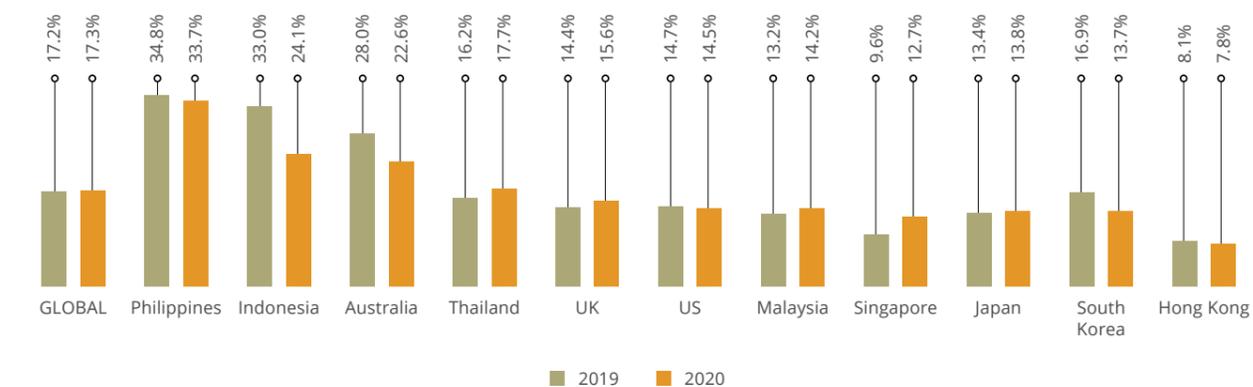
Figure 2.10: Capex to Revenue Ratio (Capital Intensity)



Note: Capital intensity from major public listed companies only
Source: Industry

Despite capex increasing in value, Malaysia's capital intensity was at 14.2% of revenue, below the global average of 17.3%³. Meanwhile, the telecommunications sector achieved Return On Assets (ROA) of 6.5% in 2020, showing a marginal increase from 6.3% in 2019. This demonstrated that the sector was relatively efficient at using its assets to generate earnings.

Figure 2.11: Capex to Revenue Ratio (Capital Intensity) by Country 2019 vis-à-vis 2020



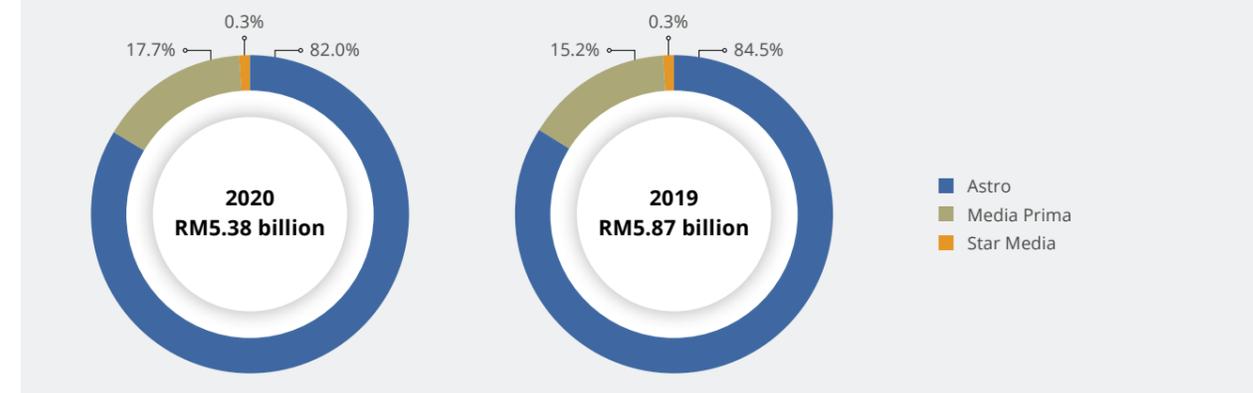
Source: OMDIA, Industry

Broadcasting Sector

The COVID-19 pandemic has accelerated the shift in media consumption and advertising strategies toward digital platforms. Pay TV growth has been slowing down as a result of the popularisation of OTT video streaming platforms. The broadcasting sector in 2020 recorded a decline of 8.3% in revenue to RM5.38 billion compared with RM5.87 billion in 2019. This was partly due to the decline in Pay TV ARPU from RM100 to RM96.90 as ongoing competition from OTT video services pressured Pay TV service providers to pursue competitive pricing. In 2020, there were an estimated 953,000 OTT video subscriptions in Malaysia, a growth of 46% from 653,000 in 2019.⁴ This indicates that digital platforms are becoming popular way for people to access and consume content.

8.3%
RM5.38 billion
Broadcasting Sector Revenue
(2019: RM5.87 billion)

Figure 2.12: Broadcasting Sector Revenue 2019 - 2020



Notes: 1. Media Prima excludes print revenue
2. ASTRO revenue adjusted by calendar year
3. Star Media refers to radio broadcasting revenue only
Source: Industry

¹ EBITDA refers to Earnings Before Interest, Tax, Depreciation and Amortisation.
² EBIT refers to Earnings Before Interest and Tax, also known as operating profit.

³ OMDIA, Communications Provider Revenue & Capex Tracker: 4Q20, May 2021.
⁴ GlobalData, Malaysia Subscription Video on Demand (SVoD) Forecast, April 2021.

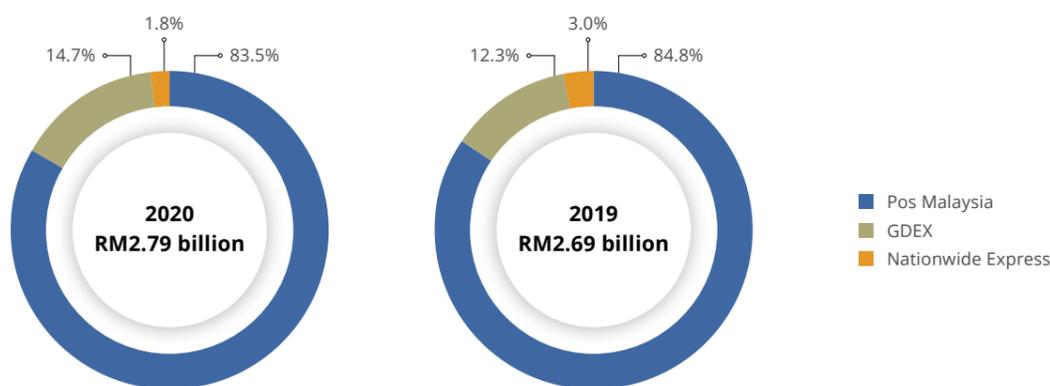


Postal and Courier Sector

The postal and courier sector recorded revenue of RM2.79 billion in 2020, an increase of 3.7% compared with RM2.69 billion in 2019. The COVID-19 pandemic and the closure of retail stores due to the MCO and social distancing measures led consumers to a change in their shopping habits as they shifted from physical stores to online shopping. Due to uncertainties and prolonged movement restrictions, more goods were brought onto online platforms, thus providing greater choices for consumers and helping to ease their burden from going out during the MCO. In addition, online platforms organised festive season and monthly sales promotions, offering attractive discounts and free shipping for a certain amount spent. These factors contributed to faster growth of the e-commerce market, resulting in a surge of parcel delivery volume, thus contributing positively to postal and courier sector revenue.

▲ 3.7%
RM2.79 billion
Postal and Courier Sector Revenue
 (2019: RM2.69 billion)

Figure 2.13: Postal and Courier Sector Revenue 2019 – 2020



Note: Revenue adjusted by calendar year
 Source: Industry

ACE MARKET OVERVIEW AND PERFORMANCE

The ACE Market stands for "Access, Certainty, Efficiency", and was formerly known as the MESDAQ (Malaysian Exchange of Securities Dealing and Automated Quotation) market in 2009. It is an alternative capital-raising market for small- and medium-sized companies who are looking to push for more capital through a public listing exercise.

In 2020, there were 135 companies listed on the ACE Market. From the total, 11 companies or 8.1% were licensees under the CMA. The Individual and Class licensees listed on the ACE Market in the year 2020 are shown below.

Figure 2.14: Licensees on ACE Market 2020

Company (ACE-Listed)	Listing Date	Licensee (The company or subsidiary of ACE-listed company)	Type of Licences*
Binasat Communications Bhd	2018	Satellite NOC Sdn Bhd	NFP (I) & NSP (I)
ManagePay Systems Bhd	2011	MPay Mobile Sdn Bhd	ASP (C)
XOX Bhd	2011	XOX Com Sdn Bhd	NSP (I) & ASP (C)
Diversified Gateway Solution Bhd	2007	Diversified Gateway Bhd	ASP (C)
Privasia Technology Bhd	2006	Privanet Sdn Bhd Privasat Sdn Bhd	NFP (I), NSP (I) & ASP (C)
SMRT Holdings Bhd	2006	N'osairis Technology Solutions Sdn Bhd	ASP (C)
MNC Wireless Bhd	2005	MNC Wireless Bhd Moblife.TV Sdn Bhd	ASP (C)
mTouche Technology Bhd	2005	mTouche International Sdn Bhd	ASP (C)
N2N Connect Bhd	2005	N2N Global Solutions Sdn Bhd NGN Connection Sdn Bhd	ASP (C)
REDtone Digital Bhd (formerly known as REDtone International Bhd)	2004	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)
M3 Technologies (Asia) Bhd	2003	M3 Technologies (Asia) 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

In 2020, market capitalisation for the 11 CMA licensees listed on the ACE Market was RM1.82 billion (a growth of 36.8%) with revenue of RM0.84 billion (a decline of 9.7%). Although ACE-listed licensees revenue declined due to the impact of COVID-19, their market capitalisation increased, fuelled by investor interest to invest due to their affordability.

Figure 2.15: Licensees on ACE Market: Market Capitalisation 2018 – 2020 (RM billion)



Source: Bloomberg

Figure 2.16: Licensees on ACE Market: Revenue 2018 – 2020 (RM billion)



Source: Industry

This chapter looks at connectivity services in Malaysia, namely broadband, fixed and cellular services, including MVNO services. With a focus on the development of these services, it details service providers' number of subscriptions, market share and penetration rate. The chapter also highlights the government's high-speed broadband initiatives for digital connectivity, particularly JENDELA.

CHAPTER 3 :

SERVICES AND CONNECTIVITY

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KEY HIGHLIGHTS IN 2020

BROADBAND SUBSCRIPTIONS

▼ 2.7% | **42.19 million**
(2019: 43.38 million)

▼ 3.9% | **38.84 million**
Mobile Broadband
(2019: 40.43 million)

▲ 13.6% | **3.35 million**
Fixed Broadband
(2019: 2.95 million)

MOBILE CELLULAR SUBSCRIPTIONS

▼ 2.0% | **43.72 million**
(2019: 44.6 million)
133.6% penetration rate per 100 inhabitants
(2019: 135.4%)

▼ 3.6% | **30.15 million**
Prepaid
(2019: 31.26 million)

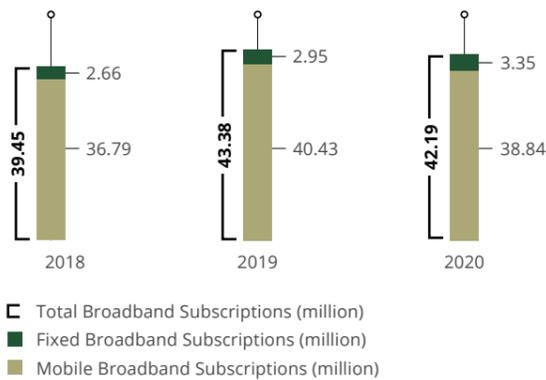
▲ 1.7% | **13.57 million**
Postpaid
(2019: 13.34 million)

BROADBAND IN MALAYSIA

The COVID-19 situation has accelerated people's dependence on internet services, especially for working and studying from home. This has driven mobile-to-fixed broadband substitution as fixed broadband offers higher capacity and more stable speeds and reliability than mobile broadband, particularly for bandwidth-intensive activities such as video streaming and online meetings. According to the ITU⁵, global network traffic has shifted to residential areas from offices and to fixed networks from mobile as more people stayed home during the pandemic.

In 2020, total broadband subscriptions declined by 2.7% to 42.19 million due to lower mobile broadband subscriptions. Mobile broadband subscriptions decreased by 3.9% to 38.84 million in 2020, while fixed broadband subscriptions increased by 13.6% to 3.35 million in 2020.

Figure 3.1: Broadband Subscriptions 2018 – 2020



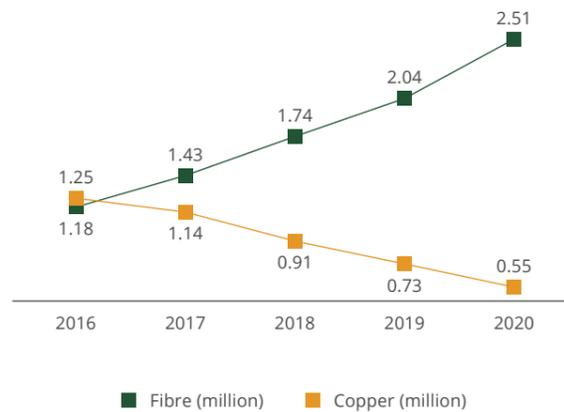
Source: MCMC

⁵ ITU, Economic impact of COVID-19 on digital infrastructure, July 2020.

Fixed Broadband

Fibre connections continue their strong growth in subscriber base. The JENDELA initiative to strengthen fibre coverage has contributed to fibre broadband subscription growth as fibre becomes more widely available and provides more stable experiences, prompting consumers to migrate to fibre. As a result, fibre subscriptions posted a growth of 23% to 2.51 million subscriptions in 2020. In contrast, copper subscriptions declined by 24.7% to 0.55 million, hence providing opportunities for full fibre broadband migration.

Figure 3.2: Fibre and Copper Subscriptions 2016 – 2020



Note: Copper includes ADSL and SDSL.
Source: MCMC



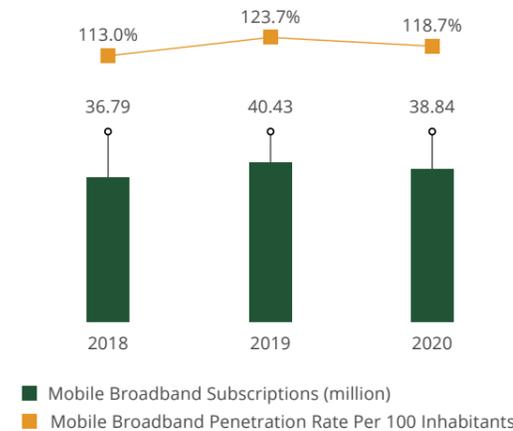
Mobile Broadband

As the MCO restricted the movement of people, many stayed at home and worked from home, resulting in a subscriber shift to fixed broadband. In addition, the daily free 1GB of data provided under the government stimulus package during the first phase of the MCO led to underutilisation of their mobile data plans. As subscribers reduced their expenses during the economic downturn due to the pandemic, they resorted to downgrading their mobile subscription plans or reducing their multiple SIM card subscriptions.

This led to a decline in mobile broadband subscriptions of 3.9% to 38.84 million. In line with the decline in mobile cellular subscriptions, the penetration rate per 100 inhabitants dropped to 118.7%.

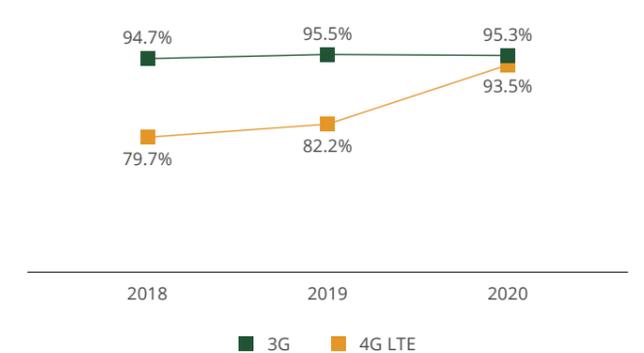
▼ 3.9% | **38.84 million**
Mobile Broadband Subscriptions
(2019: 40.43 million)

Figure 3.3: Mobile Broadband Subscriptions and Penetration Rate 2018 – 2020



Source: MCMC

Figure 3.4: 3G and 4G LTE Coverage in Populated Areas 2018 – 2020



Note: Starting from 2020, the calculation of 3G and 4G coverage in populated areas is based on a new method

Source: MCMC

Jalanan Digital Negara (JENDELA) Plan for Wider Coverage and Better National Broadband Quality

The COVID-19 pandemic has led to an inevitable surge in digital technologies usage due to people adjusting to a new normal centred around digitalisation and internet connectivity, especially during the nationwide Movement Control Order (MCO). In this unprecedented situation, the resilience and capability of broadband networks have become more crucial.

Therefore, MCMC as a regulator has taken a proactive step in organising the National Digital Infrastructure Lab (NDIL) from 13 July to 14 August 2020. The NDIL comprised representatives from industry players, namely Celcom Axiata Bhd, Digi Telecommunications Sdn Bhd, Maxis Bhd, U Mobile Sdn Bhd, Telekom Malaysia Bhd, and TIME dotCom Bhd as well as relevant ministries and government agencies.

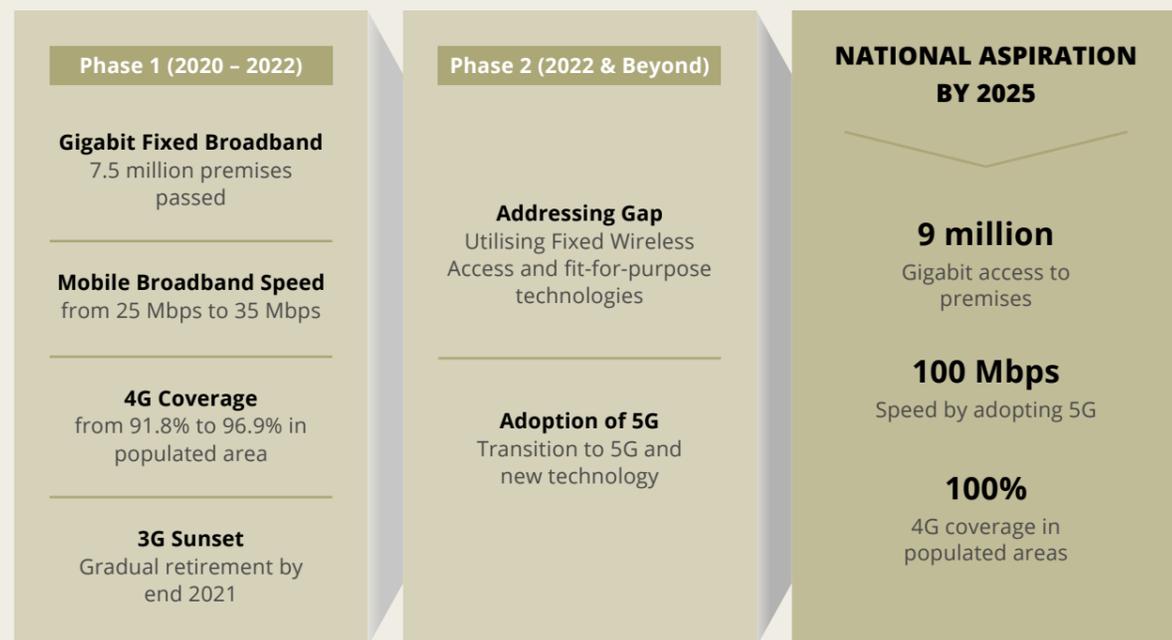
NDIL aimed to detail out the analysis, recommendations and implementation plans to achieve the national aspirations of gigabit access, 100% of 4G coverage and 100Mbps average mobile speed.

NDIL has formulated the Jalanan Digital Negara or better known as JENDELA to provide comprehensive and high quality broadband coverage and set the foundation for 5G. The implementation of JENDELA is based on phased approach covering the period starting from 2020 until 2025, with the priority to optimise the existing resources and infrastructure.



The JENDELA Phase 1 commenced in September 2020 and is expected to be completed by end of 2022. It covers the expansion of 4G mobile broadband coverage from 91.8% to 96.9% in populated areas, increase of the average mobile broadband speeds from 25Mbps to 35Mbps as well as provision of gigabit access for 7.5 million premises by the end of 2022. The Phase 1 will also involve the gradual termination of 3G networks until the end of 2021 and migration of the spectrum for better 4G network deployment while strengthening the foundation for 5G.

Figure 3.5: JENDELA Action Plan



Source: MCMC

JENDELA Phase 2 (beyond 2022) aims to address the digital divide via Fixed Wireless Access (FWA) and pave the way for 5G proliferation. In Phase 2, the transition to 5G, which is expected to be commercially available by the end of 2021, will be accelerated after a strong platform in Phase 1 can be achieved, in line with the planning under the 12th Malaysia Plan. In addition, the use of other technologies such as satellite and FWA will also be considered to ensure all people can enjoy access to broadband network across the country, especially in underserved areas with challenging geographical condition where the cost of providing

fibre connectivity as well as the construction of communication towers are very high. These efforts are put in place to ensure an inclusive growth riding on digitalisation at all levels of the society.

By the end of the year 2025, JENDELA will ensure all Malaysians will have access to quality digital connectivity and achieve national aspirations, which are gigabit access to 9 million premises, 100 Mbps average mobile broadband speed and 100% coverage in populated areas.

JENDELA Achievement in 2020

In 2020, JENDELA focused on expanding fibre coverage and developing digital infrastructure in urban and suburban areas to improve the quality of 4G network services. As at end 2020, 456,757 premises gained access to gigabit fibre broadband, while 876 new mobile broadband sites were built and 16,367 mobile broadband sites were upgraded. JENDELA achievement are shown in Figure 3.6

Figure 3.6: Achievement of JENDELA as at 31 December 2020



Source: MCMC

The target to build 940 new sites in 2020 faced challenges due to several factors such as improper planning and lack of execution discipline by service providers, issues at State level such as State bureaucracy and issues on site acquisition by the some state-backed companies and the impact from the MCO.

Moving forward, action plans for remedies include performing a detailed analysis of the challenges and close monitoring of performance on weekly targets, seeking resolutions by escalation to State committees on infrastructure or communications and other platforms such as the JENDELA Steering Committee (JSC) as well as enhancing engagement with State Government and Local Authorities, to reinforce the policy of endorsing telecommunication networks as the third utility. In addition, the good performance on the delivery of targets, provide an opportunity to review the speed of deployment for 5G.

Updated information on JENDELA is available at <https://myjendela.my/>

MALAYSIA INTERNET EXCHANGE (MYIX)

MyIX is a non-profit and neutral Internet Exchange platform started in 2006, whereby Internet Service Providers (ISPs) and content providers connect and peer to exchange domestic internet traffic. MyIX aims to keep domestic internet traffic and promote the exchange of global internet traffic in the country by reducing boomerang effect – a scenario whereby domestic internet traffic was routed through multiple international hops, via exchanges overseas, and back to Malaysia.

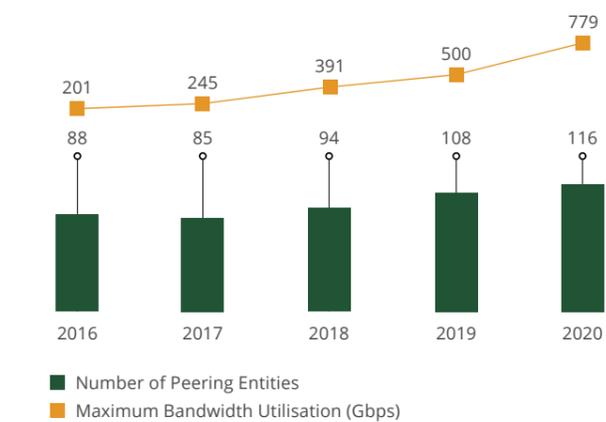
MyIX members can bring internet content closer to end users in Malaysia, reduce connectivity costs, and facilitate drivers to a digital economy. Members can reduce their reliance on international IP transit services for exchanging domestic internet traffic, which translates to a reduction in Ringgit outflow. This leads to better earnings and some of the cost savings may benefit the users in terms of maintaining reasonable subscription costs.

MyIX has successfully achieved the following benefits:

<p>From technical perspective, MyIX has improved the quality of experience in accessing local internet content by reducing the latency from 100ms – 400ms to 10ms – 60ms on average</p>	<p>From economic perspective, MyIX has reduced members' reliance on international IP transit services for exchanging domestic internet traffic, which results in the reduction on currency outflow</p>
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Over the years, MyIX bandwidth utilisation and peering entities have increased. As at December 2020, the number of peering entities is 116 peers, compared with 108 entities as at December 2019. In terms of exchanged domestic internet traffic, the highest maximum bandwidth utilisation was at 779Gbps by end of 2020, a 55.8% traffic growth from 2019.

Figure 3.7: MyIX Maximum Bandwidth Utilisation and Peering Trend 2016 – 2020



Source: MyIX, MCMC

Throughout 2020, MyIX has 11 new members, including the providers of telecommunications services and international companies as follows:

- Freshtel Internet Sdn Bhd
- Velo Technologies Sdn Bhd
- IP Core Network Sdn Bhd
- Hurricane Electric
- Excel Commerce Solutions Sdn Bhd
- iCore Technology Sdn Bhd
- NKH Solution Sdn Bhd
- Huawei Technologies Co Ltd
- Subspace Communication LLC
- AVM Cloud Sdn Bhd
- MYNIC Bhd

The following members resigned from the MyIX:

- FGV Prodata System Sdn Bhd
- Twitter Inc
- Biznet Networks

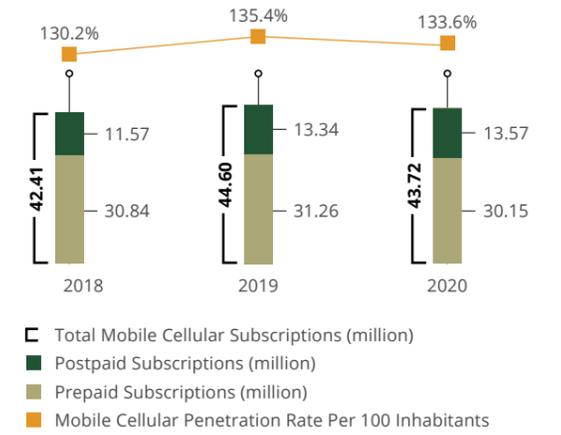
The performance of MyIX, whilst promising, will need to be reviewed in a planned National Interconnection Ecosystem Lab (NIEL) in 2021 to reposition Malaysia as a hub for data traffic in the region.

MOBILE CELLULAR SERVICES

Mobile cellular subscriptions showed a downward trend in 2020 due to the impact of COVID-19. The MCO, which began in March 2020 and continued throughout the year in different stages based on the pandemic situation at the time, affected customer acquisition and sales at retail outlets. In addition, stay-at-home and restricted travel orders resulted in fewer SIM card sales. Overall, the pandemic had an immense impact on the economy, affecting income and reducing spending power.

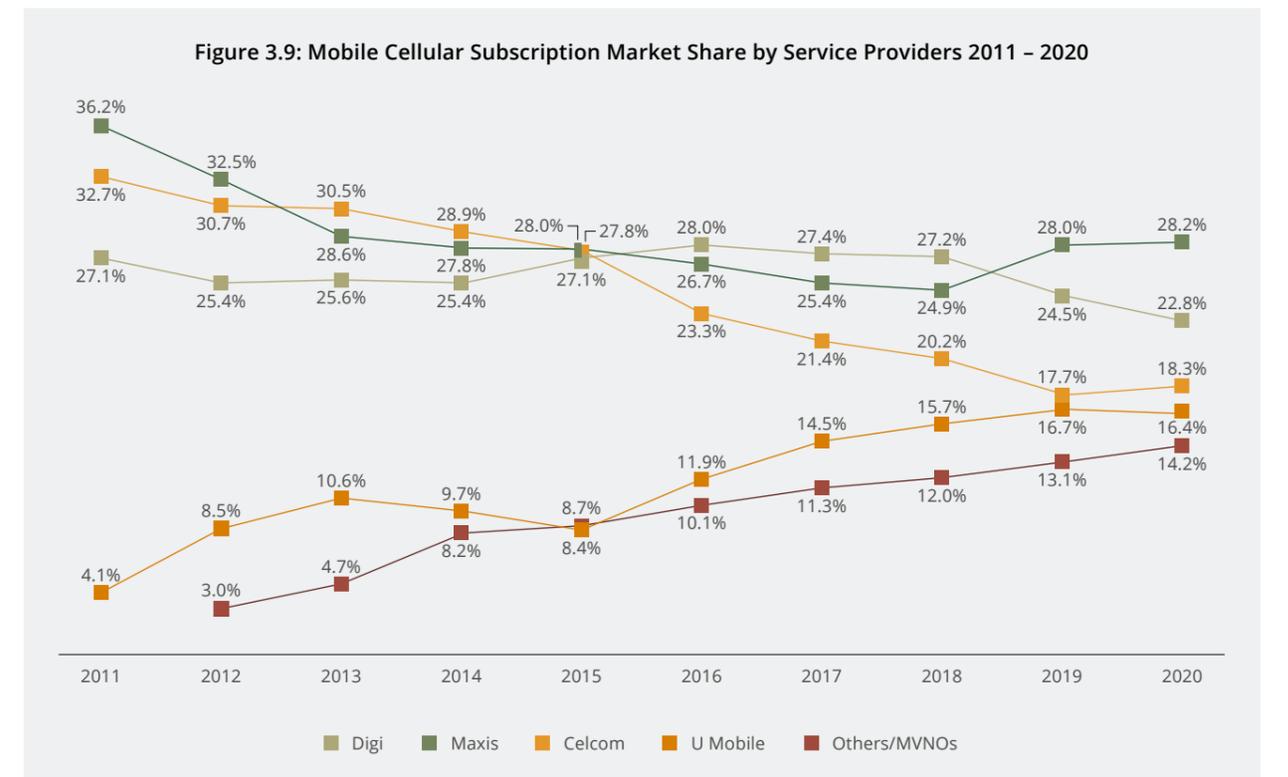
As a result, mobile cellular subscriptions declined by 2% to 43.72 million in 2020. However, the postpaid market continued to perform well, with subscriptions growing by 1.7% to 13.57 million. In contrast, the prepaid market contracted by 3.6% to 30.15 million subscriptions in 2020. The contraction was attributed to the expiry of SIM card validity due to inactivity and discontinued multiple SIM card subscriptions.

Figure 3.8: Mobile Cellular Subscriptions and Penetration Rate 2018 – 2020



Source: MCMC

In subscription market share, Maxis commanded the highest share of 28.2%, followed by Digi (22.8%) and Celcom (18.3%). The remainder was from U Mobile and others/MVNOs, with a 16.4% and 14.2% share, respectively. The distribution of market share exhibited a trend of stabilisation, providing impetus for consolidation.



Source: MCMC

MVNO SERVICES

A 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 (MNOs). One of the main benefits of MVNOs is that they provide competition, resulting in lower prices for consumers.

MVNO subscriptions were at 6.22 million in 2020, a growth of 6.3% compared to 5.85 million subscriptions in 2019. Notably, MVNOs recorded a 14.2% market share of total mobile subscriptions of 43.72 million in 2020.

In 2020, there were 19 licensees providing MVN services. The list of active MVNOs in 2020 is as follows:

Figure 3.10: List of MVNOs 2020

Mobile Network Operator (MNO)	Thick MVNO ⁶	Thin MVNO ⁷
Celcom Axiata	<ul style="list-style-type: none"> Net2One Sdn Bhd (Altel) Red One Network Sdn Bhd (redONE) Tune Talk Sdn Bhd (Tune Talk) XOX Com Sdn Bhd (XOX) 	<ul style="list-style-type: none"> Merchantrade Asia Sdn Bhd (Merchantrade Asia) Pure Spectrum Technologies Sdn Bhd (Myfon) Winner Venture Sdn Bhd (Herego)
U Mobile	-	<ul style="list-style-type: none"> Mpay Mobile Sdn Bhd (Mpay Mobile) Uni Comms International Sdn Bhd
Digi	-	<ul style="list-style-type: none"> Pavo Communications Sdn Bhd (SpeakOut Wireless and Mcalls) My Evolution Sdn Bhd Cubic Telecom Malaysia Sdn Bhd Tone Excel International Sdn Bhd (Tone Excel) Tone Plus Sdn Bhd (Tone Plus) Tone Wow Sdn Bhd (Tone Wow)
Maxis	<ul style="list-style-type: none"> REDtone Engineering and Network Services Sdn Bhd (ANSAR Mobile) 	<ul style="list-style-type: none"> Edgecomms Sdn Bhd (Edgecomms) Pok Din Auto Parts Sdn Bhd (CPUT) Bots Network Sdn Bhd

Source: MCMC

⁶ Thick MVNO: Service providers who possess ASP (C) and NSP (I) licences.

⁷ Thin MVNO: Service providers who possess an ASP (C) licence only.

5G Malaysia Demonstration Projects

The 5G journey for Malaysia started in 2018 with the MCMC fronting the entire enterprise. The MCMC laid the foundation through 5G Malaysia Demonstration Projects (5GDP), deploying meaningful 5G Use Cases. With the theme “Progressing Humanity”, the projects seek to facilitate, create and nurture the development of use cases that show prospects in a live but controlled environment. From a broader perspective, they aim to augment the 5G ecosystem in Malaysia within the identified sectors of the industry.

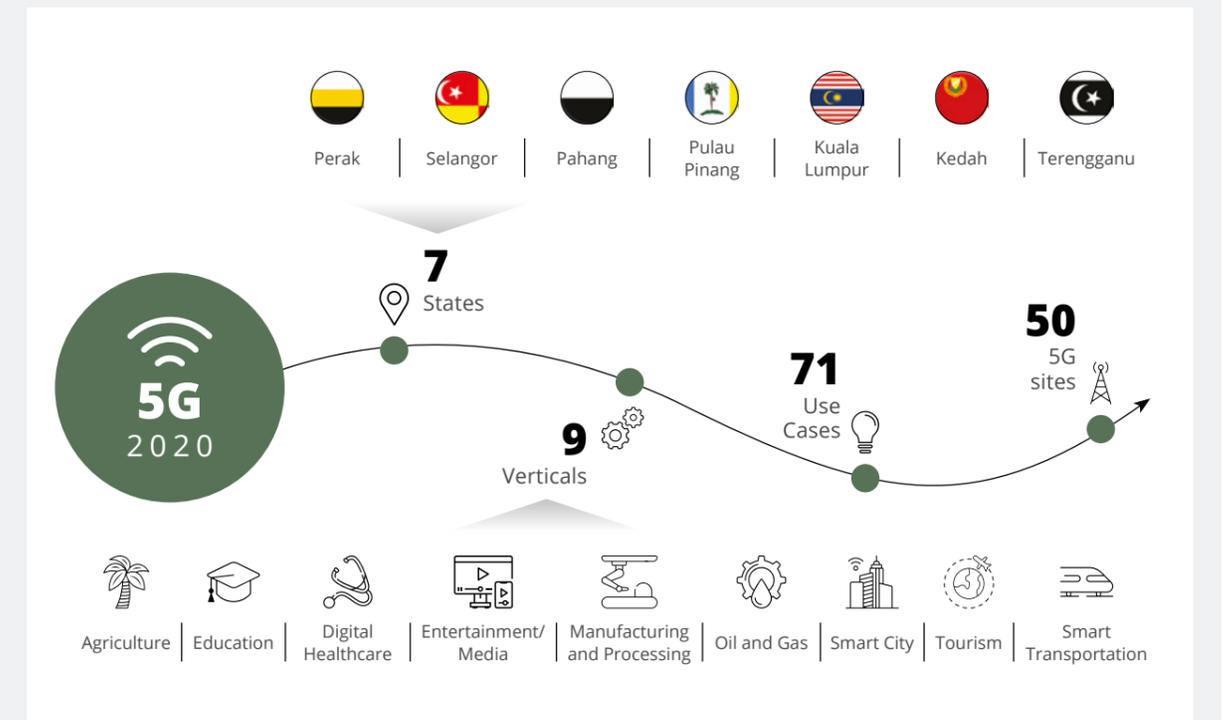
The MCMC pursued this initiative through a collaborative approach and countless multi-matrix stakeholder engagements with strategic industry partners and various ministries.

On 20 January 2020, the MCMC organised the international launch ceremony of the 5GDP at the Langkawi International Convention Centre in Pulau Langkawi. Concurrently, the MCMC built awareness on the 5GDP by hosting its maiden 5G Malaysia International Conference on 20 and 21 January 2020, featuring renowned international and local speakers and panellists from the industry to further discuss the development and prospects of 5G implementation in Malaysia and around the world.

The conference received 380 participants and 16 international and local speakers, including speakers from the ITU Regional Office (Asia Pacific), GSA, GSMA, MIER, NTT Docomo, Telenor, Rakuten Mobile and the Korean Ministry of Science and ICT, as well as the CEOs of the 5GDP Partners.

The launch ceremony and visits to the 5GDP use cases attracted 56 local and four foreign media representatives, which led to over 200 articles being published. On social media platforms, the related posts reached 2,587,000 users (on Facebook, Twitter, Instagram and YouTube) and received 3,210 engagements, i.e. likes, shares and comments. The tours registered about 300 participants from the 13 federal and state governments, 17 private sectors and local and international conference attendees.

At the end of 2020, the 5GDP successfully developed 71 use cases at 50 5G sites, comprising nine verticals – agriculture, digital healthcare, education, entertainment/media, manufacturing and processing, oil and gas, smart city, smart transportation and tourism.



Detailed below are the use cases under each vertical and the respective partner championing the deployment of those use cases:

Figure 3.11: 5GDP Use Cases

Vertical	Service Provider/ Partner	Location	Description
OIL AND GAS	Petroleum Nasional Bhd (PETRONAS)	Institut Teknologi Petroleum PETRONAS (INSTEP) in Kuala Nerus, Terengganu	<ul style="list-style-type: none"> The Smart Plant system and AnyMal use cases can use real-time and historical data for predictive analysis through big data collection. This improves operational efficiency and yields high production by detecting anomalies and predicting unforeseen machine upsets. Massive IoT applications for Remote Platform Monitoring and Control provide real-time monitoring and mobile inspection of systems, devices and processes, especially in remote and dangerous areas. Use cases such as facial recognition, on-body sensor devices and CCTV video streaming will improve workers' safety and security.
AGRICULTURE	TM and ecosystem partner BoomGrow	Urban Precision Farming, Langkawi	<ul style="list-style-type: none"> An AI-driven automation platform that allows predictive growth modelling and control system with real-time data (temperature, pH, fertiliser concentration) monitoring and alarm system. This system enables remote global monitoring and control, making farming possible anywhere
TOURISM	Celcom and Digi	Langkawi International Airport	<ul style="list-style-type: none"> Through the use of Virtual Reality (VR), visitors will be able to experience a 360-degree view of various attractions on the island via live streaming. Users can see a teaser of the attraction of choice before signing up for the actual trip. This solution can also potentially help people with disabilities (OKU) to experience attractions that are not within their reach
	edotco	Langkawi International Airport	<ul style="list-style-type: none"> The Smart Airport concept enables a fully connected, mission-critical communications network in an airport that supports the operator, airlines, passengers and retail and other service providers. It also enables prompt proactivity and reactivity to real-time situations.
DIGITAL HEALTHCARE	Digi and Sultanah Maliha Hospital	Sultanah Maliha Hospital, Langkawi	<ul style="list-style-type: none"> A responder ambulance equipped with 5G, enabling the transfer of data on the move from the ambulance to the hospital, allowing medical specialists to be on standby.
	U Mobile and MEDCOM	Sultanah Maliha Hospital, Langkawi and Sultanah Bahiyah Hospital, Alor Setar	<ul style="list-style-type: none"> Transmission of real-time video, voice and clinical data through a high-speed, low latency communications network. Trauma patients will benefit from specialist care across long distances. Surgeons in a rural hospital will be able to perform life-saving surgery on a patient with the aid of an expert located far away in a capital city hospital without having the patient transferred.
	U Mobile and DoctorOnCall	Sultanah Maliha Hospital, Langkawi	<ul style="list-style-type: none"> Remote GP consultation via a DOCpod, a mobile diagnosis pod powered by 5G connectivity. It enables a patient to have a virtual face-to-face medical consultation with a qualified medical doctor in real-time and complete privacy.

Vertical	Service Provider/ Partner	Location	Description
EDUCATION	Digi	Cyberjaya	<ul style="list-style-type: none"> Virtual Maker Space (Collaborative VR) connects users from multiple locations to learn, collaborate and create a safe environment.
	Maxis	Aquaria KLCC	<ul style="list-style-type: none"> Underwater Augmented Reality (AR) experience brings visitors closer to the ocean floor through AR, allowing them to witness current ocean conditions up close.
	Maxis	Pusat Internet Kg Padang Wahid	<ul style="list-style-type: none"> eKelas flagship digital learning programme for the community, conducting VR Biology classes for a focused group of students. The curated playlist allows students to virtually immerse themselves into living cells, DNA, human anatomy and organs, all remotely guided by a teacher.
ENTERTAINMENT/MEDIA	U Mobile and HTC Vive	Remote	<ul style="list-style-type: none"> VR Gaming - arcade VR shooter game called Front Defence Heroes. In order to showcase the power of 5G and its low latency, a multiplayer setup is required and the server is hosted in Taipei, Taiwan. Gamers can fully immerse themselves and experience the exhilaration of VR gaming with zero lag time.
SMART CITY AND GOVERNMENT SERVICES	TM	<ul style="list-style-type: none"> 5G Command Centre (5GCC) at Pejabat Daerah dan Tanah Langkawi, Kuah, Langkawi Hotspots along Jalan Pantai Cenang, Pantai Cenang and Jalan Persiaran Putera, Kuah 	<p>The 5GCC is furnished with advanced integrated security features to serve as a security-monitoring centre through closed-circuit television (CCTV) cameras installed at hotspots.</p> <p>Use cases integrated into the 5GCC are:</p> <ul style="list-style-type: none"> Smart Traffic Light Solutions Geolocation People Safety Smart Parking Solutions Smart Retail Analytics (ACE) Smart Safety Helmet Smart Vehicle Management System (CONVES) Smart Water Management System (SWIMS) <p>These use cases allow for real-time surveillance for large-scale monitoring by local authorities to cater to various needs, backed up by analytics, Artificial Intelligence (AI), Internet of Things (IoT) and data-driven insights.</p>
	Celcom and Polis Diraja Malaysia (PDRM) Selangor	Langkawi and Pulau Pinang, Langkawi port authorities and local authorities in Selangor	<ul style="list-style-type: none"> Developed solutions that can enhance public and premises safety and security.
	Maxis and KOMTAR Tower	Pulau Pinang	<ul style="list-style-type: none"> A smart surveillance system for smart buildings, especially critical amidst the current COVID-19 situation that requires visitors to be mindful of crowds in a contained environment. The cameras are equipped with various video analytics applications functioning as IoT sensors that can improve building safety and visitor experience. In this environment, the 5G network enhances the quality and delivery of critical video surveillance through wireless networks with minimal latency, providing easier monitoring and management in real-time.

Source: MCMC

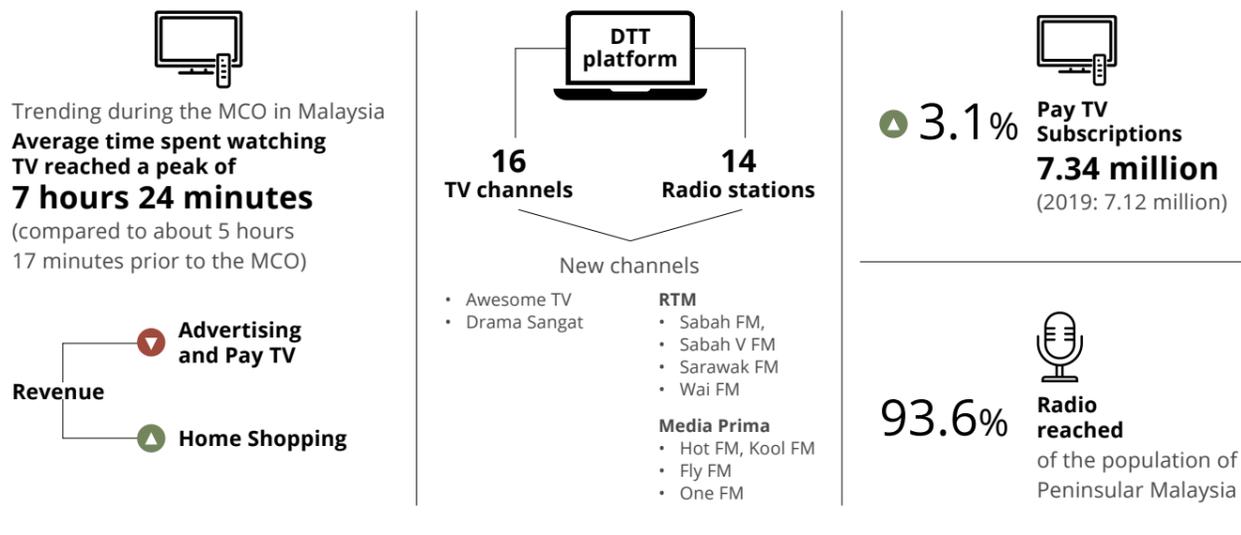
This chapter explains the development of TV and radio broadcasting in Malaysia. It mainly highlights the development of Digital TV in terms of channel count and viewership since the digital switchover in 2019. The chapter also highlights the impact of the COVID-19 pandemic on the broadcasting, media and entertainment industry.

CHAPTER 4 :

CONTENT SERVICES

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KEY HIGHLIGHTS IN 2020



MEDIA LANDSCAPE OVERVIEW

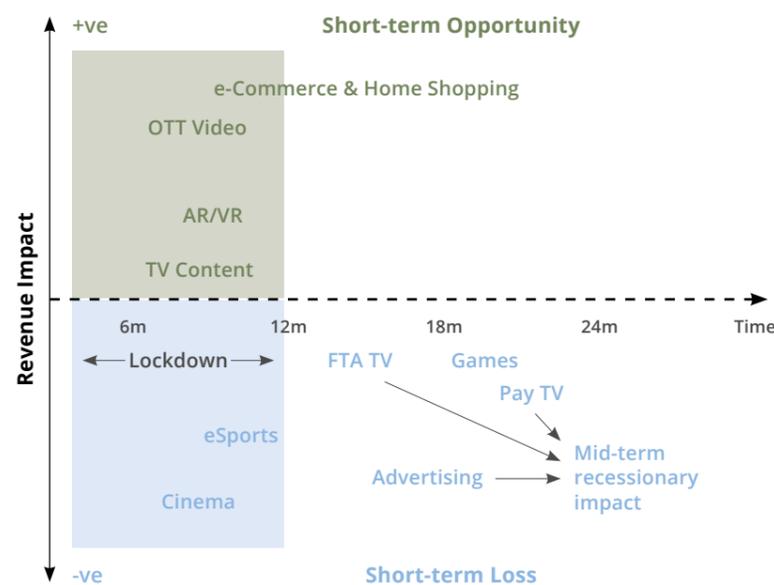
Impact of the COVID-19 Pandemic

The COVID-19 outbreak accelerated the pace of technology adoption and changed the daily lives of consumers. People embraced technology more than ever to support all aspects and consequences of isolation. The ways in which people spent their leisure time changed because of the pandemic and social distancing measures. More people watched and listened to the news, to be kept informed of updates on the COVID-19 situation. Entertainment, learning and shopping on digital platforms also saw an increase.

Recognising these new trends and shifts in behaviour and consumer needs, broadcasters leveraged new opportunities and changed their focus from traditional to digital tools or platforms to engage with consumers and improve experiences. These efforts mitigated their revenue losses from advertising cuts and the decline in consumer spending during the economic downturn.

Figure 4.1 shows the short-term and mid-term impacts of COVID-19 on the broadcasting, media and entertainment industry. It can be observed that OTT video and e-Commerce, including the home shopping business, were the top gainers during the pandemic.

Figure 4.1: Global Trend: The Short-Term and Mid-Term Impacts of COVID-19 on the Broadcasting, Media and Entertainment Industry



Note: The results are not an endorsement of service providers. Any reliance on these results is at the third party's own risk.

Source: Omdia, Digital is critical for those in self-isolation, March 2020

Content Services: Trending During the MCO in Malaysia

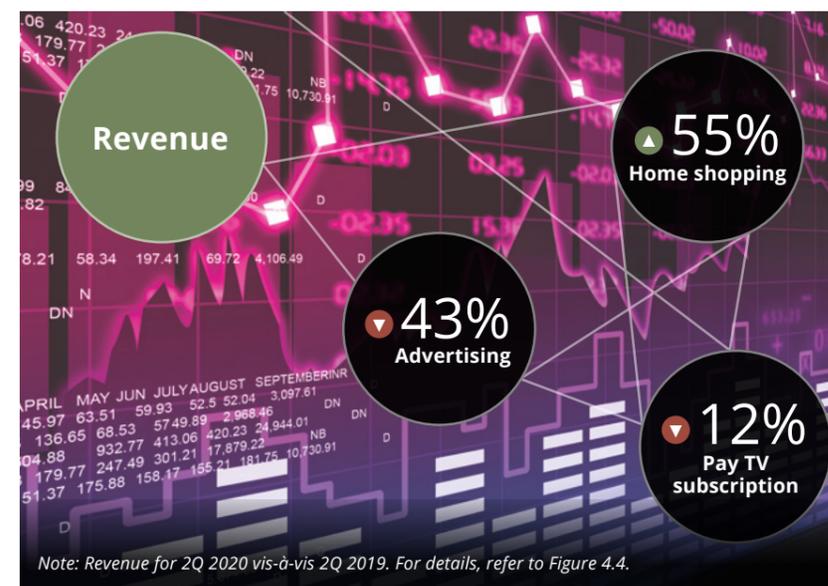
The movement restrictions during the COVID-19 pandemic led to consumer behavioural shifts in media consumption. A study by Nielsen showed an average rise of 30% in TV viewership since the MCO was imposed on 18 March 2020.

A survey on radio consumption conducted by GfK in May 2020 showed that 32% of radio listeners aged between 15 and 49 increased their radio listening during the MCO. Some 37% of listeners between the ages of 15 and 29 also

increased their radio listening during the MCO period. As a whole, 97% of radio listeners listened to the radio during the MCO, despite the availability of other media options such as connected TVs and streaming platforms.

Video consumption via online platforms also grew significantly during this period. Astro GO and Tonton reported a huge surge in daily active users in the third week of March 2020 vis-à-vis January 2020.

Figure 4.2: Content Services: Trending During the MCO in Malaysia



Significant increase in TV viewership

- The MCO has sparked an average 30% rise in TV viewers. The living conditions have changed the viewing behaviours of some consumers
- ASTRO offered complimentary viewing for its customers, as well as complimentary Astro Go access for all Malaysians - leading to TV viewership increasing by 43%

Radio Listenship

- 97% of radio listeners listened to radio during MCO
- 32% of listeners aged 15-49 increase their radio listening compared to pre-MCO

Source: TV viewership – Nielsen; Online content – MDA; Radio – GfK; Content - Vase.ai; News, Service Providers

Content

- 51% of Malaysians were closely following news every other hour on how to protect themselves against COVID-19
- Top 5 content Malaysians have been watching the most apart from news were:
 - 67% movies
 - 62% TV series/dramas
 - 35% cooking shows
 - 28% online streaming sites
 - 27% documentaries

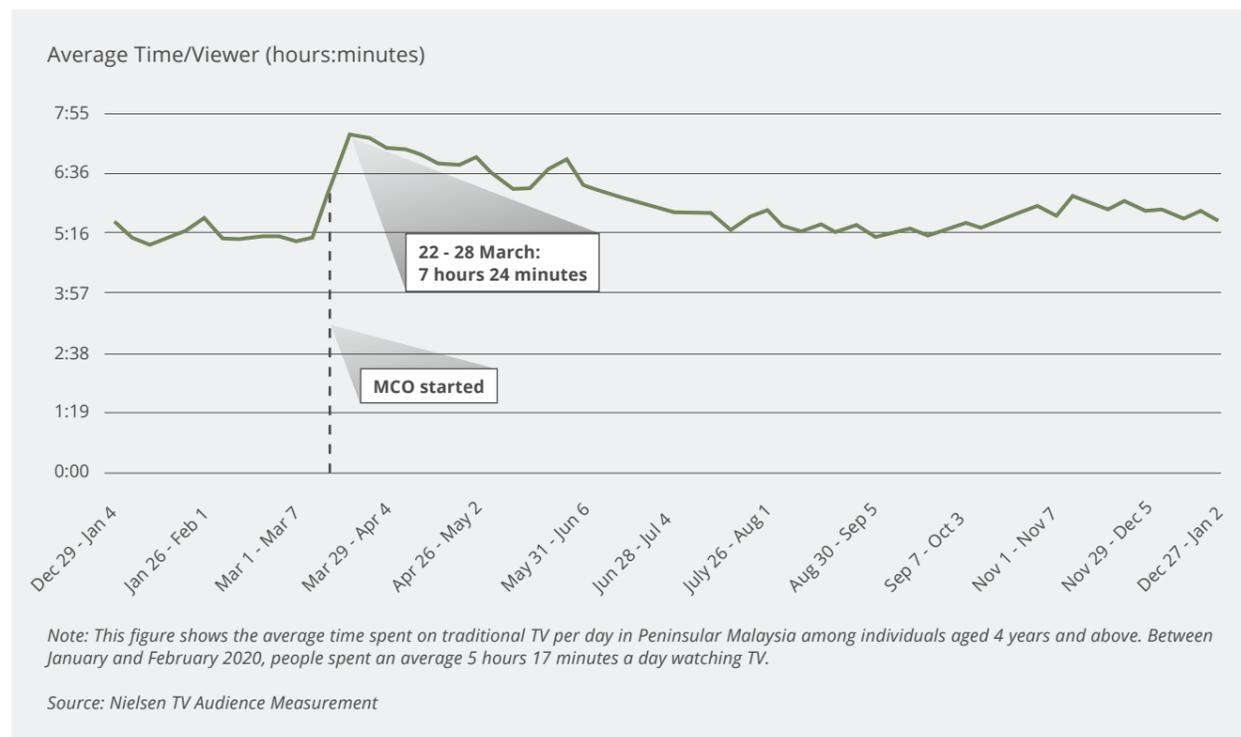
Online Content

- Media Prima content on YouTube increased by 35% while news video content increased by 80%
- Visits to video streaming service Tonton jumped 232% in sequential 7 days traffic in the third week of March 2020
- OTT mobile app daily active users growth surged, with the number for Astro GO and Tonton grew more than 80% in the third week of March vis-à-vis January 2020

Notably, media played an important role in disseminating information about COVID-19 responses. For instance, TV was identified as an important medium in providing trustworthy information during the lockdown for those seeking familiar and safe content⁸.

Figure 4.3 shows the average time spent watching traditional TV per day throughout 2020 in Malaysia. People generally spent more time watching TV when they were at home. TV viewership started to increase when the MCO was first enforced, reaching its peak of 7 hours 24 minutes between 22 and 28 March 2020 (compared to about 5 hours 17 minutes prior to the MCO). However, the trend gradually returned to normal after the MCO was relaxed and replaced with less stringent MCOs.

Figure 4.3: Average Time Spent on TV in 2020



Prior to the pandemic, advertising revenue, particularly traditional advertising, had been facing challenges from digital transformation, with year-on-year losses. In the first half of 2020, the pandemic accelerated the decline in advertising revenue, as tougher economic conditions led to advertisers being more cautious in their spending. Advertising revenue fell below RM240 million in 1Q and 2Q 2020, but bounced back in 3Q 2020 and 4Q 2020, reaching RM294 million and RM325 million, respectively.

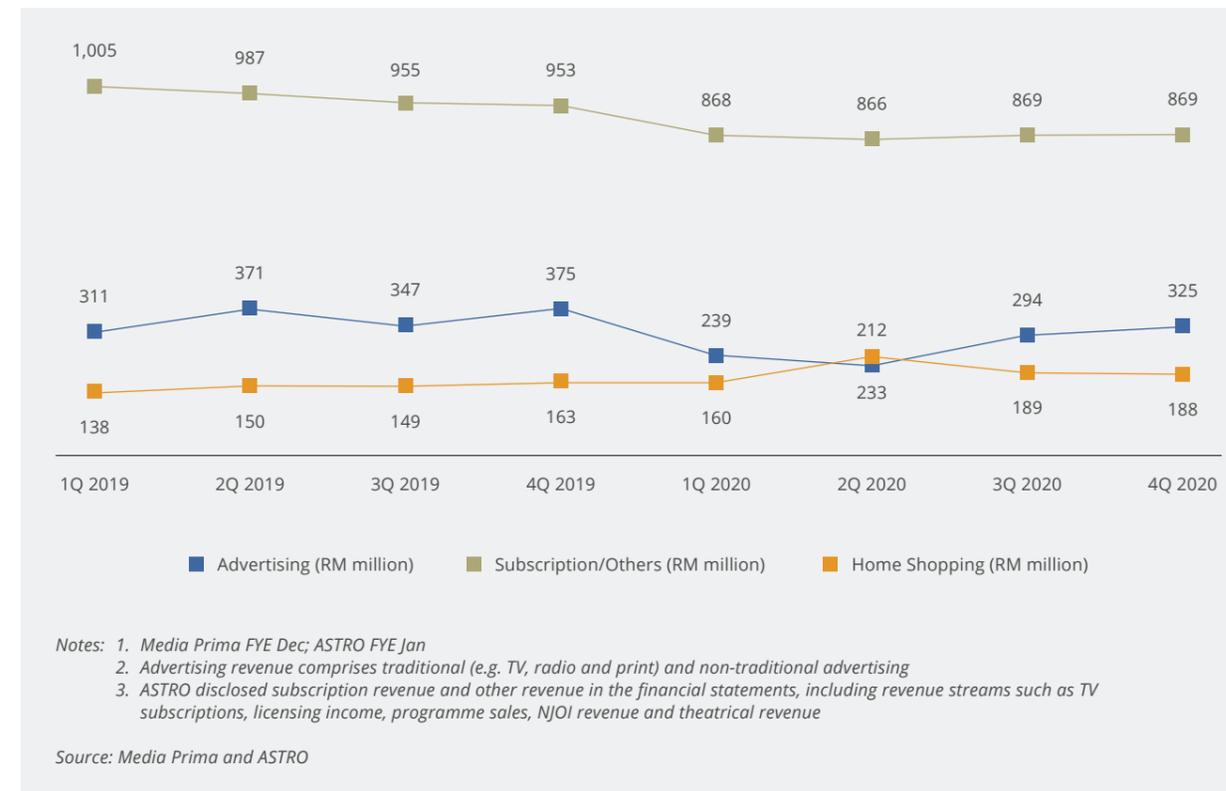
Similarly, revenue from Pay TV subscriptions decreased significantly in 2020 as consumer spending decreased. This was also due in part to the cancellation or postponement

of live events globally, particularly live sports, during the pandemic. In an effort to improve customer retention, ASTRO offered its Sports Pack customers complimentary viewing of all channels as well as a one-off rebate of RM40 per subscriber pack⁹.

On the other hand, revenue from home shopping increased significantly by 55% to RM212 million in 2Q 2020 compared to the same quarter a year earlier. The growth was attributed to higher viewership as well as the shift in consumer purchasing habits during the MCO.

Figure 4.4 shows the quarterly trends in advertising, Pay TV subscription and home shopping revenue in 2019 and 2020.

Figure 4.4: Advertising, Subscription and Home Shopping Revenue



Continuous technological disruptions in the broadcasting industry led to both Free-to-Air (FTA) and Pay TV service providers seeking other opportunities to grow their revenue. For instance, Media Prima signed content partnership deals with iQIYI, an online entertainment service from China, and WeTV, an international version of Tencent Video, in 2020. Both partnerships enabled Media Prima content on their platforms, paving the way for more access to on-demand local content offerings.

ASTRO has stated that the expansion of content distribution into overseas markets provided a significant opportunity, citing a growing number of titles chosen and showcased by various platform owners.

In 2020, ASTRO exported movies, telemovies, drama series and animation and entertainment programmes to various countries. ASTRO's Malay channels, namely Astro Ria and Prima, as well as some of its Chinese content, were licensed to platforms in Singapore. Astro's children's intellectual property, such as Didi & Friends and Omar & Hana, went global with content licensing deals in the US, Canada, Iran, the Middle East, North Africa and Europe, as well as in Southeast Asia. In line with this expansion into the international market, ASTRO believes that OTT players are interested in exploring more types of Asian content and are willing to experiment in their respective markets.

⁸ The Conversation, How coronavirus might have changed TV viewing habits for good – new research, November 2020.

⁹ ASTRO, Record Viewership but Business Impacted by Lower Adex and Subscription Revenue, June 2020.

BROADCASTING IN MALAYSIA

The digital switchover or analogue switch off was one of the primary initiatives under the Malaysian digital transformation agenda to drive the nation toward digitalisation and to gain digital dividends from the use of spectrum.

Malaysia fully embraced digital TV transmission when its FTA analogue terrestrial TV broadcasting services were completely switched off on 31 October 2019. Branded as myFreeview, digital terrestrial TV (DTT) offers more digital FTA channels with more content genres for consumer needs and interests, sharper images, high-quality sound and free interactive services.

Figure 4.5 shows the major TV offerings on different platforms in Malaysia. There are more FTA TV channels on the DTT platform as compared to the limited number of channels in analogue terrestrial TV broadcasts due to the inefficient use of spectrum. In addition to access to content such as information and entertainment on this platform, there are several channels offering TV home shopping opportunities for both audiences and retailers, as well as radio channels. These enhancements are unlikely to be experienced in analogue TV broadcasts.

Figure 4.5: Selected Major TV Offerings on Different Platforms

	Service Provider	Core Network/ Technology	Core Business Model	Service			Number of TV Channel(s)
				Content	Broadband	Voice	
Terrestrial FTA TV	Media Prima	DTT	Advertising and sponsorship	✓	✗	✗	7
	TV AlHijrah	DTT		✓	✗	✗	1
	Bername News Channel	DTT		✓	✗	✗	1
	Awesome TV	DTT		✓	✗	✗	1
	ASTRO Go Shop	DTT		✓	✗	✗	1
Satellite TV	ASTRO	DTH/Satellite	Pay TV subscription and advertising	✓	✗	✗	194, including 66 ASTRO branded channels
	ASTRO Maxis IPTV	Fibre		✓	✓	✓	
IPTV	ASTRO TIME IPTV	Fibre		✓	✓	✓	
	TM	Fibre	Telecommunications and related services	✓	✓	✓	
		ADSL		✓	✓	✓	

Notes: 1. DTT or DTTB - Digital Terrestrial TV Broadcasting; DTH - Direct to Home
2. TV AlHijrah and Bernama News Channel are government-owned

Source: Industry, MCMC

TV and Radio Channels on MyFreeview

In 2020, both public and private broadcasters offered a range of quality content in high definition (HD) and standard definition (SD) formats to Malaysian viewers, with two TV channels and eight radio channels launched on the DTT platform, namely myFreeview.

The new TV channels were "Drama Sangat", a channel that replayed drama series from Media Prima TV Networks, i.e. TV3, 8TV, ntv7 and TV9, and "Awesome TV" by Awesome Broadcasting Sdn Bhd.

The new radio channels were Sabah FM, Sabah V FM, Sarawak FM and Wai FM under RTM, while Media Prima aired all its radio stations under its group, namely Hot FM, Kool FM, Fly FM and One FM. The radio services can be expanded through myFreeview platform. Regional radio channels such as Sabah FM, Sabah V FM, Sarawak FM and Wai FM have limited radio network coverage whereby can only be accessed in East Malaysia using radio. The viewers are now able to listen to the regional radio channels on myFreeview platform, nationwide.

In addition, most of these FTA channels on myFreeview are available on multiple platforms through online and Pay TV platforms.

Figure 4.6: TV and Radio Channels on myFreeview Platform

	Service Provider					
	RTM	Media Prima	Alhijrah Media Corporation	Bername	ASTRO	Awesome Broadcasting
TV Channel	<ul style="list-style-type: none"> TV1 (HD) TV2 (HD) TV OKEY (HD) RTM Sports (HD) Saluran Berita RTM (HD) 	<ul style="list-style-type: none"> TV3 (HD) NTV7 TV8 TV9 WOWShop (Malay) WOWShop (Mandarin) Drama Sangat 	<ul style="list-style-type: none"> TV AlHijrah (HD) 	<ul style="list-style-type: none"> BNC 	<ul style="list-style-type: none"> Go Shop (HD) 	<ul style="list-style-type: none"> Awesome TV
Radio Channel	<ul style="list-style-type: none"> Nasional FM Minnal FM Traxx FM Ai FM Klasik FM Asyik FM Sabah FM Sabah V FM Sarawak FM Wai FM 	<ul style="list-style-type: none"> Hot FM Kool FM Fly FM One FM 	-	-	-	-

Note: Drama Sangat was on trial period as at 31 December 2020.
Source: MCMC

To date, viewers are able to enjoy a total of



channels on the myFreeview platform, as shown in Figure 4.6.

DIGITAL FTA CHANNELS

Media Prima

Media Prima is an integrated media group comprising TV, radio, print, content creation, out-of-home advertising and digital media. Media Prima maintains the top position in TV viewership through its four channels – TV3, 8TV, ntv7 and TV9 – compared to other TV channels such as ASTRO and RTM TV. It also owns a home shopping network, WOW SHOP.

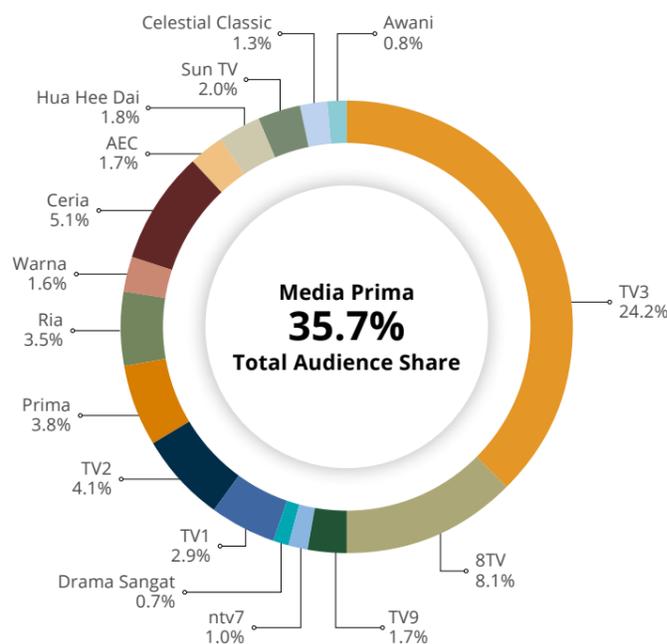
In 2020, five TV channels under Media Prima commanded 35.7% of total audience share, with TV3 remaining as the most-watched TV channel and capturing the largest audience share.

Significant content driving viewership included entertainment, news and documentaries. Content such as “I Can See Your Voice Season 3”, “M Buzz”, “Buletin Utama” and “Majalah 3” drew the attention of more than 2 million viewers.

On digital platforms, Media Prima recorded a total of 14.2 million unique visitors monthly via mobile devices in Malaysia.

Media Prima also proactively improved its integrated advertising solutions through its Omnia¹⁰ proposition. Effective April 2020, Omnia organises advertising-related solutions and the marketing and sale of advertisements across the Group’s main media platforms covering TV and radio broadcasting, publishing and advertiser content under content creation.

Figure 4.7: Media Prima Total Audience Share 2020



Source: Media Prima; Nielsen Audience Measurement 2020

¹⁰ OMNIA is an integrated solutions provider that offers creative services and integrated marketing solutions across all Media Prima platforms.

TV AlHijrah

AlHijrah Media Corporation provides an Islamic TV channel, AlHijrah, targeting both Muslim and non-Muslim viewers. In 2020, TV AlHijrah introduced several programmes such as “#QuranTime Season 2”, which was produced by TV AlHijrah in collaboration with the Department of Islamic Development Malaysia and Warisan Ummah Ikhlas.

In its efforts to provide support to businesses affected by COVID-19 and the MCO, TV AlHijrah launched a stimulus package for small and medium enterprise (SME) entrepreneurs, offering free advertising airtime slots worth RM7.65 million.

Bernama News Channel

Bernama News Channel or BNC is a news TV network. It is owned by BERNAMA, the government news agency. Prior to the implementation of the DTT platform, BNC was aired via the ASTRO and TM IPTV platforms.

Awesome TV

Awesome TV is owned by Awesome Broadcasting Sdn Bhd. The channel was launched in August 2020 with a variety of genres, both local and international. It has its own website, namely awesometv.my. Awesome TV also has a mobile app for Android users and is expanding to the App Store for iPhone users to reach out to a wider audience.

Awesome TV is currently in talks with Star Media Group for a potential collaboration in online video on demand (VOD) services for further expansion of its brand and services.

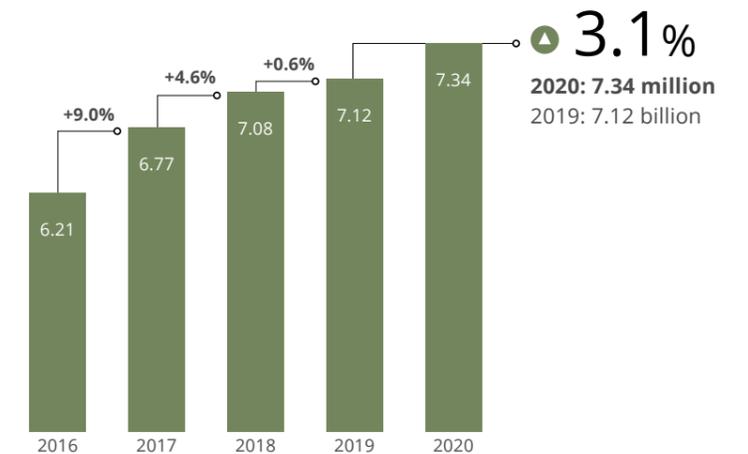
Pay TV

In Malaysia, overall Pay TV subscriptions have shown an upward trend, albeit at a slower pace, in recent years (Figure 4.8).

As at end-2020, Pay TV subscriptions increased by 3.1% to 7.34 million from 7.12 million in 2019, due to the growth of IPTV subscriptions.

In terms of household penetration, the subscriptions represented 89% or 7.33 million households.

Figure 4.8: Pay TV Subscriptions 2016 – 2020
Subscriptions (million)



Source: MCMC

ASTRO

ASTRO is a leading integrated consumer media entertainment group in Malaysia and Southeast Asia, serving a 5.69 million customer base with 74% household penetration, offering both Pay TV and a free-to-view satellite TV service under the brand name NJOI.

ASTRO believes that content is the ultimate differentiator and capability to keep ahead of the curve, spending more than RM1 billion on content every year. This huge investment is to ensure that ASTRO provides an array of content choices, from local and regional content to international content in English and sports content.

In 2020, ASTRO’s reality talent show “Gegar Vaganza” garnered a TV viewership of 3.3 million while a drama called “Perempuan Tanpa Dosa” registered a viewership of 2.1 million. The year also saw ASTRO providing various other initiatives, as follows:

<p>TV Pendidikan</p> <p>Collaborated with the government to help students continue their studies by broadcasting TV Pendidikan content from the Ministry of Education on Astro’s Tutor TV and Astro Ceria, benefitting all students, especially those without internet access.</p>	<p>Public Service Announcements</p> <p>Proactively assisted the government to disseminate important updates and discredit false news via public service announcements comprising over 12,750 hours of airtime across TV, radio and digital platforms.</p>
<p>Complimentary Viewing</p> <p>Offered complimentary viewing of selected content such as movie, news, learning and Stay Home Concert channels on ASTRO TV, NJOI and Astro GO, keeping Malaysians informed and entertained. As a result, both viewership and engagement grew across linear, On Demand and OTT platforms.</p>	<p>‘Reignite SMEs’ contest</p> <p>Supported SMEs facing unprecedented disruptions to their businesses due to the pandemic and the MCO with Astro Business Talk’s ‘Reignite SMEs’ contest. SMEs could win prizes comprising TV, radio and digital airtime spots worth up to RM1.5 million in total to promote their businesses.</p>



TM Unifi TV

TM unifi TV is an IPTV service by TM, providing up to 84 channels. Among the new channels introduced in 2020 were Love Nature HD 2, unifi Sports 1 and Yupp Thirai HD.

In 2020, TM introduced the unifi Plus Box, a new media box (Android TV box) to maximise the viewing experience, among others, as follows:

- ✓ **Providing quality entertainment content in full High Definition (HD) and 4K UHD**
- ✓ **Offering an interactive and immersive viewing experience**
- ✓ **Providing the ability to cast content from smart devices to the unifi Plus Box**
- ✓ **Offering pre-installed unifi TV apps and direct access partners such as Dimsum, BBC Player, YuppTV and Viu**

TM unifi TV undertook various campaigns throughout the MCO period to encourage viewers to continue watching unifi TV. The campaign, among others, offered a 20% discount on all Video on Demand (VOD) titles in its HyppFlicks Plus pack, including 3D movies, from 21 March to 30 April 2020.

Sirius TV

Sirius TV is a satellite Pay TV provider operated by Smart Digital International Sdn Bhd. In 2020, Sirius TV has negotiated and added about 35 channels to its channel banks. In addition, Sirius TV is developing local content through commissioning new programmes and in house productions such as news channel Sirius Media and Home Shopping Bazaar channel.

Due to COVID-19 pandemic situation, Sirius TV plans to officially launch its service in 2021.

NATIONAL BROADCASTING DIGITALISATION PROJECT

Digital Terrestrial Television (DTT) Broadcasting Infrastructure Deployment

Implementation of Frequency Restacking Nationwide

One of MYTV Broadcasting Sdn Bhd's (MYTV) commitments was to conduct a frequency restacking exercise upon the completion of the analogue switch off on 31 October 2019. This was in line with the government's plans to prepare the 700 MHz band for high-speed broadband services or 5G.

The myFreeview Digital Broadcast is transmitted over two frequencies (Multiplexer A and Multiplexer B) from transmission stations. The restacking exercise involved changing a single frequency or both frequencies based on the transmission stations and was conducted in phases.



A pilot frequency restacking exercise was conducted at the Gunung Raya transmission station, Langkawi on 6 January 2020. Following the success of the pilot exercise, MYTV completed the exercise in a further 17 transmission stations by 15 March 2020. However, the restacking exercise, initially scheduled for completion in April 2020, had to be rescheduled following the announcement of the MCO. The frequency restacking exercises at the remaining five transmission stations were completed by the end of June 2020.

Figure 4.9: Frequency Restacking Exercise

No.	Phase	Transmission Station	State	Date	
1.	Pilot	Gunung Raya	Kedah	6 Jan 2020	
2.	Phase 1	Bukit Fraser	Pahang	4 Feb 2020	
3.		Gunung Ulu Kali	Pahang	6 Feb 2020	
4.		Bukit Sungai Besi	Kuala Lumpur	11 Feb 2020	
5.	Phase 2	Menara KL	Kuala Lumpur	13 Feb 2020	
6.		Bukit Tinggi	Johor	18 Feb 2020	
7.	Phase 3	Gunung Jerai	Kedah	18 Feb 2020	
8.		Gunung Ledang	Johor	20 Feb 2020	
9.		Seberang Jaya	Pulau Pinang	20 Feb 2020	
10.		Penang U4	Pulau Pinang	21 Feb 2020	
11.		Bukit Tampin	Negeri Sembilan	25 Feb 2020	
12.		Phase 4	Bukit Larut	Perak	25 Feb 2020
13.			Gunung Kledang	Perak	27 Feb 2020
14.	Phase 5	Kuala Rompin	Pahang	8 Mar 2020	
15.		Pulau Pangkor	Perak	8 Mar 2020	
16.	Phase 6	Pelangi	Johor	9 Jun 2020	
17.		Skudai	Johor	10 Jun 2020	
18.		Gunung Pulai	Johor	11 Jun 2020	
19.		Bukit Bauk	Terengganu	16 Jun 2020	
20.		This phase involved changes of frequency under Multiplexer C. During the restacking exercise, the viewers were not required to rescan/retune their receivers	Bukit Bintang	Terengganu	11 Mar 2020
21.			Bukit Bakar	Kelantan	13 Mar 2020
22.	Telipot		Kelantan	15 Mar 2020	
23.		Bukit Karatong	Sabah	24 Jun 2020	

Source: MCMC

Awareness Programme Leading to Frequency Restacking Exercise

In ensuring viewers were well informed about the frequency restacking exercise, parties such as MCMC, MYTV, Jabatan Penerangan Malaysia, KKMM and FTA broadcasters participated in the establishment and promotion of a frequency restacking communications campaign.

The communications were disseminated through various platforms, such as public service announcements (PSAs) on TV and radio, press releases, social media, flyer distribution, local announcements and digital infographics.

MYTV uploaded infographics information in several languages (Bahasa Malaysia, English, Mandarin and Tamil) on the MYTV website and on MYTV's Facebook page (MYTV Broadcasting) to guide viewers in tuning in to the new frequencies by rescanning their decoders or Integrated Digital TVs (IDTVs), either automatically or manually.

Viewers were also encouraged to put their decoders or IDTVs on standby mode to allow for auto-tuning, which automatically accepted all myFreeview Digital TV channels. The same information was also disseminated to viewers through infographic videos, aired on TV platforms.

Viewers affected by the exercise who required further assistance or clarification were advised to contact MYTV's toll-free Customer Careline at 1800-18-1088.

Figure 4.10: Rescanning Guide

Freeview DIGITAL TV CHANNEL SEARCH GUIDE

STEP 01 Press the "MENU" button on your remote control

STEP 02 Choose Auto Search Channel OR Manual Search Channel (Please enter your area frequency and press ok)

STEP 03 Please wait until the search has been completed

STEP 04 Enjoy myFreeview Digital TV broadcast!

**You are encouraged to put the decoder on standby mode when you are not watching myFreeview.*

More information at www.myfreeview.tv | Customer Careline 1800-18-1088

F. A. Q.

Why is a change of frequency needed?
This process is in line with the Malaysian Communications and Multimedia Commission's (MCMC) plans to prepare the 700 MHz band for broadband services or 5G. This will involve the change in one or two of the frequencies based on the transmission towers.

When will upgrading works on the Digital Television Broadcast System begin?
MYTV will perform upgrading works on the Digital Television Broadcast System/Digital Terrestrial Television System in stages throughout the first quarter of 2020. It will involve only 23 of the 44 transmission stations in this switch. Please refer to our website at www.myfreeview.tv for information on the channels involved.

How do we receive the new frequencies?
myFreeview digital broadcast signals are relayed through two frequencies from the transmission station. To receive myFreeview Digital Broadcast, a DVB-T2 decoder or Digital TV MUST receive the digital signal from transmission towers nearby through an UHF antenna installed correctly. You may scan for the signal automatically or manually. We recommend re-scanning for the new frequencies automatically for an optimum experience. However, if there is a need to do a manual search, you will have to re-scan on both frequencies. Please refer to www.myfreeview.tv for more information on the frequencies.

How to re-scan?
Follow the steps to re-scanning your DVB-T2 decoder or IDTV on the other page. Please contact the MYTV Customer Service Centre at 1800-18-1088 for more information.

More information at www.myfreeview.tv | Customer Careline 1800-18-1088

Source: MYTV

During the frequency restacking exercise period, notices were posted on various platforms such as TV and social media, informing viewers of each of the phases, as shown in Figure 4.11:

Figure 4.11: Frequency Restacking Exercise Notices

Phase 1

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
4 FEBRUARI	BUKIT FRASER	KAWASAN UTARA SELANGOR DAN KAWASAN BARAT PAHANG
6 FEBRUARI	GUNUNG ULU KALI	LEMBAH KLANG, TIMUR SELANGOR, KAWASAN BARAT PAHANG

MASA 1:00 PAGI - 6:00 PAGI
Bagi penonton siaran tv digital myfreeview, sekiranya anda mengalami masalah penerimaan siaran, sila lakukan penalaan semula dekoder atau IDTV anda.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Phase 2

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
11 FEBRUARI	BUKIT BESI	LEMBAH KLANG, SEBAHAGIAN SELANGOR
13 FEBRUARI	MENARA K.L.	LEMBAH KLANG, SEBAHAGIAN SELANGOR

MASA 1:00 PAGI - 6:00 PAGI
Bagi penonton siaran tv digital myfreeview, sekiranya anda mengalami masalah penerimaan siaran, sila lakukan penalaan semula dekoder atau IDTV anda.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Phase 3

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
18 FEBRUARI	BUKIT TINGGI	JOHOR TIMUR
18 FEBRUARI	GUNUNG JERAI	UTARA PERAK & SELATAN PERLIS, SEBAHAGIAN KEDAH
20 FEBRUARI	GUNUNG LEDANG	JOHOR TENGAH & UTARA, MELAKA & SELATAN N. SEMBILAN
20 FEBRUARI	SEBERANG JAYA	KESELURUHAN SEBERANG JAYA
21 FEBRUARI	PENANG U4	GEORGETOWN, BAYAN LEPAS & SEBERANG PRAI

MASA 1:00 PAGI - 6:00 PAGI
Bagi penonton siaran tv digital myfreeview, sekiranya anda mengalami masalah penerimaan siaran, sila lakukan penalaan semula dekoder atau IDTV anda.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Phase 4

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
25 FEBRUARI	BUKIT TAMPIN	SEBAHAGIAN NEGERI SEMBILAN & MELAKA
25 FEBRUARI	BUKIT LARUT	PERAK UTARA & PENANG SELATAN
27 FEBRUARI	GUNUNG KLEDANG	PERAK TENGAH, TIMUR & UTARA

MASA 1:00 PAGI - 6:00 PAGI
Bagi penonton siaran tv digital myfreeview, sekiranya anda mengalami masalah penerimaan siaran, sila lakukan penalaan semula dekoder atau IDTV anda.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Phase 5

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
8 MAC	KUALA ROMPIN	KESELURUHAN ROMPIN & SEBAHAGIAN MERISING UTARA
8 MAC	PULAU PANGKOR	KESELURUHAN PULAU PANGKOR & SEBAHAGIAN MANJONG & LUMUT

MASA 1:00 PAGI - 6:00 PAGI
Bagi penonton siaran tv digital myfreeview, sekiranya anda mengalami masalah penerimaan siaran, sila lakukan penalaan semula dekoder atau IDTV anda.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Phase 6

KERJA-KERJA PENYUSUNAN SEMULA FREKUENSI SIARAN TV DIGITAL myFreeview

TARIKH	PEMANCAR	KAWASAN
9 JUN	PELANGI	KESELURUHAN JOHOR BAHRU & PASIR GUDANG
10 JUN	SKUDAI	KESELURUHAN SKUDAI
11 JUN	GUNUNG PULAI	KESELURUHAN JOHOR TENGAH & SELATAN
16 JUN	BUKIT BAUK	DUNGUN, BUKIT BESI & KETENGAH

MASA 1:00 PAGI - 6:00 PAGI
Sila pastikan dekoder atau IDTV anda berada di dalam keadaan 'standby mode'. Sekiranya anda mengalami masalah penerimaan siaran, lakukan penalaan semula.
Hubungi 1800-18-1088 untuk bantuan lanjut.

Source: MYTV

RADIO LISTENERSHIP IN MALAYSIA

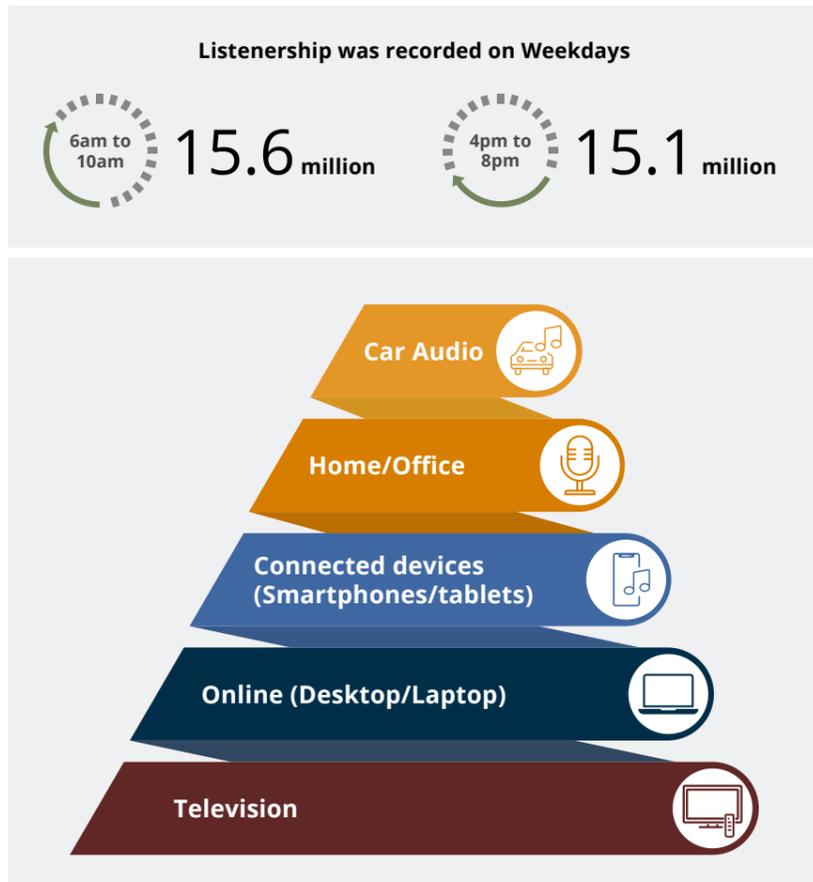
Radio remains a popular medium for listeners and is still relevant in the digital age. In Malaysia, traditional radio continues to effectively reach listeners. Based on GfK Radio Audience Measurement (RAM) Survey Wave 2, conducted from September to October 2020, 93.6% or 20.3 million listeners aged 10 years and above in Peninsular Malaysia tune in to their favourite radio stations on a weekly basis.

GfK¹¹ is Germany's largest market research institute and the fourth-largest market research organisation in the world, after Nielsen Company, Kantar Group and Ipsos.

According to the survey, the highest listenership was recorded on weekdays, from 6am to 10am and from 4pm to 8pm, with a total listenership of 15.6 million and 15.1 million, respectively. This indicated that most people listened to the radio while commuting from home to work or vice versa during the morning and evening rush hours.

The findings of the study also revealed that listening to the radio at home increased during the MCO in Malaysia, while industry feedback indicated that listening to the radio at home became the second choice after listening in vehicles.

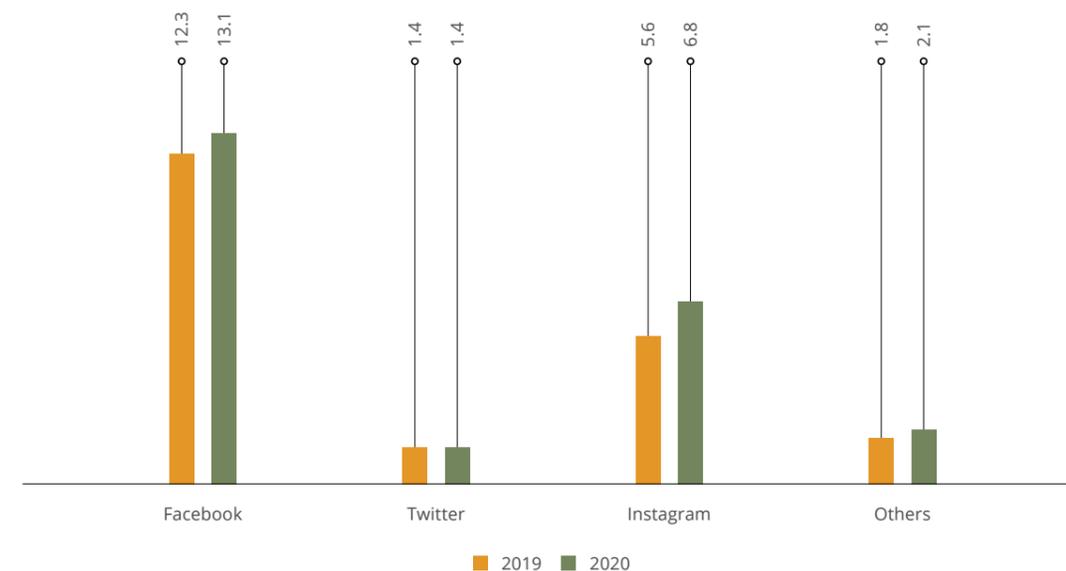
According to OpenSignal, 30.5% of Malaysian mobile users were connected to WiFi between 16 and 22 March (during the MCO), which was a 9.7% increase week-on-week. Furthermore, 23.5% higher internet traffic (fixed and mobile broadband) was recorded nationwide during the first week of the MCO, while the second week of the MCO saw a further increase of 8.6%.



Subsequently, radio broadcasters leveraged the increasing use of the internet as well as smartphones by increasing their audience reach through digital media. For example, Astro Radio's digital presence achieved 331.2 million in total reach with a 60% increase in monthly video views and a 36% increase in digital streams. During the survey period, Astro Radio's monthly reach on Facebook was 102 million, with monthly average website page views of 11.2 million.

ASTRO continued to strengthen its brand by increasing audience engagement through social media. In 2020, ASTRO recorded an increase in the number of followers on its social media platforms such as Facebook, Twitter and Instagram, compared to 2019.

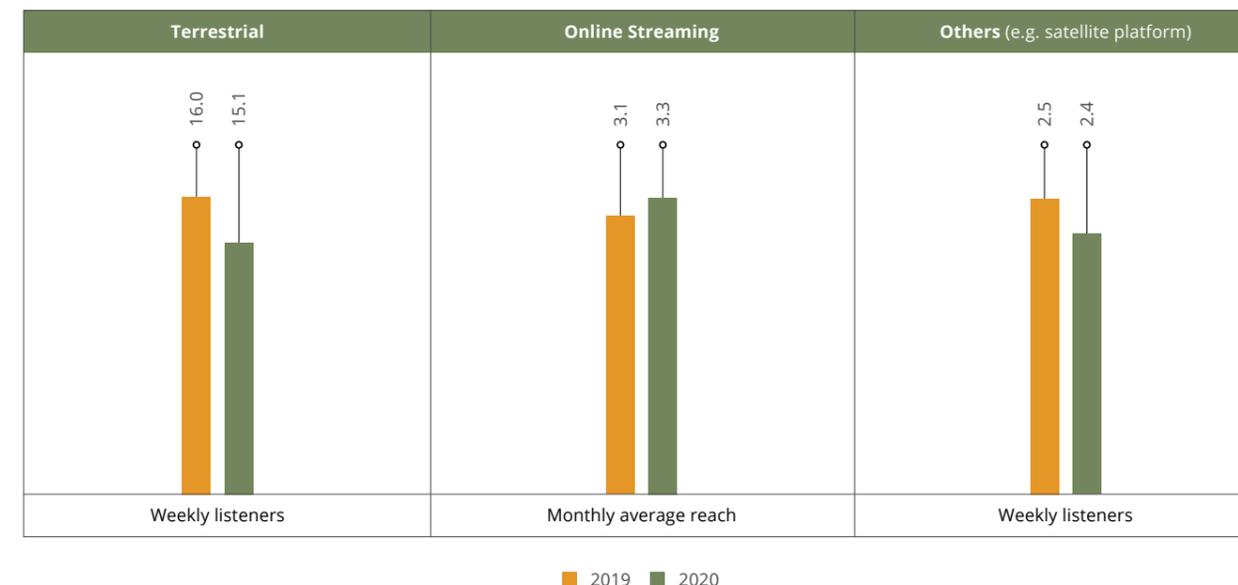
Figure 4.12: Total Number of ASTRO Radio Social Media Followers 2019 – 2020
Number of Followers (million)



Source: Industry

In addition, ASTRO continued with its strategy of growing its digital listenership and engagement for both its mobile app and website platforms. The mobile app offering was enhanced and improved in terms of both content and app features. The mobile app saw a 50% increase in Monthly Active Users while digital listening for app and web sessions increased by 29% from 14.2 million to 18.3 million during the same period.

Figure 4.13: ASTRO's Reach in Radio Listenership
(million)



Source: Industry

¹¹ GfK is Germany's largest market research institute and the fourth-largest market research organisation in the world, after Nielsen Company, Kantar Group and Ipsos.



In 2020, RIPPLE radio continued to reach listeners through a variety of digital platforms. As at 31 December 2020, RIPPLE recorded a total digital listenership of 95 million and page views of 61 million. RIPPLE also logged 12.7 million social media followers and a total of 1.23 billion video views. Moreover, with the objective of expanding its reach to listeners, RIPPLE partnered with Dable, a content discovery platform, to provide a personalised content recommendation solution, thereby providing RIPPLE with a deeper understanding of its listeners' habits.

In a related development, Star Media Group collaborated with Triton Digital¹² to deliver its online radio stations, including 988 FM and SURIA FM, on the Triton audio streaming network. Triton's ad server will be leveraged by Star Media Group to dynamically integrate highly targeted audio ads into its streams. In order to make its online content available, Star Media Group will use Triton's Webcast Metrics and Podcast Metrics measurement services and the Omny Studio podcast management framework to create podcast content for its broadcast feeds. In addition, Omny Studio will allow Star Media Group to deliver its content to viewers through a variety of devices and channels, including smartphones, smart devices and others.

Moving forward, the radio industry will continue to progress as a medium of choice among the community, despite facing many challenges today such as digitalisation and further technological advancements. Radio, among other things, plays a vital role in providing useful and up-to-date information to the community. Apart from that, radio serves as the best source of music entertainment, public service announcements (PSAs), news, current affairs, talk shows and traffic information for listeners.

In 2020, ASTRO also recorded an increase in digital listenership, with a total monthly average reach of 3.3 million compared to 3.1 million in 2019.

Radio broadcasters have pursued digital initiatives to remain relevant as a result of the digital transformation in radio listening, such as by delivering high-quality music streaming services, internet radio and podcasts via websites and smartphone apps. Through these efforts, radio broadcasters are hopeful that they will generate fresh digital channel revenue streams and thus increase profitability. IKIM FM, for example, promotes Islamic content, focusing its strategies on enhancing digital listenership by improving its digital media platform and setting up a new Digital Media Unit.

Media Prima has diversified its radio listenership through multiple platforms including a digital platform called RIPPLE (formerly known as Media Prima Radio Networks), representing four radio stations, namely Fly FM, Hot FM, One FM and Kool FM and including the Ais Kacang podcast. RIPPLE combines digital media, broadcasting and commerce to grow digital and consumer revenue as its main objective. It connects with audiences through music, entertainment and lifestyle, using a mass approach and customised connections with audiences, creating a more personal experience.

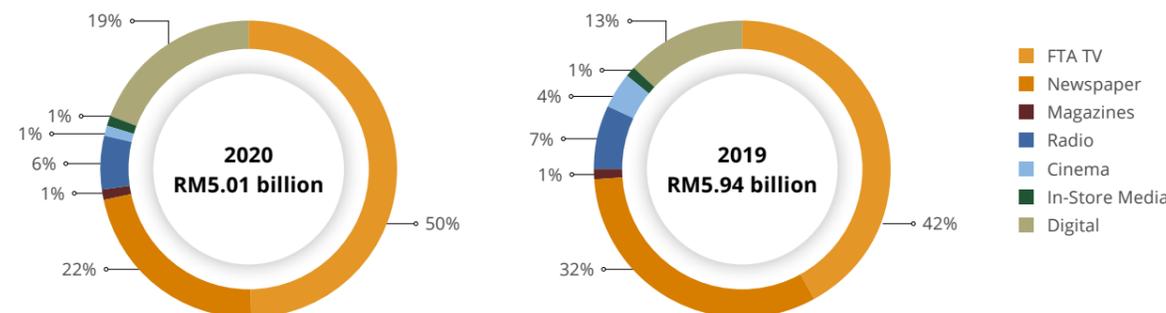
RIPPLE is continuously exploring new revenue opportunities and provides a more holistic solution for advertisers who want to connect with specific audiences across different platforms. It is poised to drive growth by leveraging the strength of its digital brands and massive reach to create new revenue opportunities and target new consumer groups.

¹² Triton Digital, LLC, formerly Triton Media Group, is a digital audio technology and advertising company based in Los Angeles.

MALAYSIAN ADVERTISING EXPENDITURE

According to Nielsen, Malaysian advertising expenditure (ADEX) in 2020 totalled RM5.01 billion, a decrease of 15.7% compared to the previous year (2019: RM5.94 billion). This decrease was attributed to the decline in several key components, including newspapers, which recorded a decrease of 42% to RM1.09 in 2020 (2019: RM1.87 billion).

Figure 4.14: Malaysian ADEX Market Share Comparisons 2019 – 2020



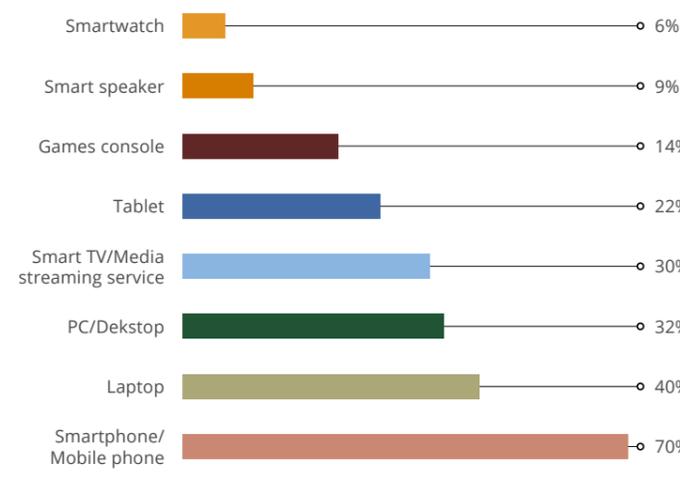
Source: Nielsen

In addition, magazines and radio recorded a decrease in ADEX in 2020. These two components recorded a decrease of 38.9% and 25.9% to RM29 million and RM325 million, respectively. The most significant decline was in cinema advertising, which fell by 75.2% to RM54.5 million (2019: RM219.6 million). This decrease was caused by the Malaysian government's decision to close cinemas almost entirely throughout 2020 as one of the measures to curb the spread of the COVID-19 pandemic.

However, in 2020, digital advertising had gained ground among advertisers. Digital ADEX recorded a total of RM933 million, which was an increase of 19.4% compared to RM781 million in 2019.

Advertising on digital mediums is a preferred choice as the consumer reach is wider, particularly when there is an increase in the use of devices. During the pandemic, device usage surged as technology adoption was accelerated toward adapting to the new normal, which included social distancing and spending more time at home. Notably, the increase in device usage in Malaysia was in line with the increase in device usage globally.

Figure 4.15: Coronavirus Impact: Increase in Global Device Usage



Source: Statista

According to Statista, the effects of the COVID-19 pandemic led to an increase in the global usage of smartphones and laptops by 70% and 40%, respectively. The usage of smart TV also showed a significant hike of 30%, followed by tablets (22%) and game consoles (20%).

AdExchanger's research report on the 2020 industry outlook entitled "How COVID-19 Reset Digital Marketing" found that the pandemic had an impact on advertisers, with almost 74% of advertisers expecting to either increase or maintain their digital ad investments in the second half of 2020 compared to the first half of the year. Therefore, the pandemic has changed the advertising landscape in Malaysia to some extent. Advertisers are now more focused on maximising the usage of digital mediums that are able to reach audiences more broadly and effectively.

This chapter examines the growth of e-commerce and e-payment services as a result of increased internet coverage and broadband penetration rate. It highlights the surge in demand for both services due to the impact of COVID-19 and the MCO in Malaysia. This chapter also discusses the development of Public Key Infrastructure and the number of Digital Certificates issued in 2020.

CHAPTER 5 :

DIGITAL SERVICES

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KEY HIGHLIGHTS IN 2020



MALAYSIA E-COMMERCE VALUE

24.8%
RM30.2 billion
(2019: RM24.2 billion)



DOMINATED
the e-commerce market
in Malaysia

- ✓ SHOPEE
- ✓ LAZADA
- ✓ PG MALL

TOP POPULAR ITEMS PURCHASED



Food and groceries



Personal hygiene products



Household cleaning products



Malaysia recorded a total of **1,504.7 MILLION** transactions via internet banking, with a total value of **RM8,858 BILLION**



To date, Malaysia has **SIX BANKS** and **48 NON-BANK** electronic money (e-money) issuers serving a population of 32.7 million

Top e-payment services

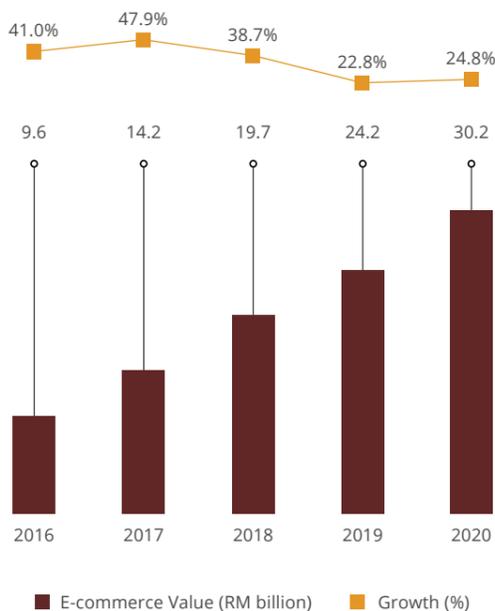


82.4%
Touch 'n Go

66.7%
Boost

49.5%
GrabPay

Figure 5.1: Malaysia e-Commerce Value 2016 – 2020



e – estimated
Source: GlobalData

E-COMMERCE IN MALAYSIA

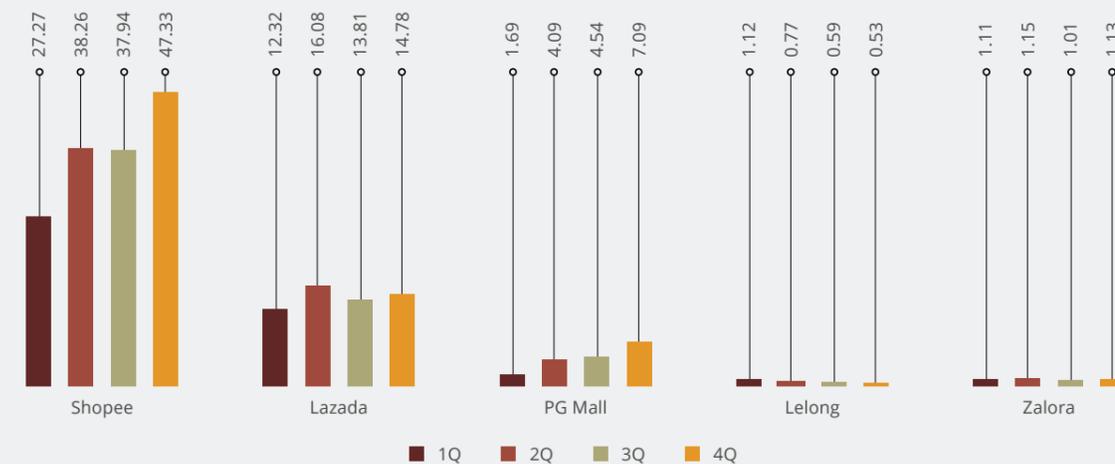
Malaysia has a high rate of e-commerce adoption, which was supported by a large population of 32.73 million in 2020, as well as 4G internet coverage of up to 92% of the population coverage area. According to GlobalData, e-commerce in Malaysia recorded a total of RM30.2 billion as at end-2020, an increase of 24.8% compared to RM24.2 billion in 2019.

Top e-Commerce Marketplaces in Malaysia

Shopee, Lazada and PG Mall continue to dominate the e-commerce market in Malaysia. Shopee recorded the highest number of visits with a total of 150.8 million in 2020, followed by Lazada and PG Mall with 56.9 million and 17.4 million, respectively. Various events contributed to the high number of visits to these e-commerce sites, including national shopping events such as the Malaysia Super Sale (1 – 31 March), Malaysia Mega Sale Carnival (15 June – 31 August) and Malaysia Year-End Sale (1 November – 31 December). Additionally, e-commerce sites including Shopee and Lazada also conducted their own sales campaigns such as the 11.11 or “One Day Sale” and 12.12 “Birthday Sale”. During the 12.12 sales campaign period, 12 million orders were recorded across seven markets in Southeast Asia and Taiwan within the first 24 minutes of the sale.

Figure 5.2: Total Site Visits to e-Commerce Sites

Monthly Web Visits (million)



Source: iPrice Group

Popular Items Purchased

Through effective campaign strategies, Shopee and Lazada recorded encouraging sales, with Lazada reaching 1 million items sold within the first hour of its 11.11 One Day Sale and Shopee selling 1 million items by 2pm on the same day. According to a survey conducted by Rakuten Insight in Malaysia, as at May 2020, 55% of the respondents had purchased food and grocery items online. A separate study on online purchases by Janio and vase.ai¹³ showed that more than two-thirds (69%) of Malaysians purchased essential food and household items, while 27% bought items such as skincare products, health supplements, DIY tools and other items such as home-related products.

11.11 One Day Sale

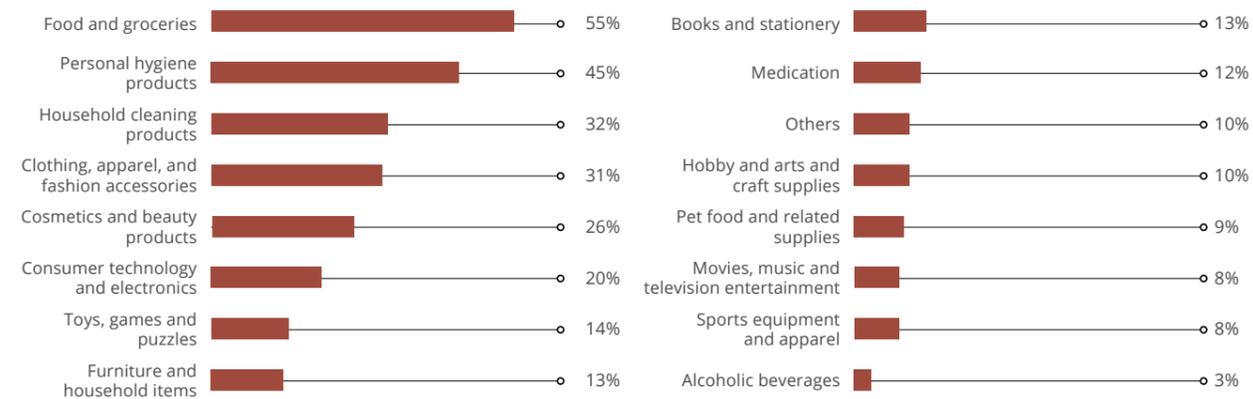


1 million items sold **within the first hour**



1 million items sold **by 2pm on the same day**

Figure 5.3: Popular Items Bought Online



Note: Personal hygiene products include toilet paper, hand sanitisers and masks; food and groceries include non-alcoholic beverages.
Source: Statista

¹³ A market research technology company.



▲ **70%**

Facebook recorded the highest growth in product discovery, followed by

Instagram ▲ **48%**

Pinterest ▲ **28%**

Additionally, consumer interest in purchasing the products or services also increases if the product or service is reviewed by an influencer with a large number of followers. According to Tomoson¹⁴, using an influencer in advertisements can provide a company with a return on investment (ROI) of up to USD6.50 for every dollar spent.

Given that consumers spend more time on social media than on any other online activity, these surveys offer new insights into social media's growing and changing role in digital commerce.

In 2020, another factor contributing to the increase in online shopping was the implementation of the MCO by the Malaysian government to curb the spread of COVID-19. During the MCO, people's movements were restricted and they spent most of their time at home, while the SOPs imposed on commercial activities and social distancing measures limited the number of people in shopping premises. This disrupted consumers' behaviour and led to a gradual shift toward online shopping, with more products, including daily necessities, being purchased online.

What Motivates Consumers to Purchase Online

Consumer confidence in online shopping is attributed to the ability of suppliers to supply goods according to consumers' expectations, answer queries about the products and provide product quality assurance and a variety of payment options. In addition, feedback and ratings from previous buyers, coupled with easier return processes and money-back guarantees for damaged products, influence consumers' purchase decisions.

Apart from this, social media platforms like Facebook and Instagram play an important role in e-commerce development. Through these platforms, consumers obtain additional information about the products and goods they want to purchase. According to a study conducted by Curalate, Facebook recorded the highest growth in product discovery, with an increase of up to 70%, followed by Instagram and Pinterest at 48% and 28%, respectively.

Purchasers' comments on or reviews of a particular product on social media or other electronic platforms (i.e. electronic word of mouth or eWOM) contribute to a positive effect on consumer purchasing interest. Specifically, a survey by Statista found that 78% of online shoppers stated that reviews from other consumers on products they had bought were very helpful in their purchase decisions.

¹⁴ A marketing firm.

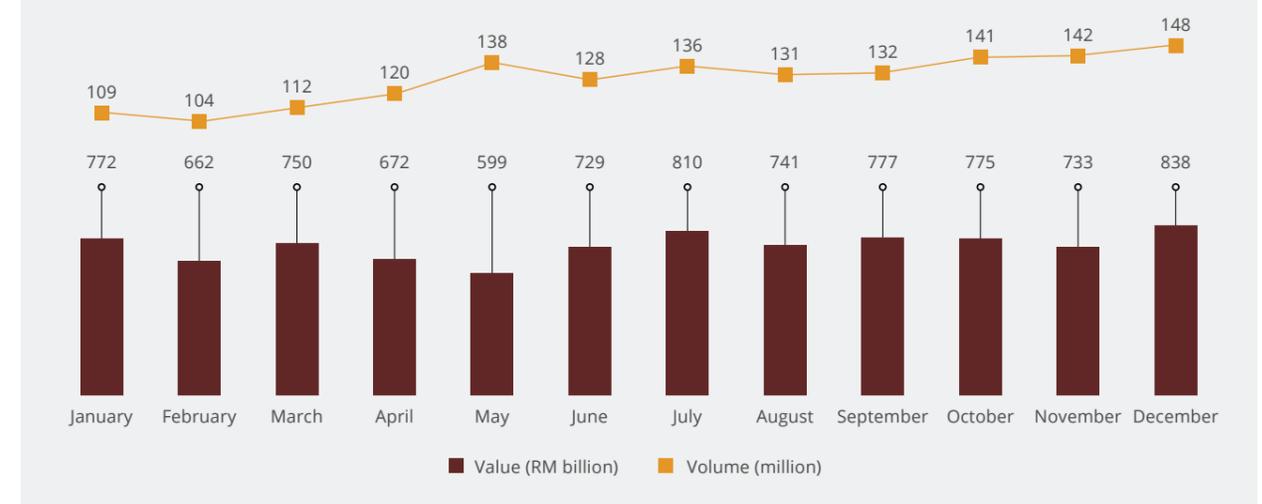
E-PAYMENT SERVICES IN MALAYSIA

Usage of e-payment services grew significantly during the year 2020. According to Bank Negara Malaysia, although the pandemic and movement restrictions triggered a decline in economic activities, the total number of e-payment transactions continued to record double-digit growth of 14% to 5.5 billion transactions in 2020. On average, a person in Malaysia made 170 e-payment transactions in 2020, up from 150 transactions in 2019. In contrast, the usage of cheques and cash declined in 2020, as evidenced by a reduction of 29% in the number of cheques cleared, amounting to a decrease of 59.9 million from 2019. Similarly, cash withdrawn from

automated teller machines (ATMs) declined to 768.7 million transactions in 2020, down 9% compared to 2019.

The main features of e-payment services, i.e. that they are faster, safer and more convenient, were key drivers in the shift in consumer preferences toward contactless and online payment methods for daily activities. These features helped to minimise contact and reduce the need for visits to physical premises. In addition, each e-payment transaction is recorded, which results in better budgeting as it enables people to keep track of their daily expenditure.

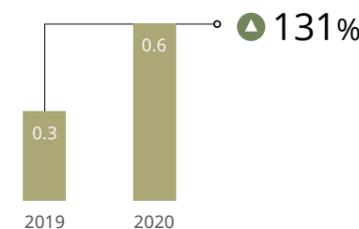
Figure 5.4: Total Number of Monthly Transactions and Value of Internet Banking in 2020



Source: Bank Negara Malaysia

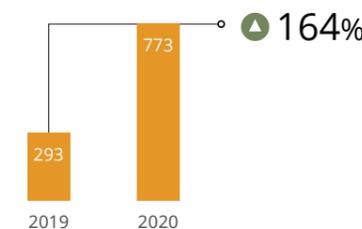
As observed in Figure 5.4, the volume of transactions has been trending marginally upward since February 2020. In 2020, Malaysia recorded a total of 1,504.7 million transactions via internet banking with a total value of RM8,858 billion. This upward trend is expected to continue in 2021, in line with GlobalData's prediction of a 20% increase in the e-commerce market, with a total value of RM36.1 billion.

Figure 5.5: E-Wallet Transactions 2019 - 2020
Transaction Volume (billion)



Source: Bank Negara Malaysia

Figure 5.6: Merchant Registration for QR Acceptance 2019 - 2020
Registration Volume ('000)

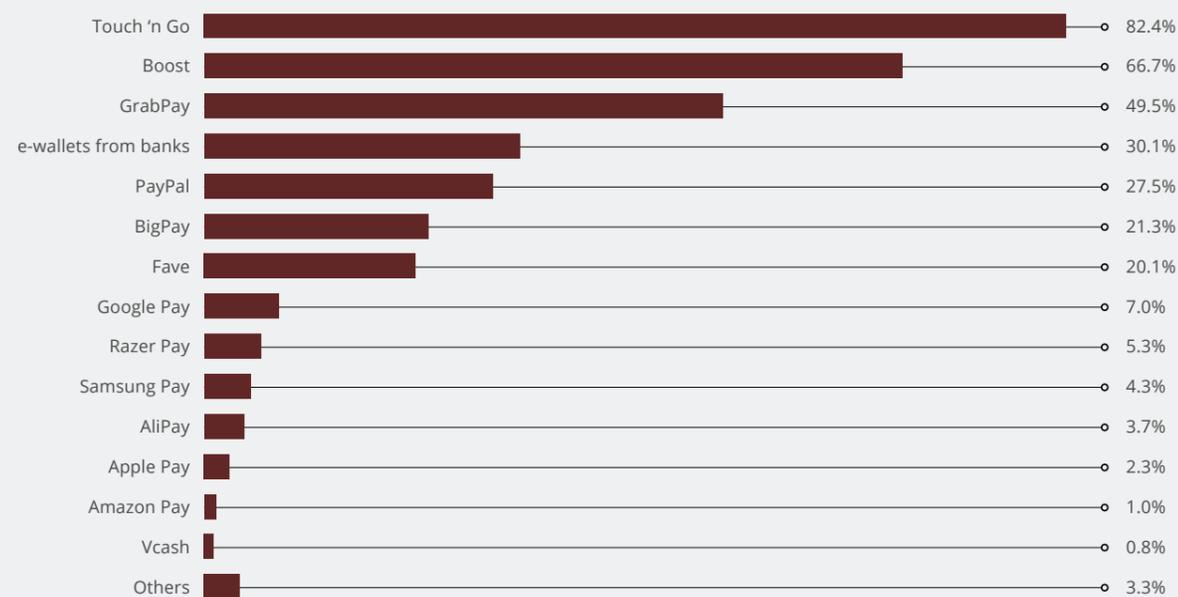


Source: Bank Negara Malaysia

According to data from Bank Negara Malaysia's annual report for 2020, e-wallet transactions increased by 131% to 0.6 billion transactions (2019: 0.3 billion). The growth in e-wallet transactions was attributed to more merchants accepting quick response (QR) code payments, which resulted in a 164% increase in registration volume to 773,484 as at end-2020, up from 292,969 in 2019.

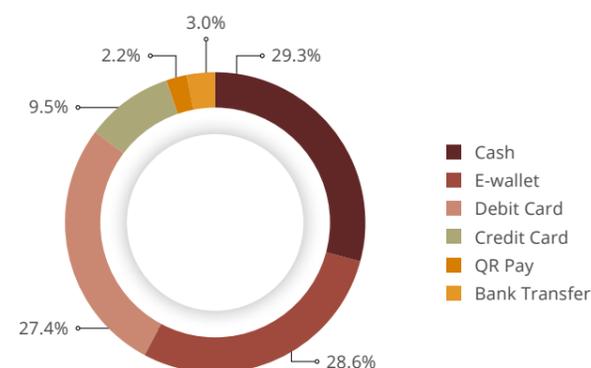
To date, Malaysia has six banks and 48 non-bank electronic money (e-money) issuers serving a population of 32.7 million. According to a survey on e-payment usage by Rakuten Insight, 82.4% of e-payment users indicated that they used Touch 'n Go for e-payment transactions, followed by Boost at 66.7% and GrabPay at 49.5%. These three were the most preferred e-wallet platforms for the year 2020.

Figure 5.7: Major e-Payment Services in 2020



Source: Rakuten Insight

Figure 5.8: Malaysians' Preferred Payment Methods During the MCO



Source: Netizen eXperience

A survey conducted by Netizen eXperience (NX) found that during the MCO, most Malaysians (29.3%) still preferred to use cash as a payment option, surpassing e-wallets (28.6%) and debit cards (27.4%). This was due to its widespread acceptance in stores and the assumption that it was easier to control spending by using cash. However, industry players anticipate a further increase in online and offline-to-online e-wallet payment adoption even after the resumption of social and business activities when the MCO runs its course, indicating positive momentum in the shift of consumer behaviour toward digital adoption.

PUBLIC KEY INFRASTRUCTURE

Public key infrastructure (PKI) is defined as the technology used for device authentication in digital networks. According to Thales¹⁵, 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".

PKIs establish the identity of individuals, devices and services, allowing for controlled access to systems and resources, data protection and transaction accountability. Nowadays, businesses are becoming more aware of the importance of PKIs in ensuring legitimacy and high assurance. PKIs use digital certification to bind public keys to their associated user (the owner of the private key).

The digital certificates issued by a certificate authority are used as credentials to enable users to verify identities in a transaction. In this ecosystem, digital certificates are used to identify the users to whom the encrypted information is transmitted or to verify the identity of the data signer.

Certificate Authorities in Malaysia

Historically, the use of PKIs dates back to the development of government initiatives such as e-government and e-commerce, as well as the development of the C&M industry through cyber laws including the Digital Signature Act 1997, with the objective of supporting the government's goal in driving the Information, Communications and Technology (ICT) sector.

Nowadays, the use of PKIs has become increasingly relevant in line with the rapid development of the digital economy. The MCMC continues to empower a trusted ecosystem through the PKI system provided by certificate authorities to support the digital transformation of both the public and private sectors.

Currently, there are four licensed certificate authorities responsible for issuing and managing legally binding certificates and providing various professional online security solutions, namely Pos Digicert Sdn Bhd (Pos Digicert), MSC Trustgate Sdn Bhd (MSC Trustgate), Telekom Applied Business Sdn Bhd (TAB) and Raffcomm Technologies Sdn Bhd.

Figure 5.9: Digital Certificate Issuances 2019 – 2020

	2019	Market Share	2020	Market Share
MSC Trustgate Sdn Bhd	961,170	6.96%	1,030,377	6.65%
Pos Digicert Sdn Bhd	12,813,053	92.77%	14,408,009	93.04%
Raffcomm Technologies Sdn Bhd	26	0.00%	173	0.00%
Telekom Applied Business Sdn Bhd	37,081	0.27%	47,582	0.31%
TOTAL	13,811,330	100%	15,486,141	100%

Source: MCMC

In 2020, the total number of digital certificates issued by certificate authorities reached 15.6 million compared to 13.8 million in 2019. Pos Digicert Sdn Bhd was the leading issuer of digital certificates in 2020, with a total of 14.4 million digital certificates issued, an increase of 11% compared to 12.8 million in 2019.

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 2020. 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.

¹⁵ Thales Group is a French multinational company that designs and builds electrical systems and provides services for the aerospace, defence, transportation and security markets.

This chapter highlights new trends in technology, particularly 5G applications that can create opportunities for service providers. It also provides survey data on the level of adoption of different types of emerging technologies, namely Cloud Computing, Big Data Analytics, Augmented Reality and Machine Learning.

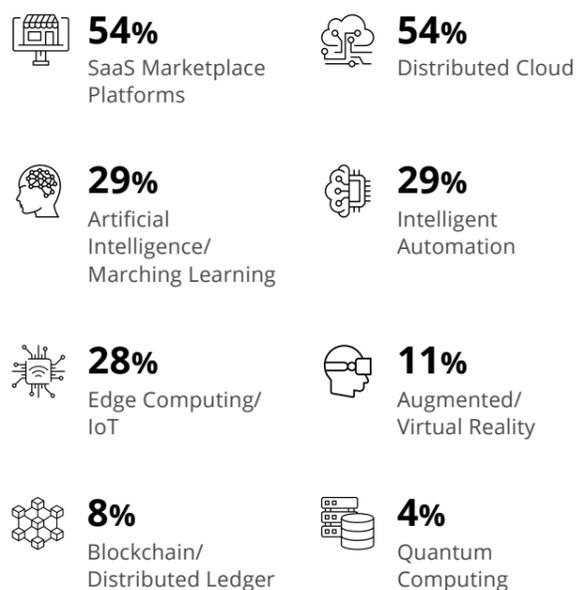
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KEY HIGHLIGHTS IN 2020

IMPLEMENTATION OF EMERGING TECHNOLOGIES BY ORGANISATIONS WORLDWIDE



ADOPTION OF EMERGING TECHNOLOGIES BY MALAYSIAN MAJOR TELECOMMUNICATIONS COMPANIES



DEVELOPMENT OF MOBILE TECHNOLOGY

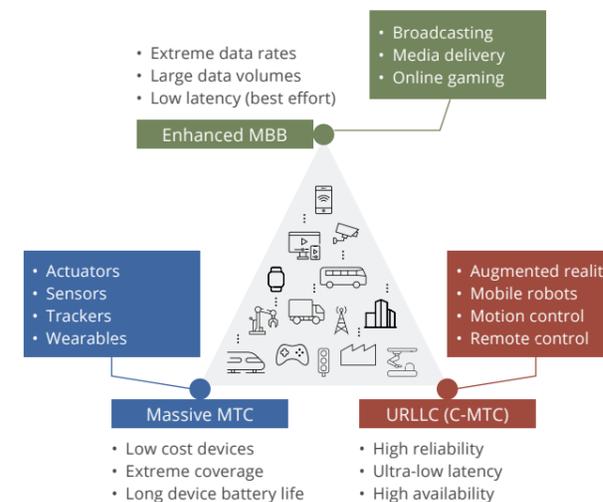
5G is the fifth-generation technology standard for broadband cellular networks that is expected to change the way people live and work. It will be faster and able to handle more connected devices and improvements, which will enable a wave of new kinds of tech applications and products. According to the GSM Association, 5G networks are predicted to have more than 1.7 billion subscribers worldwide by 2025. The first widespread commercial 5G network deployment started in 2019 in countries like South Korea, Japan and China. As at end-2020, there were 140 operators globally that have launched commercial 5G networks in 59 countries/territories¹⁶.

5G provides the expected boost not only in speed but also in capacity, coverage and responsiveness to wireless networks. It can run 10 to 100 times faster than a typical cellular connection today and it will also boost how fast a device will connect to the network, with speeds as quick as a millisecond to start your download or upload. It is the most significant advancement in mobile network technology since the introduction of 4G a decade ago.

The International Telecommunication Union (ITU) has classified 5G mobile network services into three categories, which are:



Figure 6.1: 5G Application Categories



Source: ITU-R Rec. M.2083

The mMTC (Massive Machine-Type Communications) characteristic provides connectivity to a huge number of devices that typically have a traffic profile consisting of a small amount of data spread sporadically. This mMTC characteristic is most likely to benefit the logistics and courier delivery services, where 5G and the Internet of Things (IoT) working together will revolutionise logistics. The use of 5G and IoT will deliver real-time information to systems that can track most items from the factory to the customer¹⁷. 5G is also making it possible to build smart warehouses¹⁸.

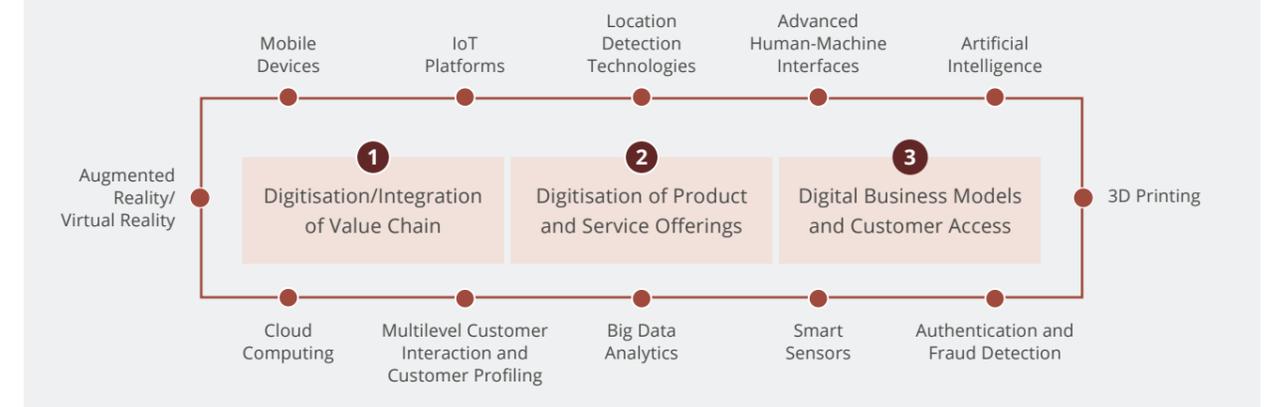
More companies are shifting toward a data-driven mindset in their decision making, which is crucial to predicting future performance and the optimisation of operational efficiencies. Exponentially faster data speeds and low latency will give rise to a more responsive network to support this transformation, while also paving the way for more internet-enabled smart devices to be integrated along the logistics supply chain. This will enable logistic processes to be faster, safer and more reliable¹⁹.

EMERGING DIGITAL TECHNOLOGIES

Most emerging technologies are driven by a higher level of analytics, including IoT, Machine Learning, Blockchain, Advanced Analytics and Big Data. Primarily, these are enabled by higher computing power and speed, hyper-connectivity and bandwidth.

As consumers embrace the “new normal” and accelerate their technology adoption due to the COVID-19 pandemic, many industries need to recalibrate their strategies toward process efficiency, intelligence, automation and rapid innovation. Adopting technologies such as IoT, Machine Learning, Advanced Analytics and Big Data for digital transformation will result in higher productivity, lower prices and wider consumer choices.

Figure 6.2: Disruptive Digital Technologies and Innovations



Source: Adapted from ICTworks

¹⁷ <https://www.raconteur.net/technology/5g-iot-logistics>

¹⁸ <https://www.sino-corrugated.com/en-gb/whatson/GPMA-news/how-will-5g-change-the-logistics-industry-.html>

¹⁹ <https://discover.dhl.com/business/productivity/5g-and-logistics>

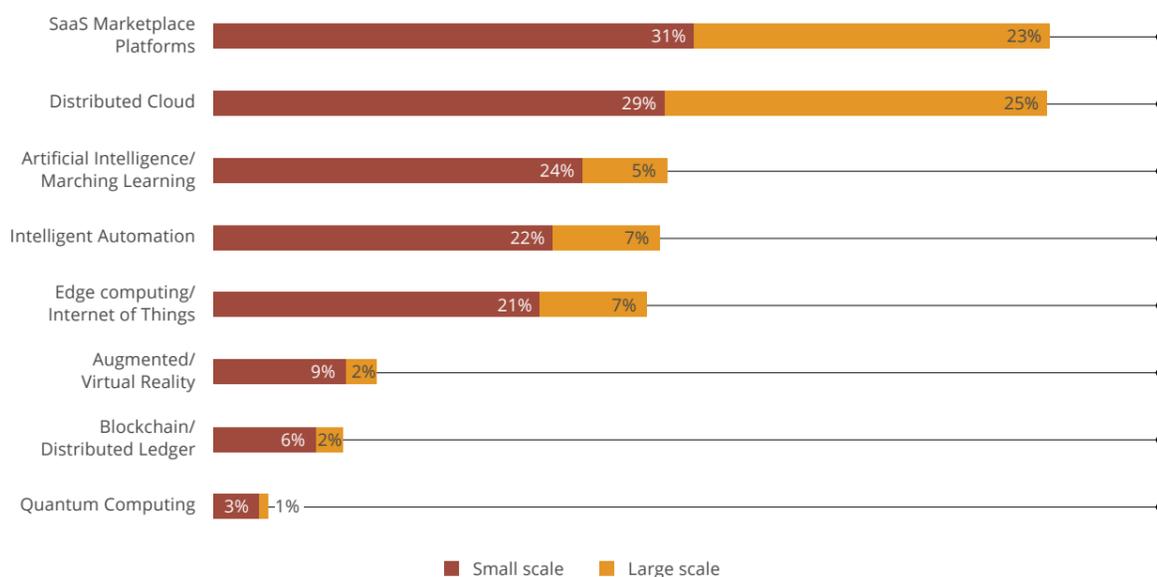


According to the 2020 TechTarget/Computer Weekly IT Priorities survey, a total of 44% of nearly 200 respondents in ASEAN cited digital transformation as their top priority. This result indicates that enterprises are coming under pressure to maintain their competitiveness in the face of digital disruption, whether in telecommunications, logistics or financial services.

As of 2020, in terms of emerging technology implementations, Software as a service (SaaS) marketplace platforms are the big winner, with large-scale and small-scale implementations reported at 23% and 31% respectively. Meanwhile, 25% of surveyed organisations worldwide reported the adoption of distributed cloud technology on a large scale, with 29% using distributed cloud solutions on a small scale. (Figure 6.3)

In a separate report, Omdia research found that more than 37% of organisations are planning to increase their budget in 5G enterprise services and solutions to mitigate the impact of COVID-19.

Figure 6.3 Emerging Technology Implementation



Source: Harvey Nash/KPMG CIO Survey 2020, September 2020

Technological Trends That Will Transform Industries

The year 2020 brought emerging technologies into sharper focus by enabling new ways of working, enhancing customer experiences, improving quality of life and enabling further innovations. The COVID-19 pandemic led to significant changes and accelerated technology adoption across multiple sectors and entire ecosystems and industries, as well as in individual lives. Some sectors such as healthcare were impacted immensely and have accelerated the process of digital transformation as a result.

Digital Healthcare

Like many other countries, the COVID-19 crisis brought unprecedented shocks and pronounced threats to the economy and the healthcare system. As such, a smart healthcare system with digital tools, platforms and solutions will help address some of the current and future challenges and will help to maintain and grow Malaysia's healthcare services. This will avert medical emergencies and improve the response when they do arise, resulting in more effective and less expensive care while reducing pressure on patients as well as health systems.

The drive for a digital healthcare system in Malaysia was initiated some time ago, long before COVID-19. The Telemedicine Blueprint conceived in 1997, among others, envisioned remote consultation whereby doctors can provide clinical consultations for patients using electronic or online communication tools. This means that there is no need for any in-person visits and everything is done remotely from a computer or smartphone. The COVID-19 pandemic has given a fresh impetus to the drive toward a smart healthcare system.

One of the digital tools used in the multi-agency effort against the pandemic was the introduction of the MySejahtera app, which was developed by the Malaysian government to assist in the monitoring of the COVID-19 outbreak in the country. The features of the app include COVID-19 health guidelines, information on the nearest health facilities, clinic appointment booking, COVID-19 hotspot tracking and contact tracing.

MySejahtera is also the official channel that supports the National COVID-19 Immunisation Programme by the Government of Malaysia and offers vaccination registration, appointment and issuance of the COVID-19 Immunisation digital certificate.

Digital transformation in the form of smart equipment that provides minimal contact also needs to be accelerated to address the uncertainties and danger of non-communicable diseases such as COVID-19. One example is a next-generation CT scanner that will be available soon in Malaysia. It features a hands-free positioning camera so that there is minimal contact between the radiologist and patients. The digital scans are connected to cloud-based AI software that automatically detects and enhances the scanned image, speeding up the scan process and improving diagnostic accuracy.

The public healthcare system is also exploring technologies for monitoring health at home and getting communities accustomed to virtual consultations. This includes expanding the system to the rural community as one of the efforts to bridge the digital divide and increase digital equity, connectivity and access to technology.

In the private sector, DoctorOnCall, a digital healthcare platform by Health Digital Technologies Sdn Bhd, is Malaysia's largest digital health platform and connects patients with an extensive network of over 1,500 specialists in private hospitals and more than 100 GP doctors throughout the country. In February 2020, DoctorOnCall signed a memorandum of understanding with Celcom to explore innovations in the digital health space such as embedding DoctorOnCall plan(s) in Celcom digital offerings like Business Suite for Retail. DoctorOnCall also teamed up with Malaysia's health ministry to develop a customised virtual health advisory platform that will address public concerns about COVID-19.

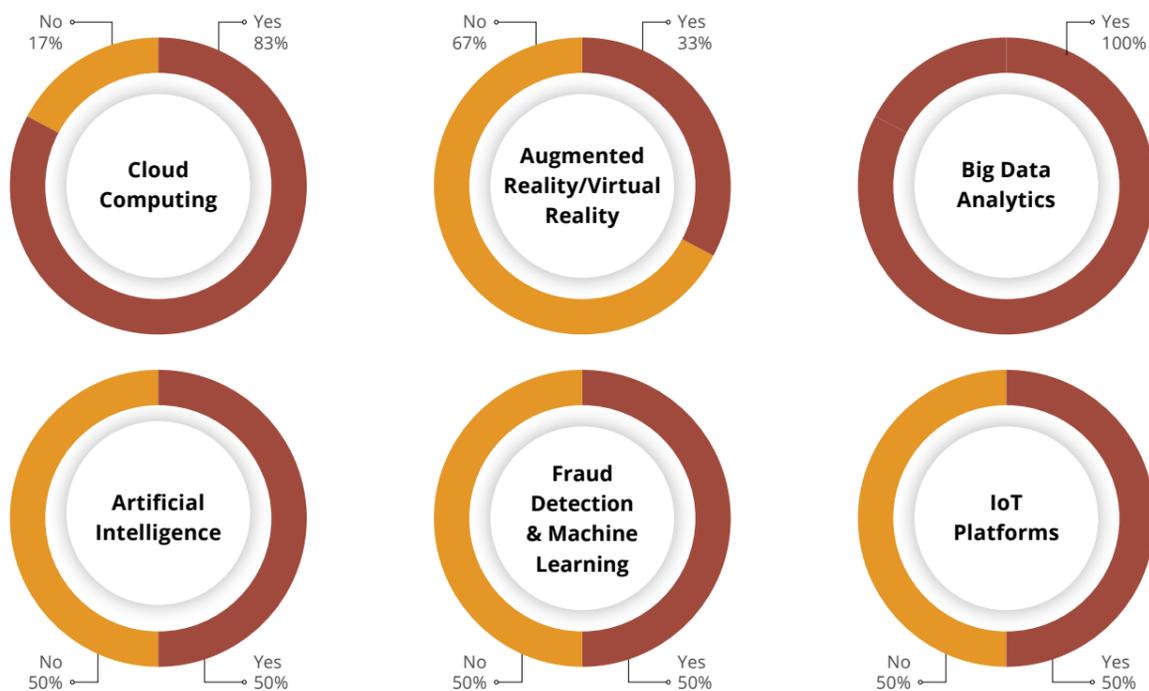
Moving forward, more new approaches and types of solutions will be made possible with new technologies that will propel further development of the digital healthcare system in Malaysia.

Telecommunications

The telecommunications industry is going through a transformational phase of development to acclimatise itself to new technological and cloud trends. According to IPR 2020 feedback, all major mobile and fixed telecommunications service providers have adopted big data analytics for business efficiency. With this tool, they hope to better understand their customers' behaviours and improve targeted campaign execution in sales and marketing.

The adoption level of other emerging technologies by major telecommunications companies is shown below.

Figure 6.4: Adoption of Emerging Technologies by Service Providers



Source: Results of IPR 2020 survey questionnaire

Digi has implemented virtualisation in its core networks to enable flexibility and faster service delivery. This deployment allows greater efficiency in rolling out network resources on-demand across various applications and business functions. Internally, Digi has also adopted various cloud-based applications (e.g. Office 365, Microsoft Teams, Coupa) to enhance the flexibility, mobility and efficiency of the Digi workforce and the remote functionality of its business processes.

Celcom has also indicated that successful implementation of cloud computing using major cloud platforms has moved its organisation toward business digitalisation and improved efficiency. For instance, Google Cloud Platform (GCP) has enabled digital implementation, payment gateways and Celcom apps.

As for Maxis, its big data analytics-enabled faster time to insights has improved processing time up to 95%. There are also many tools available for business users to interact with data, speeding up self-service adoption.

Fixed services provider TM started its digitalisation journey back in 2014 when it embarked on its own private cloud called iGrid, which leverages VMware vSphere, vRealize

and Pivotal Container Services (PKS). This marked a new beginning as TM was the first to deploy PKS in Malaysia. The solution helps developers reduce development time and provides high resiliency (auto-scale and auto-heal) for their business. What started as an internal business evolved into business solutions that TM offers to its Enterprise customers through Project tGrid.

Project tGrid is a collaboration between TM's Enterprise, VMware and public sector business solution arms to transform the TM ONE current private cloud into end-to-end TM ONE Cloud Solutions, enabling next-generation innovations for Malaysian enterprises. It combines Public Cloud, Virtual Private Cloud, Dedicated Private Cloud, Hybrid Cloud and Multi-Cloud deployment models, offering new, enhanced TM ONE Cloud services to its business customers.

New emerging digital technologies are catalysts for change, offering extraordinary new business capabilities and new business models that will disrupt traditional practices. In facilitating this change and taking advantage of the cloud as the enabler of digital transformation, one of the most significant focus areas in accelerating the nation's digital economy, i.e. providing enhanced digital connectivity, can be achieved.

Enhancing Customer Service Using Chatbots

A chatbot is a software application used to conduct an online chat conversation via text or text-to-speech, in lieu of providing direct contact with a live human agent. Chatbot, short for chatterbot, is an artificial intelligence (AI) feature embedded in and used by major messaging applications. This tool provides convenience for customers, allowing them to interact with automated programmes that act like a human and usually cost little to nothing.

Local telecommunications service providers started to deploy chatbots back in 2018. As at end-2020, all public-listed telecommunications companies have chatbots deployed, except for Maxis, which has indicated that its chatbot system is still in the trial stage.

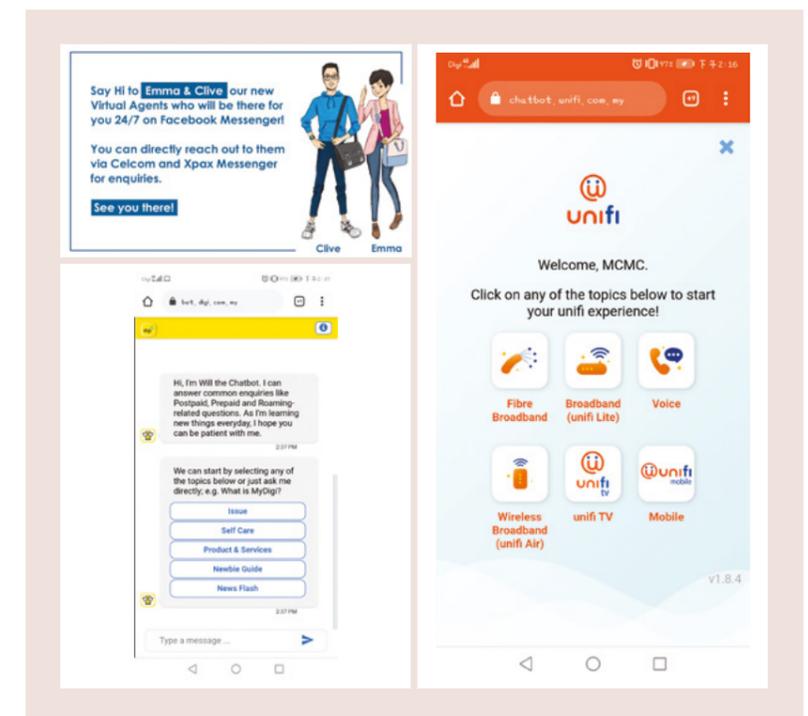
Customer support is one of the fields where chatbots have found enormous success. Almost every business is slowly and steadily incorporating chatbots into their support processes. This statement is also true for local telecommunications service providers as they are deploying chatbots to enhance their customer service. The benefits include the ability to provide 24-hour service, respond to customers instantly, answer simple questions and facilitate an easy way to communicate with customers. Most importantly, in the long term, chatbot engine deployment can save operational costs while handling a high volume of customer enquiries.

Nevertheless, local telecommunications service providers admit that they faced various challenges when deploying chatbots. The most critical challenges were natural language processing (NLP) and understanding customers' emotions and sentiments, followed by the accuracy of message interpretation by chatbots.

Training a bot, especially in NLP, is difficult and time-consuming. Note that the chatbot engine constructs wording based on specific rules that are sometimes different from human wording.

The effectiveness or "intelligence" of a chatbot is highly dependent on the layers of integration that allow it to process simple requests and provide answers. Otherwise, it merely functions as a "routing" chatbot that can frustrate customers and be unable to fulfil some of the objectives such as reducing high-volume queries.

Hence, in addressing customers' immediate problems, telecommunications service providers still prefer human interaction to resolve issues effectively.



Celcom's online chatbot features "Clive and Emma" as online Intelligent Virtual Agents, a service powered by Microsoft's AI and Machine Learning technology. Digi features "Will" as the online customer service agent answering common enquiries like postpaid, prepaid and roaming-related questions. TIME's chatbot, "T-bot", leverages IBM Watson AI technology. T-bot was created to provide consumers with an interactive and smart virtual assistant. It currently runs on TIME's Facebook page. TM's "unifobot" features several functions for enquiries on Products (Home) as well as dual language and escalation to the live chat team after two attempts being made or questions being asked.

CHAPTER 7 :

QUALITY ASSURANCE AND CONSUMER PROTECTION

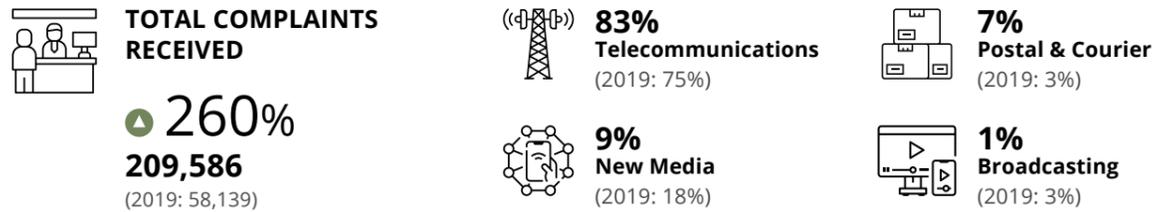
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This chapter is on quality assurance and consumer protection in relation to services provided under the C&M industry. It reports on the number of consumer complaints received by MCMC, detailing out the complaints handling processes and the number of resolved cases. Complaints not under MCMC purview such as online fraud/scam are also included to highlight the collaboration between MCMC and stakeholders to curb such activities. 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.

QUALITY ASSURANCE AND CONSUMER PROTECTION

QUALITY ASSURANCE AND CONSUMER PROTECTION

KEY HIGHLIGHTS IN 2020



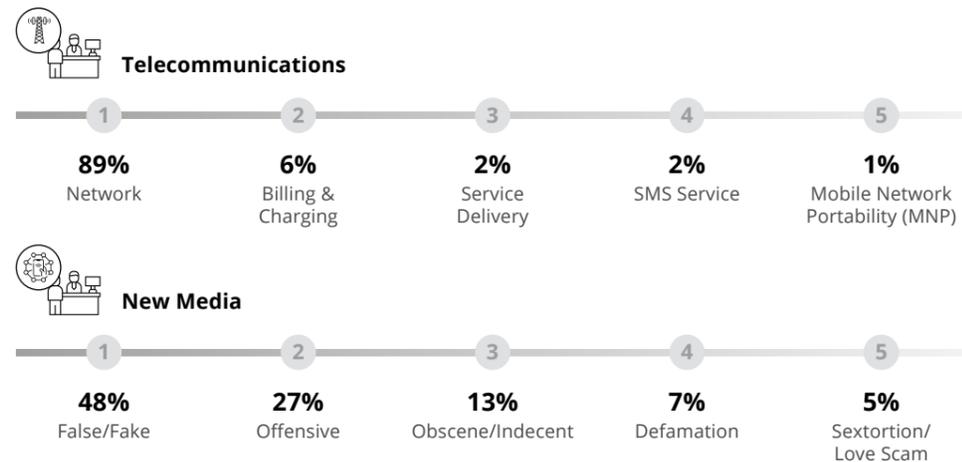
COMPOUND



RM3.45 million

Compounds issued for non-compliance with the Prepaid Guidelines

TOP 5 COMPLAINTS RECEIVED



CONSUMER PROTECTION AND EMPOWERMENT

Consumer Protection

Consumer protection has always been a priority of the MCMC. As the regulator of the C&M industry, the MCMC emphasises customer service excellence, and monitors as well as analyses the compliance level of licensees in the telecommunications sector to ensure the protection of consumers as per the Communications and Multimedia Act 1998 (CMA) and General Consumer Code (GCC).

In terms of the complaints handling process, the MCMC issued two First Information Reports (FIRs) and five warning letters to service providers for various non-compliances, including misleading and inaccurate advertising materials, misrepresentation of service to customers and unauthorised charges in customers' bills.

Throughout 2020, the MCMC has implemented various developmental and regulatory initiatives in empowering consumer rights such as the GCC, Mandatory Standard for Quality of Service, Prepaid Audit activity, Billing Accuracy

Audit exercise and case referrals to other agencies involved in technical and cybercrime, especially in relation to hacking and phishing.

In 3Q 2020, the MCMC has empowered the Consumer Forum of Malaysia (second level of complaints) to handle the mediation process for complex cases between service providers and complainants. As at end-2020, a total of seven complaints have been successfully mitigated and resolved at the second level of complaints handling by the CFM before proceeding for further assessment under the CMA.

To strengthen and ensure compliance with the CMA and GCC, the MCMC conducted frequent meetings and engagements with the industry to discuss and resolve consumer issues. Furthermore, the MCMC has developed a chatbot, namely the MCMC WhatsApp Tip-Off Service, to assist consumers in providing tip-offs on 3R (race, royalty and religion), COVID-19, SMS gambling and SMS scams.

Through inter-agency engagement, the MCMC participated in the task force on consumer policy namely review of the Consumer Protection Act (CPA 1999) and review of the tribunal process by Tribunal Tuntutan Pengguna (TTPM). Other engagements included collaborations with PDRM, KPDKK, Bank Negara Malaysia, Biro Pengaduan Awam and KKMM in handling consumer issues.

The MCMC collaborates with the industry to conduct awareness programmes under the Jalanan Digital Negara (JENDELA) initiatives and conducts inter-agency collaborations within KKMM on consumer digital literacy to create awareness and establish education programmes for consumers.

Complaint Statistics

In 2020, Aduan MCMC recorded an unprecedented volume of complaints in relation to overall services in the C&M industry, with an increase of 260% to 209,586 complaints compared with the preceding year (2019: 58,139 complaints).

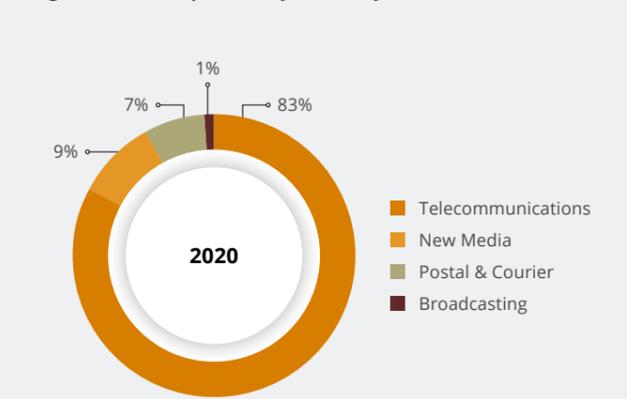
By industry, telecommunications services contributed 83% of cases to the overall complaints reported to the MCMC. Most cases concerned various forms of dissatisfaction with the level of services provided by telecommunications service providers. The second-highest number of complaints is new media complaints, which accounted for 18,733 grievances on social networking platforms and the public outcry on 3R.

Figure 7.1: Trend of Consumer Complaints Received by the MCMC 2016 - 2020
Number of Complaints



Source: MCMC

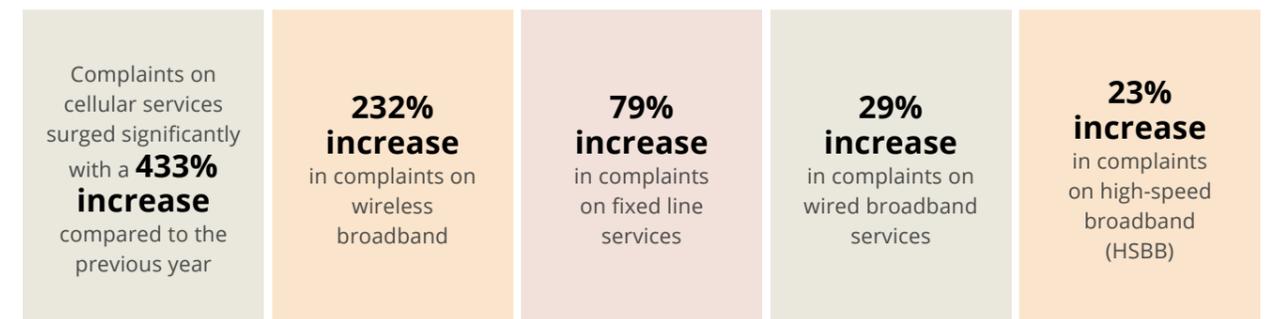
Figure 7.2: Complaints by Industry 2020



Note: Complaints on the MCMC Provisions represents 0.3%
Source: MCMC

Complaints on the Telecommunications Sector

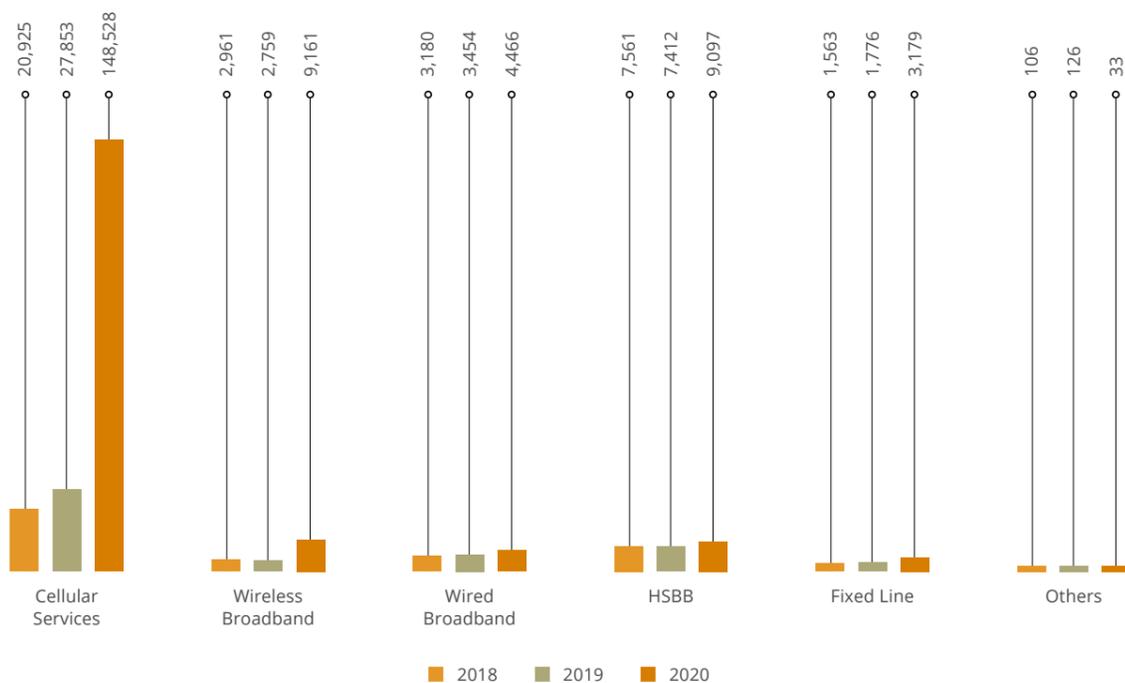
Overall, complaints on the telecommunications sector showed an upward trend, as follows:





Nonetheless, complaints on other services showed a decline of 74%.

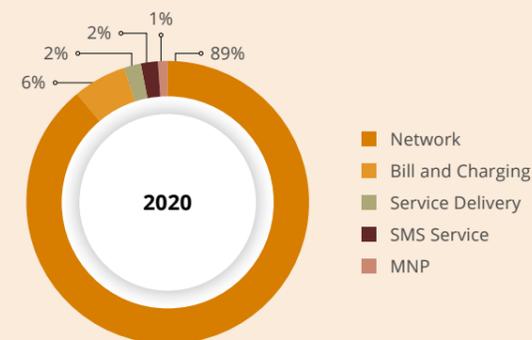
Figure 7.3: Types of Complaints on Telecommunications Sector 2018 – 2020
Number of Complaints



Source: MCMC

The top five categories of complaints are:

Figure 7.4: Top 5 Complaints Received on Telecommunications Sector 2020



Source: MCMC

Network Issues

The surge in network complaints began when the MCO 1.0 was implemented to curb the spread of COVID-19, causing an unprecedented spike in data traffic as people relied on connectivity while being confined at home. This also accelerated their technology adoption, from purchasing online to online learning and working from home via video conferencing. Many also streamed video sites as a means of passing the time and for leisure during the pandemic.

These activities during the MCO led to an increase in internet traffic demand in residential areas of between 50% and 70%, causing network congestions that resulted in a 40% reduction in internet speed. As a result, complaints on network issues posted the highest number, amounting to 150,177 or 72% of the overall complaints received in 2020 (209,586).

Most of the issues reported were related to the quality of network service, i.e. poor service or service unavailability of 4G/LTE and HSBB, service disruptions/downtimes, internet connection/speeds and intermittent call connections due to network congestion.

Notably, the first wave of COVID-19 stretched network capabilities beyond their limits and constituted a stress test on the national digital infrastructure. To address this issue as the nation embraced the new norm, as well as to prepare for the digital economy, the JENDELA was developed in August 2020. JENDELA is a comprehensive plan aimed at addressing the need and demand for better quality and total coverage.

Billing and Charging

The second-highest statistics were on billing and charging, which recorded 9,521 (6%) complaints among overall complaints on the telecommunications sector. The MCMC observed that disputes on billing issues were mostly on hidden charges and unclear terms & conditions at the point of sale.

Another emerging issue was the direct billing system. In 2020, a total number of 2,967 complaints reported to the MCMC on unreasonable charges imposed on consumers were triggered by third-party applications, such as Google Play Store and Apple App Store, where the purchases were made via the direct billing system.

Service Delivery

It is observed that complaints on service delivery contributed to 3,604 (2%) of the overall complaints received on the telecommunications sector in 2020. Consumers were mostly dissatisfied with poor customer service, misrepresentation of services by dealers and agents, debt collection agencies and late restoration and activation of services.

In most cases, frustrated complainants sought redress directly from the MCMC and KKMM via other platforms, i.e. social media and WhatsApp, as they were not satisfied with how the service providers handled the complaints or the resolutions provided.

Short Messaging Service (SMS)

For SMS-related complaints, consumers primarily disputed unknown charges in their bills. It is noted that 4,102 (2%) of these cases on invalid charges were related to unsolicited SMSs from short codes generated by external content providers (ECP). In addition, there were also complaints on SMS gambling, SMS scams and peer-to-peer SMS spamming.

Mobile Number Portability (MNP)

MNP provides the flexibility to consumers of retaining their existing mobile numbers and ports when switching to another service provider. In 2020, MNP-related issues contributed to 2,383 (1%) complaints, particularly on porting delay or rejections and unauthorised porting.

QUALITY ASSURANCE AND CONSUMER PROTECTION

QUALITY ASSURANCE AND CONSUMER PROTECTION

Complaints on New Media

Regarding complaints on new media, the MCMC recorded 18,733 complaints from the public. The total number of complaints received in 2020 increased by 82% as compared to 2019 (10,268). Overall, 82% or 15,404 complaints were related to social networking, followed by 2,581 (14%)

complaints on websites/blogs/forums and the remaining 4% on emails. Most of the cases reported were related to false or fake content (48%), offensive remarks (27%), obscene or indecent content (13%), defamation (7%) and sextortion/love scams (5%).

Figure 7.5: Types of Complaints on New Media 2018 - 2020

Number of Complaints

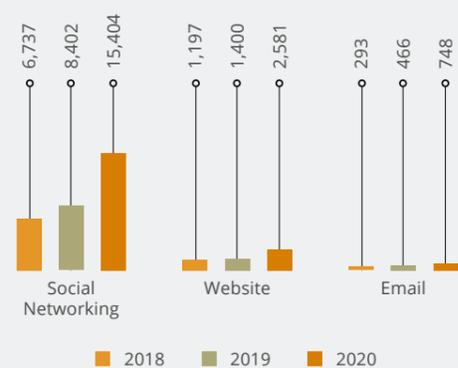
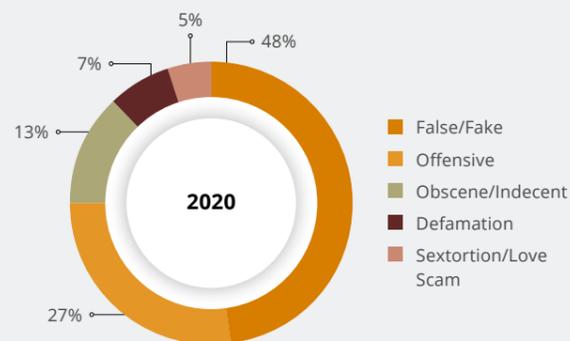


Figure 7.6: Top 5 Complaints Received on New Media 2020



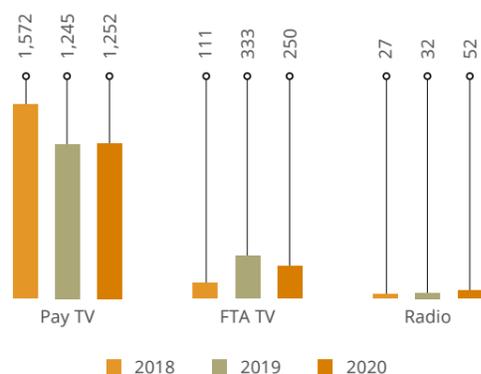
Source: MCMC

Complaints on Broadcasting

Complaints related to Pay TV contributed the highest numbers in 2020 with 1,252 (81%) complaints on broadcasting services, an increase of 0.5% over the previous year. Complaints on Free-To-Air (FTA) TV dropped by 25% while complaints on radio posted a 63% increase compared with the previous year.

Figure 7.7: Types of Complaints on Broadcasting 2018 - 2020

Number of Complaints



Note: Pay TV includes IPTV
Source: MCMC

Complaints on Postal and Courier Services

Complaints on postal and courier services have been trending upward over the past three years. Since the MCO took effect on 18 March 2020, postal and courier services have continued to play an important role in keeping essential goods accessible. The demand for parcel deliveries surged due to the exponential increase in online purchasing throughout the MCO period. This led to a significant increase

in the total number of complaints to 542% in 2020 compared to the total number of complaints reported in 2019.

The complaints were mostly on late delivery, which contributed to 59% of the complaints, followed by poor service delivery (20%), lost letters/parcels (14%), poor customer service (3%) and other issues (4%).

Figure 7.8: Types of Complaints on Postal and Courier Services 2018 - 2020

Number of Complaints

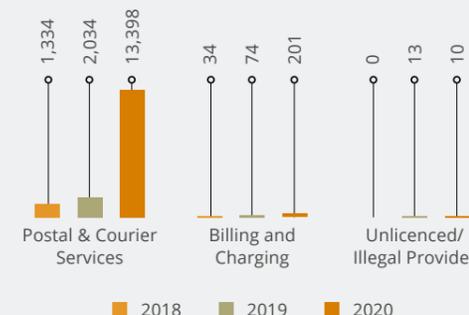
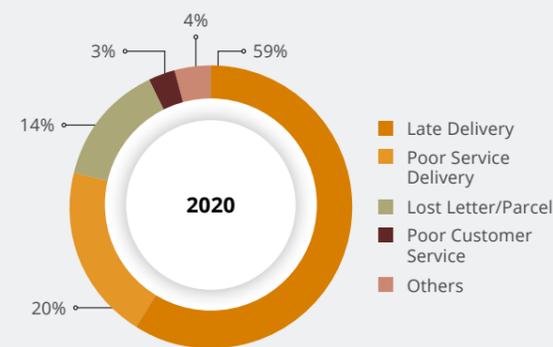


Figure 7.9: Top 5 Complaints on Postal and Courier Services 2020

Number of Complaints



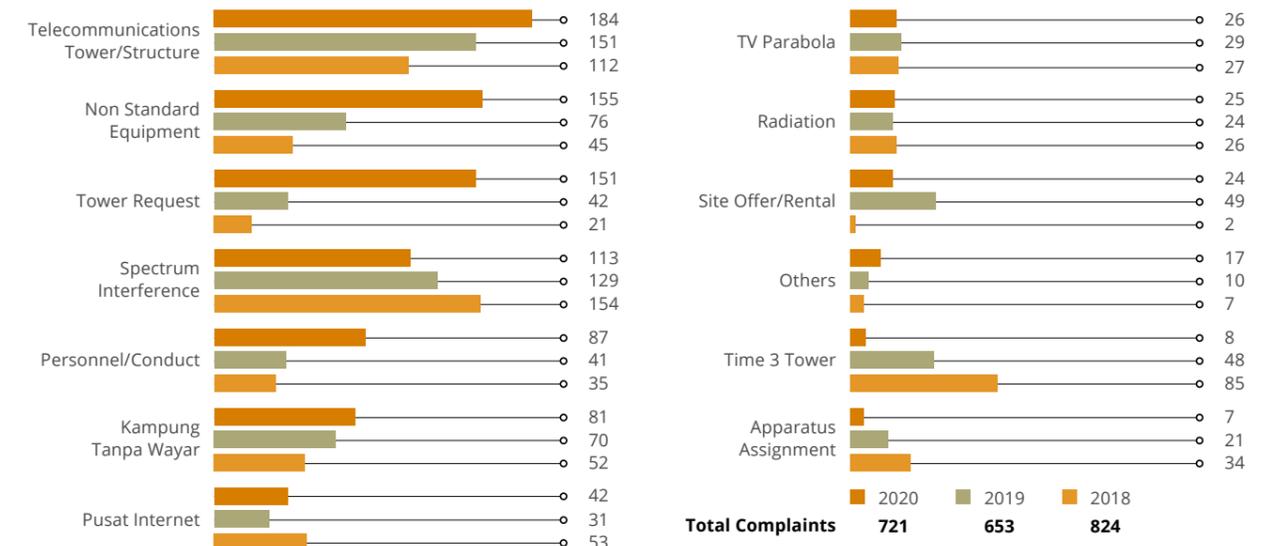
Source: MCMC

Complaints Under MCMC Provisions

The top three complaint categories under the MCMC service provisions related to telecommunications tower/structure, non-standard equipment and tower request.

Figure 7.10: Complaints Under MCMC Provisions 2018 - 2020

Number of Complaints



Source: MCMC

Complaints Not Under MCMC Jurisdiction

In line with the technological advancements in cyberspace, the MCMC received various complaints that were not regulated by the CMA, namely on hacking, online purchases, internet frauds/scams, phishing, spamming, financial investments, gambling and prostitution.

Although these issues were not regulated directly by the CMA, the MCMC provided technical assistance through its strong collaborations with the relevant law enforcement agencies to eradicate such illegal activities.

MITIGATION OF VISHING AND SMISHING

While the internet has changed the world for the better in many ways, technological advancements have also led to sophisticated types of fraud. Over the years, one of the key issues faced has been the level of intricacy and agility now seen in vishing (voice phishing) and smishing (SMS phishing) activities, which abuse telecommunications services for fraudulent purpose.

Vishing	Formerly known as "Scam Calls/Macau Scams", is a practice whereby the scammer makes phone calls to convince victims to give up personal information and access to bank accounts. Scammers are able to make hundreds of calls at a time using voice over internet protocol (VoIP) technology and spoofing the caller ID to make the call appear to be from a trusted source such as banks, courts, the police or other authorities.
Smishing	Involves fraudulent text messages that try to lure victims into revealing account information or installing malware. They typically contain: <ul style="list-style-type: none"> A text message that seems like it is from a trusted source, for example, an alert on a credit card transaction. In the text, they warn of a potential outstanding balance or charges for the purchase of goods with the victim's account or debit/credit cards. To resolve the problem, the victim will be asked to call back with/send back personal information to the contact number provided. Once this information is transmitted, it will be used to make fraudulent purchases. A text message with an attachment/a link to a fake website in the text, which once opened, will download a virus or malware onto the victim's handphone, allowing scammers access to the handphone.

The MCMC is deeply concerned about the perpetrators' modus operandi (MO), as explained above, in making phone calls or using SMS, as both platforms are manipulated for fraudulent or deceptive purposes, and about the negative impact of these practices on public trust and confidence in the telecommunications industry. It is also alarming that vulnerable consumers, particularly pensioners, are at the most risk of being defrauded.

The MCMC has observed a huge number of calls and SMSs being blocked as per the blocking rules. The current initiative needs to be monitored and improved continuously to stay ahead of scammers with their latest MOs. Through the TFITF, which was formed to monitor and respond immediately within 24 hours, action can be taken on all scam cases reported within a short period of time.

Since 2017, the MCMC has collaborated with telecommunications service providers and the Commercial Crime Investigation Department (CCID) of Polis Diraja Malaysia (PDRM) to form a Telecommunications Fraud Industry Task Force (TFITF) to address scam call issues. An Industry Reference (IR) was developed to further strengthen this exercise by implementing additional blocking rules to reduce potential fraud calls reaching consumers, effective January 2020.

Although the MCMC has worked closely and has regular task force meetings with the service providers to find the best solutions in mitigating this issue, telecommunications service providers face challenges in tracing the transactions made by the offender/fraudster due to the technical complexity and limitations of technological capability. Thus, it is advisable for consumers to be alert and careful when receiving any calls/SMSs asking for personal details, especially financial information.

INDUSTRY SELF-REGULATING FORUMS

Protecting the interests of consumers of C&M services is the primary task of the MCMC. Therefore, it is important that consumers, consumer associations and other interest groups are aware of the regulatory measures that effectively safeguard consumer rights and privileges.

Communications and Multimedia Consumer Forum of Malaysia

In 2020, the Communications and Multimedia Consumer Forum of Malaysia (CFM) received 28,002 complaints from consumers, an increase of 141% from 11,615 complaints in 2019. The cases mostly comprised various forms of dissatisfaction with the level of services provided.

Specifically, the CFM managed General Consumer Code of Practice (GCC)-related complaints for service providers excluding TM, Celcom, Maxis and Digi in the first half of 2020, while in the second half of the year, the CFM only managed GCC-related complaints with "Reopened" status for all service providers.

The GCC-related complaints categories are as follows:

Billing and Charging	Disputed Terms and Conditions	Misrepresentation of Service
Service Delivery	Unfair Practice	Pricing

All aspects of complaints management were conducted by phone and virtually, including mediation sessions that fell under the CFM-related case category and subcategory. Details of mediation cases in 2020 are as follows:

Figure 7.11: Mediation Cases in 2020

Month	Case Category	Case Subcategory
August	Bill & Charging	Roaming
	Bill & Charging, Network	Poor Billing System
September	Service Delivery	Customer Responsibility
	Unfair Practice	False/fraud Registration
October	Bill & Charging	Billing Dispute
November	Misrepresentation of Service	Misrepresentation by Dealer

Source: MCMC

The CFM conducted majority of its Pocket Talks virtually to smaller, targeted segments of the community. These talks revolved around topical issues, ranging from troubleshooting home networks to online security and safety, including protecting personal data, being vigilant in opening suspicious emails & links and changing passwords. There was also a knowledge-sharing session on "Kesilapan Umum yang Dilakukan oleh Pengguna Sebelum dan Selepas Melanggan Perkhidmatan", held virtually via Facebook Live.

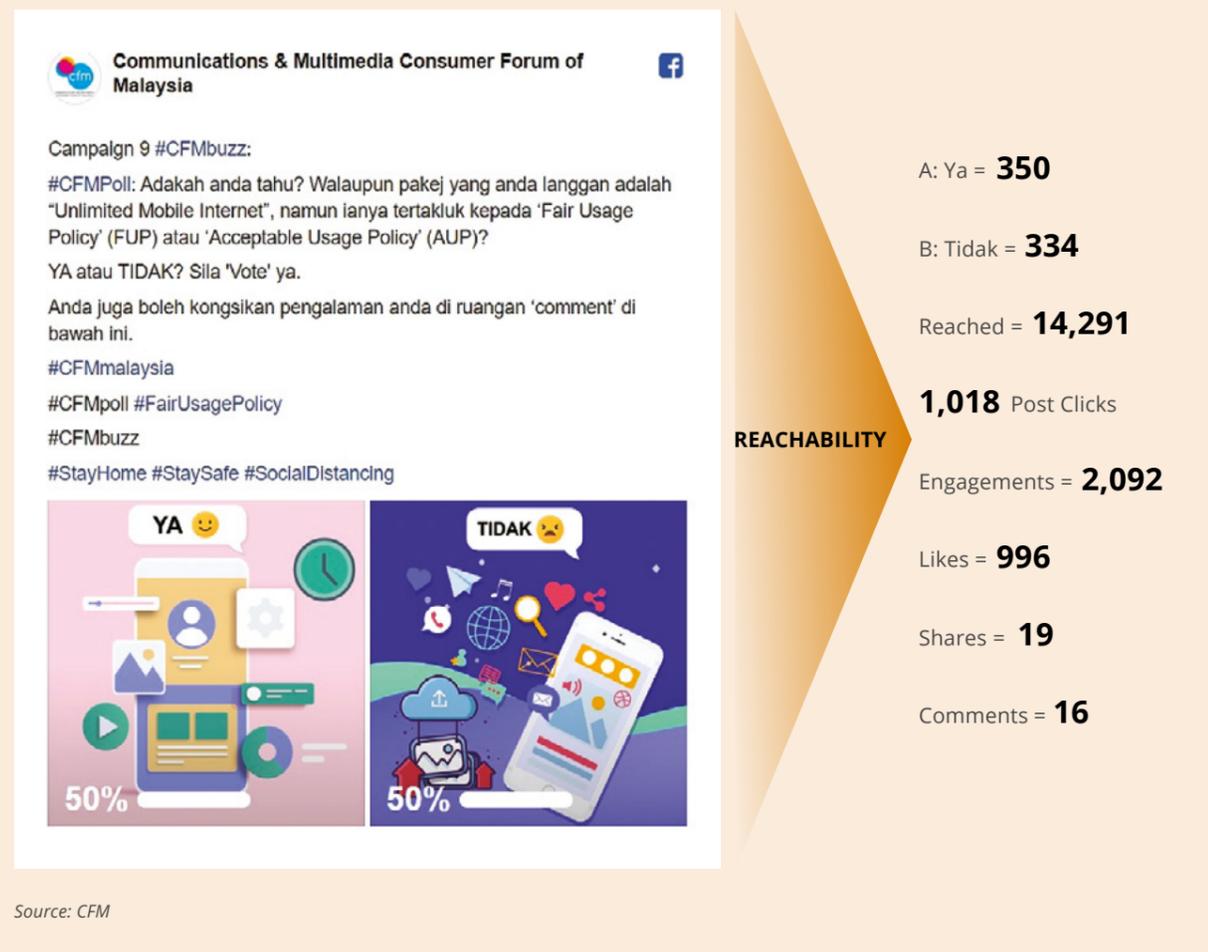
QUALITY ASSURANCE AND CONSUMER PROTECTION

The CFM also leveraged online media and social media to conduct online polls and to disseminate advisories concerning network coverage issues and the MCO, with seven polls conducted via social media to reach out to consumers efficiently. The details of one of the seven polls are shown in Figure 7.12.

Figure 7.12: An Online Poll Conducted via Social Media in 2020

POLL DATE: 23 - 29 MARCH 2020

#CFMPoll: Adakah anda tahu? Walaupun pakej yang anda langgan adalah "Unlimited Mobile Internet", namun ianya tertakluk kepada "Fair Usage Policy" (FUP) atau "Acceptable Usage Policy" (AUP)?



Source: CFM

As part of its role to protect the rights of consumers, the CFM participated in the 3G Sunset Task Force and "Pelan Tindakan Kempen Kesedaran Digital" (Digital Advocacy Integration Framework) under the Digital Literacy Initiative headed by the MCMC. Towards the end of 2020, the CFM reinitiated the review of the Alternative Dispute Resolution process as a means of further improving complaints resolution.

In addition, the CFM continuously increased its visibility through media coverage, with 520 press releases, interviews and featured articles concerning network coverage issues and the MCO. As a result, the CFM consumer portal, consumerinfo.my, recorded a 15% increase in page views, from 584,976 in 2019 to 661,249 in 2020.

QUALITY ASSURANCE AND CONSUMER PROTECTION

Communications and Multimedia Content Forum of Malaysia

Communications and Multimedia Content Forum of Malaysia (CMCF) Complaints Bureau

The CMCF Complaints Bureau received a total of 319 complaints via the CMCF's complaints portal, emails or letters from complainants in regard to various content issues.

The majority of complaints received were on internet content (169 cases). This constituted 52.98% of the total number of cases received by the Complaints Bureau as at 31 December 2020. The breakdown of cases for 2020 by category is presented in Figure 7.13.



169 cases or 52.98% of total complaints on Internet Content

Figure 7.13: Breakdown of Cases for 2020 by Category of Complaints



Source: CMCF

Figure 7.14: Sources of Complaints



Source: CMCF

Figure 7.13 and Figure 7.14 show the declining number of complaints received by the CMCF Complaints Bureau in 2020 as compared to 2019, in which the Complaints Bureau received 340 complaints. The significant drop can be attributed to the activities carried out by the CMCF in effectively engaging with the public throughout the year via social media and events, indicating that the public is now more aware of the importance of practising self-regulation.

Content Advisory Circular

In 2020, the CMCF published the second Content Advisory Circular, which served as a reminder on the Prohibition of Alcoholic Beverage and Liquor Ads Pursuant to the Content Code. This issue arose when the Executive Office learned that printed materials and publications that included alcoholic beverage advertisements had been digitalised and uploaded online. This circular served as a reminder to practitioners, and the information was shared with the MCMC and Ministry of Domestic Trade and Consumer Affairs (KPDNHEP).



CONTENT ADVISORY CIRCULAR (2/2020)

REMINDER ON THE PROHIBITION OF ALCOHOLIC BEVERAGE AND LIQUOR ADVERTISING PURSUANT TO THE CONTENT CODE

The Communications and Multimedia Content Forum of Malaysia (CMCF) wish to remind industry practitioners on a provision under the **Malaysian Communications and Multimedia Content Code (Content Code)** pertaining to certain specific advertisements.

Under **Part 3 of the Content Code on Advertisement, Paragraph 8.5 (Other Specific Advertisement)**, it states that:

"Alcoholic Drinks and Liquor
Advertisements on alcoholic drinks and liquor are not allowed. If an alcohol company is the title sponsor of an international sporting event held in Malaysia, it is only allowed to promote the event and not directly advertise its products. In addition to this, alcohol companies should only use the events' logo in the promotional on-air material."

For all intent and purposes, there **should be no advertisements** on the said products to be broadcasted, disseminated and circulated in any manner or form throughout the electronic networked medium in Malaysia (including but not limited to television, radio, mobile telephony as well as via online). This shall **include any form of printed content and/or materials** containing the advertisement of such prohibited products that is then **digitised or cause to be converted into a soft copy format and uploaded** to the online sphere in the form of those which includes e-magazines, e-newspapers, e-pamphlets, e-flyers and other similar digitised printed material.

The industry is encouraged to scrutinise materials to be digitised and/or converted for the purposes above and remove such prohibited advertisements before it is uploaded beforehand. Penalties and sanctions on any breach of the Code will be as per **Part 8, Paragraph 8.0 of the Content Code**.

In addition, members of the public are also encouraged to come forward and report any advertisements for products and services that appear to be in breach to the CMCF's Complaints Bureau.

OFFICE OF THE EXECUTIVE DIRECTOR
 COMMUNICATIONS AND MULTIMEDIA
 CONTENT FORUM OF MALAYSIA
 Selangor, Malaysia
 16 July 2020

For enquiries, please contact:
 CMCF Executive Office
 Email: secretariat@cmcf.my



PEKELILING NASIHAT KANDUNGAN (2/2020)

PERINGATAN MENGENAI LARANGAN MENGIKLAN MINUMAN KERAS DAN ALKOHOL MENURUT KOD KANDUNGAN

Forum Kandungan Komunikasi dan Multimedia Malaysia (CMCF) ingin memberi peringatan kepada para pengamal industri mengenai peruntukan di bawah **Kod Kandungan Komunikasi dan Multimedia Malaysia (Kod Kandungan)** yang berkaitan dengan iklan khusus tertentu.

Di **Bahagian 3, Kod Kandungan** mengenai **Iklan, Perenggan 8.5 (Iklan Khusus Lain)**, ia menyatakan bahawa:

"Minuman Keras dan Alkohol
Iklan minuman keras dan alkohol adalah tidak dibenarkan. Jika sesebuah syarikat minuman keras merupakan penaja utama sesuatu acara sukan antarabangsa, syarikat tersebut hanya dibenarkan mempromosi acara itu sahaja dan tidak secara langsung mengiklan produknya. Disamping itu, syarikat-syarikat alkohol haruslah hanya menggunakan logo acara-acara berkaitan dalam promosi siaran."

Sebagai keperluan umum, sebarang iklan mengenai produk di atas **adalah tidak dibenarkan sama sekali** untuk disiarkan, disebarikan dan diedarkan dengan cara atau bentuk apa sekalipun melalui rangkaian media elektronik di Malaysia (termasuk tetapi tidak terhad kepada televisyen, radio, telefon bimbit dan juga melalui dalam talian).

Ini termasuk apa-apa bentuk kandungan bercetak dan/atau bahan yang mengandungi iklan produk terlarang tersebut yang kemudiannya diubah kepada format salinan digital ('soft copy') dan dimuat naik ke ruang dalam talian yang merangkumi penerbitan seperti e-majalah, e-surat khabar, e-risalah, e-flyer dan lain-lain bahan bercetak secara digital yang berkaitan.

Pengamal industri adalah digalakkan untuk meneliti bahan yang akan diubahkan untuk tujuan di atas serta mengeluarkan sebarang iklan yang dilarang terlebih dahulu sebelum dimuat naik. Penalti dan hukuman terhadap setiap pelanggaran Kod adalah seperti yang dinyatakan di bawah **Bahagian 8, Perenggan 8.0 di dalam Kod Kandungan**.

Content Code Amendments

On 14 February 2020, the amended Content Code was successfully registered with the MCMC. There were several amendments and a new provision was included that made it more comprehensive and relevant to the current state of electronic content. The amended Content Code is available for download at:

- <http://www.cmcf.my/download/cmcf-content-code-english.pdf> (English version)
- <http://www.cmcf.my/download/cmcf-content-code-malay.pdf> (BM version)

THE MALAYSIAN COMMUNICATIONS & MULTIMEDIA

CONTENT CODE

SECOND EDITION
 REGISTRATION DATE 14TH FEBRUARY 2020

KOD KANDUNGAN

KOMUNIKASI DAN MULTIMEDIA MALAYSIA

EDISI KEDUA
 TARIKH PENDAFTARAN 14HB FEBRUARI 2020

CMCF Industry Guidelines on The Advertisements of Unacceptable Products and Services (Gambling or Betting)



INDUSTRY GUIDELINE FOR THE ADVERTISEMENTS OF UNACCEPTABLE PRODUCTS AND SERVICES (GAMBLING OR BETTING)

A guide for the communications and multimedia industry over the electronic networked medium in Malaysia

Additional copies are available from:
<http://www.cmcf.my/>

COMMUNICATIONS AND MULTIMEDIA CONTENT FORUM OF MALAYSIA (CMCF)

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Release Date: **27 October 2020**

On 27 October 2020, the CMCF Industry Guidelines for The Advertisement of Unacceptable Products and Services (Gambling or Betting) were approved by the MCMC. The CMCF shared the guidelines with industry members.

CMCF Activity and Public Engagement

A series of lectures and exercises were conducted, either at the invitation of the industry or as part of CMCF's own initiative. During the pandemic, the CMCF adapted to the new normal by conducting online training.

The CMCF organised several workshops related to self-regulation for the public and government agencies in various states throughout 2020. The main purpose of these workshops was to promote awareness among the public on internet safety and self-regulation. In this regard, the CMCF played a significant role in fostering the practice of self-regulation among the public to prevent them from abusing the Internet, becoming victims of cybercrime or spreading fake news.

The self-regulation workshops organised by the CMCF in 2020 are detailed in Figure 7.15.

Figure 7.15: Self-regulation Workshops Organised by the CMCF in 2020

Event/Roadshow	Date	Remarks
Ceramah Berkenaan Buli Siber Venue: Sekolah Tunku Abdul Rahman, Ipoh, Perak	9 January 2020	<ul style="list-style-type: none"> Self-initiated event Attended by 200 students and ILLKM staff
Tea Talk With Industry Venue: ASTRO, Bukit Jalil	20 February 2020	<ul style="list-style-type: none"> Self-initiated seminar Attended by approximately 20 participants from various departments
Seminar - Evolusi Teknologi: Bahana@Bahagia Venue: LPPKN Seremban 2, Negeri Sembilan	17 March 2020	<ul style="list-style-type: none"> Self-initiated seminar Attended by 146 participants of government agencies in Seremban

Source: CMCF

The CMCF consistently received positive feedback from participants, who suggested that this programme be held more frequently, particularly in rural areas, to increase participants' understanding of the concept of self-regulation.

Malaysian Technical Standards Forum Bhd

The primary role of the Malaysian Technical Standards Forum Bhd (MTSFB) is to develop technical codes for adoption by the C&M industry. In line with the CMA, the MTSFB is tasked to develop technical codes that shall include, but not be limited to the requirements for network interoperability and the promotion of safe network facilities.

As at end of December 2020, the MTSFB has developed 53 technical codes in total that have been registered with the MCMC, out of which 22 were technical codes developed for the purpose of certifying communications equipment under the Communications and Multimedia (Technical Standards) Regulations 2000. In 2020, 11 technical codes were registered, as listed in Figure 7.16.

Throughout 2020, the MTSFB organised a series of public awareness programmes for technical codes registered with the MCMC called the Technical Codes Programme 2020 (TCP 2020). The programme brought in a group of committed subject-matter experts to share their expertise on 10 Technical Codes registered, mainly on the topics of infrastructures, radiocommunications networks and broadcast requirements.

Figure 7.16: List of Technical Codes Registered in 2020

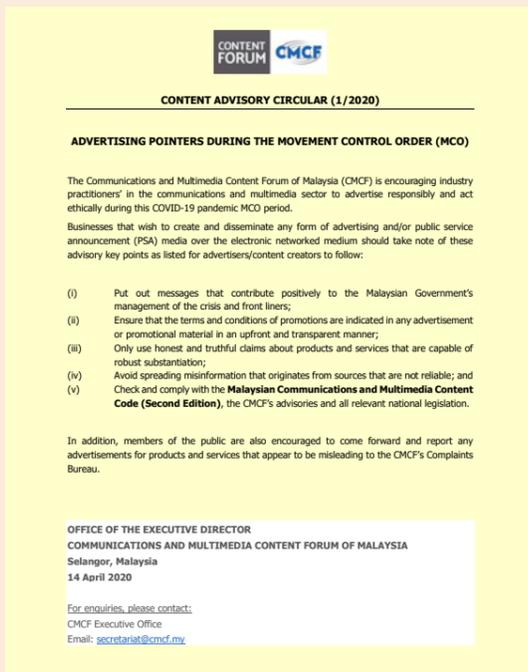
No.	Technical Code
1.	MCMC MTSFB TC T007:2020 - Short Range Devices (SRD) - Specifications (Second Revision)
2.	MCMC MTSFB TC T011:2020 - Digital Terrestrial Television (DTT) Broadcast Service Receiver - Common Test Suite (Second Revision)
3.	MCMC MTSFB TC G002:2020 - Digital Terrestrial Television (DTT) - Hybrid Broadcast Broadband Television Middleware Profile (Second Revision)
4.	MCMC MTSFB TC G022:2020 - Internet of Things (IoT) - High-Level Functional Architecture
5.	MCMC MTSFB TC G023:2020 - Hydrogen Storage and Safety with Fuel Cell as Power Generator for Information, Communications and Technology (ICT) Infrastructure
6.	MCMC MTSFB TC G024:2020 - Fixed Network Facilities – In-building and External
7.	MCMC MTSFB TC G025-1:2020 - Basic Civil Works – Part 1: General Requirements
8.	MCMC MTSFB TC G025-2:2020 - Basic Civil Works – Part 2: Open Trench
9.	MCMC MTSFB TC G025-3:2020 - Basic Civil Works – Part 3: Micro Trench
10.	MCMC MTSFB TC G025-4:2020 - Basic Civil Works – Part 4: Horizontal Directional Drilling (HDD)
11.	MCMC MTSFB TC G026:2020 - Radiocommunications Network Facilities – Street Furniture

Source: MTSFB

The year also witnessed the MTSFB's active participation in the Asia Pacific Telecommunity's (APT) preparatory work for the World Telecommunication Standardization Assembly 2020 (WTS 2020). Due to COVID-19, more participants from the working groups were able to participate and contribute since all the preparatory meetings were held virtually. A total of nine contribution papers were submitted by Malaysia to the APT and were accepted as part of the APT's Common Proposal for submission to the WTS 2020.

CMCF Media Engagement

As the impact of the MCO has created "new norms", most content creators are seeking different forms of advertising content. To ensure that content creators comply with the Content Code, the CMCF released its first Content Advisory Circular to the industry via its members.



MARKET REGULATION

The MCMC is responsible for reviewing and formulating regulatory policies and instruments on competition, including investigating and resolving complaints on anti-competitive conduct to ensure that competition in the communications market is fair and equitable. In addition, the MCMC monitors the rates charged for communication services.

Anti-Competition Behaviour Complaints

The provisions for General Competition Practices are set out in Part VI, Chapter 2 of the CMA. One of the main responsibilities of the MCMC is to monitor and resolve competition complaints so that anti-competitive behaviour does not undermine competition in the market.

In 2020, the MCMC received a total of 53 complaints from the MCMC Consumer Complaints Bureau. The majority of these complaints are about the issue of exclusive rights and high retail prices. Due to the escalating complaints on the issue of exclusive rights, in August 2020, the MCMC collaborated with the Malaysia Competition Commission to issue a press release. The statement stressed that action will be taken under the CMA and/or the Competition Act 2010 against parties who enter into exclusive agreements.

Accounting Separation

Accounting separation has been implemented in Malaysia since 2013 on vertically integrated service providers to increase the level of transparency and identify anti-competitive behaviour. With the implementation of accounting separation, service providers at the wholesale and retail levels are required to submit accounting separation reports according to the template provided by the MCMC in the Accounting Separation Guidelines (updated on 1 November 2016).

The Guidelines stipulate that service providers with revenues and total assets of RM3 billion and above are required to produce audited regulatory financial statements (RFS) by the identified services in the wholesale and retail businesses. However, service providers with revenues and/or total assets that fall below the RM3 billion threshold are only required to produce simplified RFS by the wholesale and retail business segment.

Currently, the accounting separation obligation applies to seven service providers, namely Telekom Malaysia Bhd, Celcom Axiata Bhd, Maxis Bhd, Digi Telecommunications Sdn Bhd, U Mobile Sdn Bhd, TT dotCom Sdn Bhd and YTL Communications Sdn Bhd. In the year 2020, accounting separation reports for the financial year 2019 were received from all seven service providers within the stipulated timelines and the MCMC reviewed the reports to identify anti-competitive conduct.

In 2019, the MCMC observed that for most service providers, retail services generated higher revenue as compared to wholesale services, except for two service providers that generated higher revenue from wholesale services. Revenue from retail services accounted for between 30% and 91% of the total revenue while revenue from wholesale services accounted for 9% to 54%.

In general, most wholesale services and retail services recorded a positive rate of return (RoR) on turnover. The RoR was highest for call termination and inbound international roaming in the wholesale segment, while for the retail segment, the RoR was highest for national calls and connection and subscription. For the simplified RFS, the RoR was positive for all business segments, except for one service provider that reported a negative RoR for its retail segment due to high fixed operational costs and the discontinuation of certain projects.

Retail Rate Monitoring

Rate regulation is set out in Part VIII, Chapter 4 of the CMA and Section 198 outlines the principles on rate setting. The MCMC monitors the retail rates offered by licensees to ensure that they are in line with the rate-setting principles. In addition, retail rate monitoring is also important to assess the level of competition in the market and identify anti-competitive pricing practices. In 2020, the MCMC monitored 59 licensees offering various services to consumers.

The COVID-19 pandemic has led to an increase in fixed broadband services. Between 2019 and 3Q of 2020, the number of subscriptions for broadband services increased by 8.6%. Also in the third quarter of 2020, 52% of total fixed broadband service subscriptions were for speeds of 100Mbps and above.

When compared to the ASEAN region, Malaysia offered the second-lowest prices for fixed broadband services of 30Mbps and 100Mbps (both after Vietnam), as well as of 300 Mbps (after Thailand). As for the 500 Mbps package, Malaysia ranked third after Singapore and Thailand. Prices for mobile broadband services were also competitive when compared to the ASEAN region.

Implementation of Access List, Mandatory Standard on Access and Mandatory Standard on Access Pricing

The MCMC has published instruments related to access and interconnection, as follows:

- (a) Commission Determination on Access List, Determination No. 2 of 2015 (Access List) dated 24 August 2015 that came into force on 1 September 2015
- (b) Commission Determination on the Mandatory Standard on Access, Determination No. 3 of 2016 (Mandatory Standard on Access) dated 8 December 2016 that came into force on 1 January 2017
- (c) Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2017 (Mandatory Standard on Access Pricing) dated 20 December 2017 that came into force on 1 January 2018

A key activity that was conducted as part of implementation was to educate the industry on the access framework and the roles and responsibilities of the licensees. Hence, in 2020, the MCMC conducted four awareness sessions for 18 new Individual licensees.

The MCMC plays an important role in ensuring the compliance of licensees with the CMA and its instruments. Firstly, the MCMC assessed more than 55 Access Agreements for registration pursuant to Section 150 of the CMA. Secondly, the MCMC assessed more than 21 Reference Access Offers that were published by Access Providers on their respective websites. Thirdly, the MCMC received and assessed more than 104 reports to ensure compliance with the relevant instruments.

During 4Q 2020, the MCMC also commenced the review of the Access List and the Mandatory Standard on Access. In this regard, 22 information-gathering sessions with 51 licensees were conducted. This review is expected to be completed in 2021.

COMMUNICATION REGULATION

Prepaid Audit Activity

As per the Guidelines on Registration of End-Users of Prepaid Public Cellular Services MCMC/G/01/17 (Prepaid Guidelines), the MCMC may from time to time audit its service providers or dealers. The MCMC conducts audits to assess the compliance level of prepaid registration procedures by service providers and its representatives (dealers) with the Prepaid Guidelines. Any violation of the Prepaid Guidelines is an offence under the service provider's Licence Condition and enforcement action can be taken under Section 242 of the CMA.

From June to December 2020, the MCMC conducted an online-prepaid registration audit to measure the compliance level with the Prepaid Guidelines. During the audit, the officers purchased SIM cards from the following online platforms:

e-Commerce platforms Shopee, Lazada and etc
Mobile Applications Celcom Life, Yodoo, Unifi Mobile
Portals Service Providers' Official Websites

Out of the 82 SIM cards purchased, 27 SIM cards were found to be registered without proper verification. Some of the registration processes allowed registration using photocopies or pictures of identification documents and pre-activated SIM cards were also sold without any registration requirements. Further enforcement action will be taken against the relevant service providers on the non-compliance.

Figure 7.17: Summary of the Online-Prepaid Registration Audit



Source: MCMC

In 2020, 70 compounds amounting to RM3.45 million were issued to service providers for non-compliance with the Prepaid Guidelines.

Figure 7.18: Statistics on Compounds Imposed on Service Providers Due to Non-Compliance 2020

Service Provider	FIR	Compound (RM)
Digi Telecommunications Sdn Bhd	15	750,000
Maxis Broadband Sdn Bhd	17	850,000
Tune Talk Sdn Bhd	5	250,000
U Mobile Sdn Bhd	10	500,000
YTL Communications Sdn Bhd	4	190,000
Celcom Axiata Bhd	15	750,000
Tone Plus Sdn Bhd	1	10,000
XOX Com Sdn Bhd	3	150,000
TOTAL	70	3,450,000

Source: MCMC

The MCMC continuously undertakes monitoring and enforcement activities to ensure Prepaid Registration Guidelines are complied with by service providers and its representatives.

Apart from the audit conducted to check on the prepaid registration process, the MCMC also performed data verification exercise with National Registration Department (NRD) to verify the integrity of prepaid subscriber's database and to rectify unmatched data from service providers' database.

This exercise is conducted twice yearly and any inaccurate registration will be suspended and terminated by the service providers within the stipulated time given.

Mobile Content Services

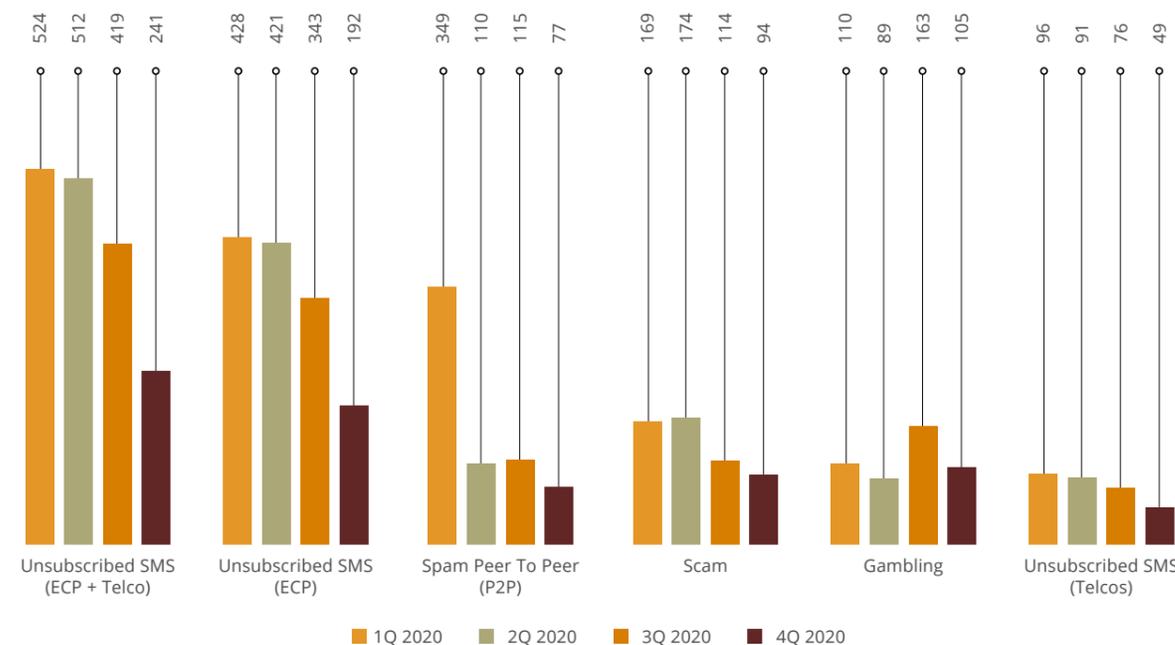
Through the Mandatory Standards for the Provision of Mobile Content Services (MCS), Determination No. 4 of 2009 (MSMCS), the MCMC provides adequate consumer safeguards and guidelines for the mobile content industry.

However, over the years, the delivery or provision of MCS has evolved from the use of traditional text-based SMS to the use of Internet Protocol (IP)-based applications. The advancement of mobile communications technology and IP-based services has allowed mobile content to be available on any mobile and fixed device that supports IP-based content platforms.

The convergence of MCS and IP-based content services has created a gap in the regulatory framework of the MSMCS. The fluidity of the mobile content industry has also caused MCS complaints to be one of the top consumer complaints received by the MCMC. Figure 7.19 illustrates MCS-related complaints received by the MCMC in 2020, which are represented as "Unsubscribed SMS".

In view of the above, the MSMCS is currently being reviewed to ensure that it encompasses newer forms of service delivery and to ensure better protection of consumers.

Figure 7.19: Top SMS-related Complaints in 2020
Number of Complaints



Source: MCMC

Compliance Monitoring Activities

In ensuring MCS providers' compliance with the MSMCS, the MCMC has adopted various measures including rigorous monitoring and taking action against cases of non-compliance. The initiatives adopted in monitoring the compliance of the MCS providers are summarised in the figure below.

Figure 7.20 Compliance Monitoring and Actions Taken

No.	Initiative	Description	Output
1.	Compliance Monitoring	<ul style="list-style-type: none"> Development of Standard Operating Procedures (SOPs) for MCS complaints handling. Periodical evaluation of complaints to assess compliance with the MSMCS. 	Rectification actions by MCS providers, e.g. improvement of subscription flow, SMS MO/MT and advertisement materials.
2.	Administrative Actions	<ul style="list-style-type: none"> Issuance of Notice of Non-Compliance and Warning Letters to MCS providers. Suspension of Short Codes found to have breached the MSMCS. Issuance of FIRs. 	Rectification actions by MCS providers including: <ol style="list-style-type: none"> Refunds to all affected customers. Removing affected customers from CP's database. Rectifying errors in CP's system.
3.	Regular meetings with MCS providers	<ul style="list-style-type: none"> Meetings held with MCS providers to understand the root causes of any substantial rise in MCS complaints. Meetings are focused on identifying MCS that contribute to the spike in complaints, e.g. issues related to third-party MCS such as Coda services affecting Digi customers, and MNO-owned VAS such as Celcom's BigWin. 	Mitigation actions to improve subscription mechanism/flow. Complaints reduced after MCS providers adopted stricter rules and intensified awareness of consumers.

Source: MCMC

Through consistent administrative actions in mitigating MCS-related consumer issues, including the issuance of warning letters, penalties and suspension of MCS short codes and keywords, the MCMC has managed to reduce overall MCS quarterly complaints. The MCMC is continuously working together with mobile content industry players and aggregators to address MCS issues faced by consumers.

The MCMC has consulted and engaged with various stakeholders since 2015 with the aim of reviewing the MSMCS, which is targeted for completion by 2021. The MCMCS review is timely and crucial to ensure its relevance as the instrument to safeguard consumers. In this regard, the MCMC is guided by the objectives of empowering consumers while ensuring the responsibility of service providers to keep consumers informed.

Mobile Virtual Network

The Mobile Virtual Network (MVN) service is a wireless communication service that provides telecommunication services through the infrastructure and networks of existing Mobile Network Operators (MNOs).

The Mandatory Standard for the Provision of Services through a Mobile Virtual Network, Determination No. 3 of 2015 (MSMVN) establishes the following:

MVN	Means Mobile Virtual Network, where a licensee is capable of providing public cellular services to end-users by accessing the radio network(s) of one or more spectrum holders
MVN service provider	Means Mobile Virtual Network service provider who fulfils any of the following criteria: <ul style="list-style-type: none"> Requires radio access from another service provider; Requires infrastructures from another service provider to enable services to be provided to the subscriber; or Subscribes to the wholesale service(s) provided by another service provider.

In 2020, Telekomunikasi Indonesia (Malaysia) Sdn Bhd (Telin), an MVNO for U Mobile under the brand "KartuAs", decided to terminate its MVN services through the issuance of a Stage 2 MVN Service termination notice.

The MCMC monitored the compliance of Telin's action with the MSMVN, and Telin complied with and completed the termination process in August 2020. Telin's decision to stop providing MVN services was mainly due to commercial and financial reasons.

The initiative, which started in 2012, requires an official application from the local authorities to the MCMC to enable the termination of the affected mobile numbers. A working group was established consisting of officials of the Ministry of Urban Well-being, Housing and Local Government (KPKT) and the MCMC to develop standard operating procedures to coordinate and standardise the process of terminating the affected mobile numbers.

The table below indicates the total number of mobile numbers terminated as at November 2020.

Termination of Mobile Number Due to Illegal Advertisements

The issue of illegal advertisements is a major concern among local authorities in Malaysia. The issue is becoming more prevalent, with illegal advertisements posted everywhere, particularly in public places. Such activities affect the image of the cities in Malaysia, particularly the city of Kuala Lumpur.

Consequently, the local authorities in Malaysia have intensified their monitoring and enforcement activities to address the issue effectively and ensure due punishment of the perpetrators. Apart from this, the local authorities have also initiated a collaboration with the MCMC to terminate all telephone numbers displayed or posted in the illegal advertisements.

Figure 7.21 Total Number of Mobile Numbers Terminated



Source: MCMC

CONTENT REGULATION

Public Service Announcements (PSAs)

The year 2020 was a vital year for PSAs as public awareness played a bigger role in educating the public on essential information. Licensees played a huge role in ensuring the dissemination of PSAs in order to maintain an updated society at all times.

The source of PSAs typically come from:

- The Ministry of Communications and Multimedia (KKMM);
- The National Film Development Corporation Malaysia (FINAS);
- The National Anti-Drugs Agency (AADK);
- Agensi Kaunseling & Pengurusan Kredit (AKPK);
- The Prime Minister's Office (JPM);
- Suruhanjaya Syarikat Malaysia (SSM); and
- The Malaysia Digital Economy Corporation (MDEC).

The MCMC requires all licensees to ensure the dissemination of such PSAs to the general public through TV and radio platforms on a regular basis and within a stipulated time frame.

These PSAs provide vital information on the latest COVID-19 news updates, various MCO stages, the government's economic stimulation initiatives such as the PAKEJ RANSANGAN EKONOMI PRIHATIN RAKYAT (PRIHATIN), government economic recovery initiatives such as Pelan Jana Semula Ekonomi Negara (PENJANA), virus hotspots and the SOPs related to COVID-19.

Figure 7.22: Some Examples of PSAs



- | | | | |
|---|----------------------------|---|-------------------------|
| 1 | ASTRO's PSA on Instagram | 2 | ASTRO's PSA on Facebook |
| 3 | CATS FM's PSA on Instagram | 4 | BFM's PSA on Instagram |

Source: Industry



COVID-19 Public Dissemination Initiative via SMS

Aside from the PSAs made to the general public through TV and radio platforms, the MCMC collaborated with Majlis Keselamatan Negara (MKN), the Ministry of Health (MOH) and service providers to disseminate messages pertaining to COVID-19 to the public via SMS blasts. This initiative is aimed at ensuring that the public obtained accurate information and remained updated on the latest status of the COVID-19 situation in Malaysia.

The details of the initiative, which began on 26 February 2020 and involved SMSs being sent to mobile phone users in Malaysia throughout 2020, are given below:

Item	Amount
Types of SMS notifications	212
Number of service providers involved	13
Number of SMSs sent	8 billion

Live and Delayed Telecast Applications (LDTAs)

For live and delayed transmission programmes, all requests from Individual Content Applications Service Provider (CASP-I) licensees require the MCMC's approval before going on air, except for ASTRO subscription TV.

A total of 117 Electronic Live/Delayed Telecast Applications (E-LDTAs) were received and processed by the MCMC in 2020, with a successful approval rate of 100%.

Even with many concerts, events, live shows and award shows being put on hold or called off, TV3 still had the highest numbers of LDTAs at 37 programmes, followed by unifi TV at 19, and TV AlHijrah at 17, as shown in Figure 7.23.

Apart from ensuring compliance with the Content Code, CMA and other relevant laws, the MCMC also shared all necessary COVID-19 SOPs and guidelines from the MOH and MKN with licensees as guidelines for all live and delayed programmes.

Figure 7.23: LDTA Programmes Received & Processed by the MCMC Based on Station

TV3	37
Unifi TV	19
TV AlHijrah	17
TV9	13
8TV	9
NTV7	9
Bername TV	3
IKIM	3
ERA FM (Sabah)	2
Manis FM	2
Awesome TV	1
Hot FM	1
MY FM (Sarawak)	1
TOTAL	117

Source: MCMC

Complaints Management

In accordance with the CMA, licensees of Individual Content Applications Service Provider (CASP-I) are required to comply with the license conditions, Content Code and CMA.

In 2020, a total of 37 complaints relating to radio and TV broadcast content were received and investigated by the MCMC. As shown in Figure 7.24, there were 18 complaints on Terrestrial FTA TV, 14 complaints on Pay TV and five complaints on radio.

Figure 7.24: Trend of Complaints Received by Platform

Platform	No. of Complaints	
	2019	2020
FTA TV	7	18
Pay TV	18	14
Radio	11	5
TOTAL	36	37

Source: MCMC

The MCMC takes consumer complaints seriously and is committed to ensuring broadcast content provided to Malaysians is suitable and in line with Malaysian values. The actions taken in addressing complaints include raising FIRs as well as issuing warning and show cause letters to licensees

Figure 7.25: Action Taken on Complaints

Action Taken	1Q	2Q	3Q	4Q	Total
FIR	-	-	3	-	3
Warning/Advisory Letter	10	4	2	-	16
Show Cause Letter	-	5	4	1	10
No Breach	-	4	-	1	5
Under Review by CMCF	-	-	-	3	3
TOTAL	10	13	9	5	37

Source: MCMC

SPECTRUM MONITORING AND INTERFERENCE RESOLUTION

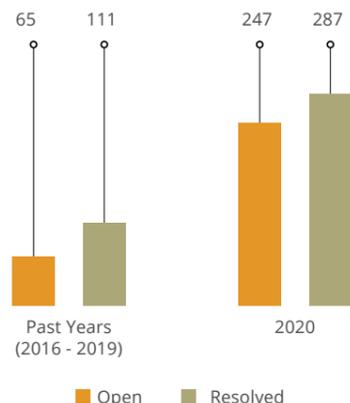
Spectrum Interference

In 2020, the MCMC managed to resolve 398 Radio Frequency Interference (RFI) cases. The MCMC received and investigated a total of 710 cases including 176 carried forward from previous years into 2020. Figure 7.26 illustrates the number of investigated RFI cases in 2020 and the cases carried forward from past years. These cases are categorised under “Open” and “Resolved”.

There were 534 new RFI cases lodged in 2020, of which 111 cases were RFI complaints and 423 cases were RFI scanning requests. Following the issuance of guidelines on RFI submission, which came into force on 1 January 2021, the MCMC will only receive and investigate RFI scanning requests from government agencies, whereas other licensees must submit RFI complaints to the suspected premises in the event they encounter external interference.

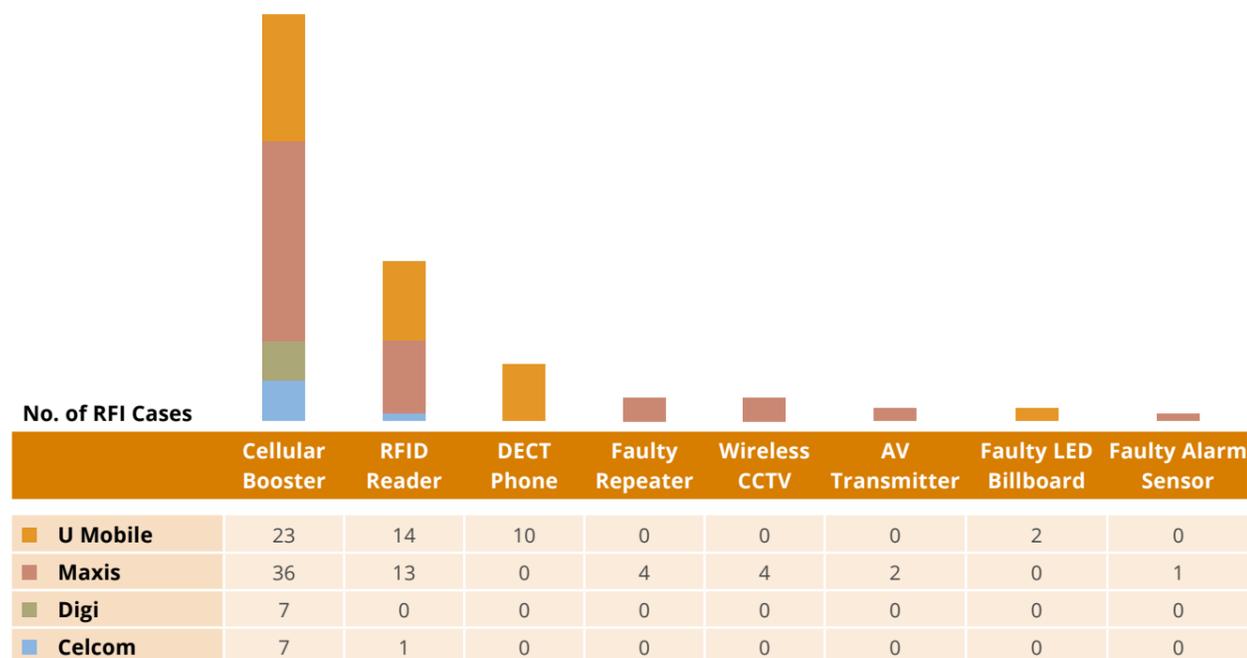
Figure 7.27 summarises the number of RFI cases involving non-standard equipment found in 2020 with respect to their licensees. A total of 124 of the 398 cases relating to non-standard equipment have been resolved. Cellular boosters or repeaters contributed to 73 RFI cases that resulted in 227 units of devices found based on investigations conducted nationwide. Cases on Radio Frequency Identification readers followed in second place with 28 RFI cases involving approximately 33 units of devices found. Digital Enhanced Cordless Telecommunications phone cases were the third highest with 10 RFI cases, with more than 12 units found during investigations.

Figure 7.26: RFI Case Status as at 31 December 2020
Number of Complaints



Source: MCMC

Figure 7.27: Number of RFI Cases According to Interfering Equipment Type In 2020



Source: MCMC

A cellular booster is an electronic device that improves existing 2G, 3G and 4G LTE networks. Basically, cellular boosters help to improve poor call quality and weak cell signals and provide faster data speeds.

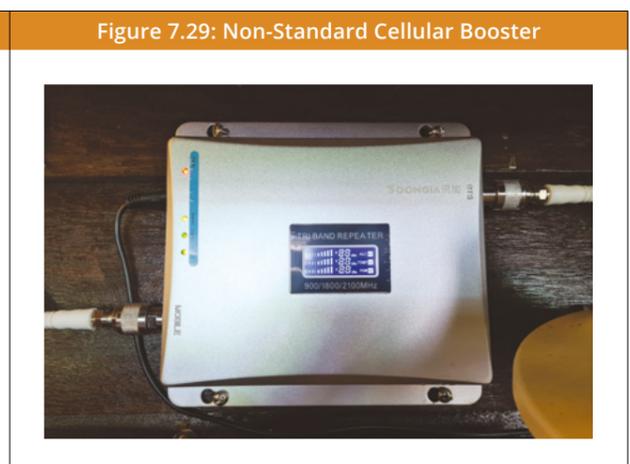
These devices (also known as signal extenders, signal amplifiers or cell phone repeaters) work by pulling in a weak outside signal, boosting it and rebroadcasting the boosted signal to the desired areas. They also work in reverse, whereas the cellular boosters receive signals from mobile phones and send them back to the telecommunications tower.

In view of the high number of cellular boosters as sources of interference, the MCMC published the Guideline on the Purchase, Usage and Possession of Cellular Booster or Repeater on 15 December 2020. The Guideline introduces a mechanism to control the purchase and usage of cellular boosters by the public and sets out a policy whereby only service providers are allowed to supply and install certified cellular boosters for their customers as a solution to address poor or no coverage complaints.

Figure 7.28 and Figure 7.29 illustrate the antenna used by a cellular booster and the cellular booster itself, respectively.



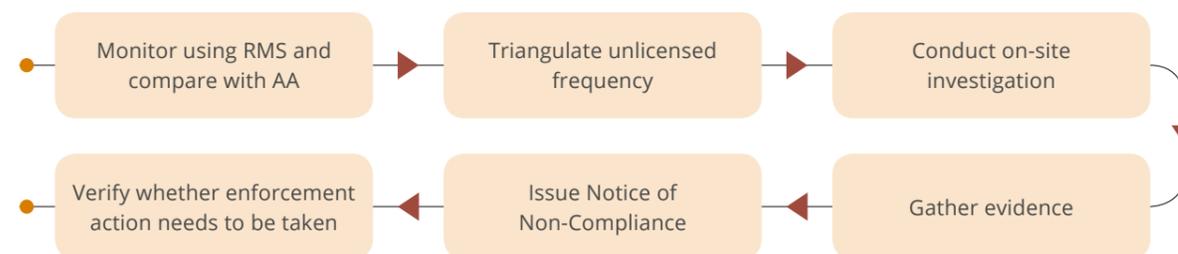
Source: MCMC



Spectrum Monitoring From 30 MHz to 18 GHz

The MCMC monitored the 30 to 500 MHz frequency range in 1Q and 2Q 2020. Subsequently, the MCMC carried out on-site investigations in 3Q and 4Q 2020. Monitoring activities performed were focused on high radio population areas within 50km of the MCMC’s Remote Monitoring Stations (RMS). Spectrum data were gathered from all 35 RMS located all over Malaysia and further monitoring activities were executed using neighbouring RMS to triangulate suspected areas of unlicensed frequencies. A particular frequency is categorised as an unlicensed frequency when it is found operating without Apparatus Assignment (AA). The overall process is summarised in Figure 7.30.

Figure 7.30: Unlicensed Frequency Monitoring Process



Source: MCMC

QUALITY ASSURANCE AND CONSUMER PROTECTION

The MCMC has carried out 11 on-site investigations after completion of technical analysis in 2Q 2020 and successfully investigated 24 unlicensed frequencies, as detailed in Figure 7.31.

Figure 7.31: Unlicensed Frequencies Recorded in 2020

No.	Frequency (MHz)	Bandwidth (kHz)	Region	Site
1.	125.3250	25.0	Central	Subang Airport
2.	126.4500	25.0	Central	KLIA
3.	128.0500	25.0	Central	Subang Airport
4.	383.0750	12.5	Central	MITEC
5.	390.1250	25.0	Central	Hang Tuah Station
6.	390.3750	25.0	Central	Imbi Station
7.	390.6250	25.0	Central	Bukit Bintang Station
8.	390.8750	25.0	Central	Merdeka Station
9.	391.1250	25.0	Central	LRT Depot
10.	391.3750	25.0	Central	LRT Depot
11.	391.6250	25.0	Central	LRT Depot
12.	391.8750	25.0	Central	LRT Depot
13.	392.1250	25.0	Central	LRT Depot
14.	394.4755	25.0	Central	Kajang Station
15.	396.2250	25.0	Central	Kajang Station
16.	423.5500	12.5	Central	Genting Highlands
17.	423.8750	12.5	Central	Genting Highlands
18.	424.0750	12.5	Central	Genting Highlands
19.	424.0875	12.5	Central	Genting Highlands
20.	424.8000	12.5	Central	Genting Highlands
21.	120.7	200	Northern	Bukit Penara
22.	128.2500	25.0	Eastern	Kerteh Airport
23.	153.4625	12.5	Eastern	Tumpat
24.	421.7500	12.5	Eastern	Bukit Bauk

Source: MCMC

Figure 7.32 shows the equipment used to operate on the 153.4625 MHz frequency without AA and its location in Tumpat, Kelantan. The MCMC also monitors frequencies of cellular mobile base stations and microwave link stations that operate without AA. Figure 7.33 shows the setup of microwave link monitoring using the new Mobile Monitoring System (MMS).

Figure 7.32: Radio Repeater Without AA



Source: MCMC

Figure 7.33: Microwave Link Monitoring Setup



Source: MCMC

QUALITY ASSURANCE AND CONSUMER PROTECTION

Figure 7.34: Locations of 13 Monitored Sites in Selangor



Source: MCMC

Figure 7.34 shows the locations of 13 monitored sites in Selangor from January to September 2020.

Consequently, the MCMC found five microwave links that were operating without AA based on 13 monitored sites, as summarised in Figure 7.35. The detection of the illegal microwave links resulted in new AA applications from the licensees (3 links), cessation of link (1 link) and adjustment of frequency according to the AA (1 link).

Figure 7.35: Summary of Microwave Links Operating Without AA in 2020

No.	Microwave Link
1.	Kg Sg Jenjarom – 14669 MHz
2.	Kg Sg Jenjarom – 14697 MHz
3.	Kanchong Darat – 14641 MHz
4.	Taman Bakti – 12905 MHz
5.	Elite RNR Bukit Raja – 17837 MHz

Source: MCMC

Spectrum Monitoring in Satellite C-Band

Satellite C-band communications utilise frequency ranges from 3.7 to 4.2 GHz for downlink transmissions and 5.925 to 6.425 GHz for uplink transmissions. The MCMC monitored C-band uplink transmissions between January and September 2020 to verify the frequency and bandwidth utilised by licensees. The monitoring activity was conducted

using a satellite monitoring station with an 8-metre dish antenna located at the MCMC Centre of Excellence building, as shown in Figure 7.36. Such activity was focused on earth stations that communicate via the orbital slot of 91.5°E where three satellites are located, namely MEASAT-3, MEASAT-3A and MEASAT-3B.

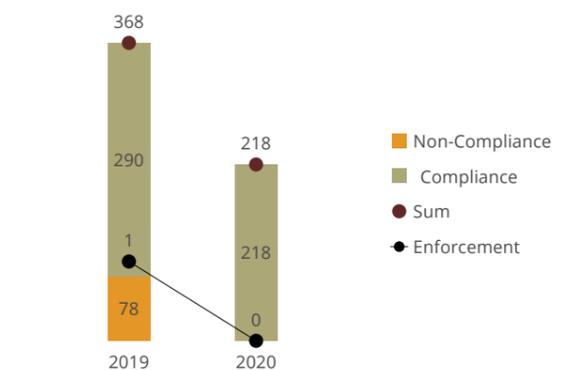
Figure 7.36: The MCMC Satellite Monitoring System



Source: MCMC

The MCMC monitored 218 earth stations' AA records with 59 unique uplink frequencies involving 12 licensees. Monitoring results show that all 12 licensees complied with and operated according to their approved uplink frequency and bandwidth as stated in the AA. Two years of continuous monitoring activities from 2019 to 2020 have resulted in 100% compliance, as shown in Figure 7.37.

Figure 7.37: Comparison of Compliance From 2019 to 2020



Source: MCMC

QUALITY OF SERVICE

Mandatory Standards for Quality of Service

The Mandatory Standards on Quality of Service (MSQoS) is one of the key regulatory instruments to achieve the national policy objectives of the communications and multimedia industry as enshrined in the CMA, namely:

To regulate for the long-term benefit of the end-user	To promote a high level of consumer confidence in service delivery from the industry
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Licensees are obliged to submit reports to the MCMC no later than 30 days from the end of every quarter (if reporting is on a quarterly basis) or six weeks from the end of June or December (if the reporting is on a half-yearly basis).

The non-compliance with the MSQoS is categorised into three categories:

Submission of report is accurate and in a timely manner	Compliance with the minimum standards imposed	Failure to submit
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Non-compliance with the MSQoS is an offence under Section 109 of the CMA, read together with Section 242 on General Offence and Penalty. Offenders can be fined not more than RM200,000 under Section 109 or RM100,000 or to imprisonment for a term not exceeding two years, or to both, under Section 242.

analysis, the common denominator among the non-compliances was the promptness in answering calls to customer hotlines.

Below is the list of standards that the licensees failed to comply with, which led to the issuance of the notices:

Figure 7.38: Non-Compliances to the Standards

No.	Standard	Number of Non-Compliances			
		1Q	2Q	3Q	4Q
1.	Late Submission	-	1	-	-
2.	Promptness in Resolving Customer Complaints (Non-Billing-related Complaints)	1	1	-	1
3.	Promptness in Resolving Customer Complaints (Billing-related Complaints)	-	1	-	2
4.	Promptness in Answering Calls to Customer Hotline	8	9	2	3
5.	Non Billing-related Complaints per 1,000 customers	2	3	-	1
6.	Service Restoration Fulfilment	3	3	-	-
TOTAL		14	18	2	7

Source: MCMC

There are two parts to the QoS Standard for the MSQoS for Public Cellular Service, Wired Broadband Access Service and Wireless Broadband Access Service, namely "Network Performance Quality of Service" and "Customer Service Quality of Service".

Compliance With Customer Service Quality of Service

In 2020, the MCMC issued 30 notices of non-compliances, comprising 41 non-compliances with the standards, to 17 licensees for breach of Customer Service Quality of Service standards and late submission. The licensees were required to revert with their justifications and mitigation actions/plans. Based on the reporting and

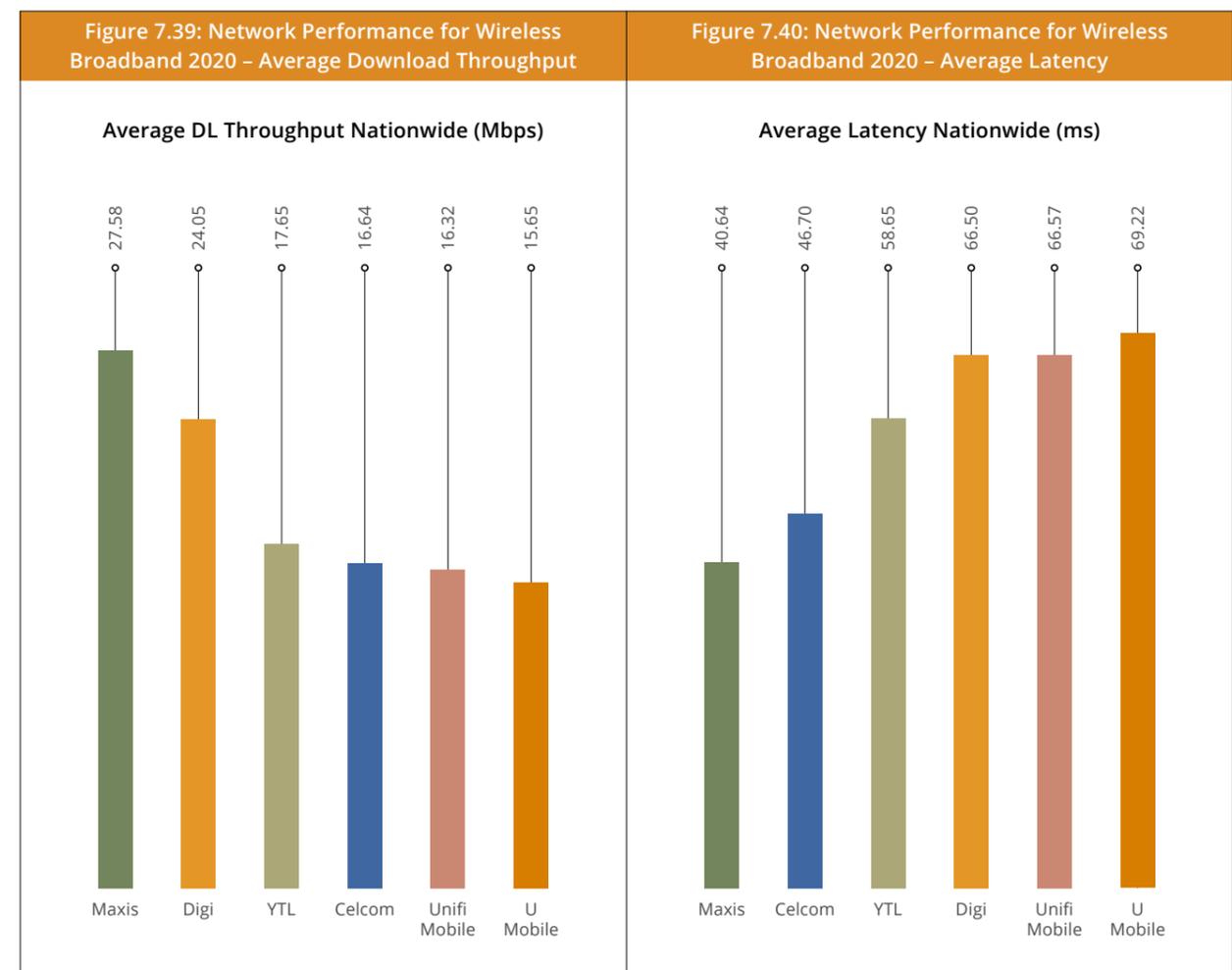
Network Performance Assessment

The MCMC conducts yearly network performance assessments on public cellular voice, mobile broadband and fixed broadband services. Service providers' performances are measured nationwide based on standards specified in the MSQoS on Public Cellular Service, Wireless Broadband Access Service and Wired Broadband Access Service.

The quality of the networks provided by service providers determines the quality that the consumers experience. The International Telecommunication Union for Standardization (ITU-T) states that the quality of service (QoS) offered and delivered by service providers must relate to the QoS perceived and required by the consumers. Hence, to ensure that the minimum QoS requirements are met by service providers and to satisfy the demands of the consumers, the MSQoS have been put in place.

Wireless Broadband Access Service Performance

The demand for data in today's digital environment does not solely focus on basic communication and entertainment; it has also branched out to businesses and lifestyles. Mobile broadband has always been considered as one of the main catalysts of this demand and to put this in perspective, Figure 7.39 and Figure 7.40 describe the average download throughput (Mbps) and the average network latency (ms), respectively, for each of the mobile service providers in Malaysia in 2020.



Source: MCMC

QUALITY ASSURANCE AND CONSUMER PROTECTION

QUALITY ASSURANCE AND CONSUMER PROTECTION

In 2020, the test locations for wireless broadband assessments were more focused on the complaints made by consumers. Figure 7.41 shows the overall network performance for wireless broadband in terms of compliance with the Mandatory Standards.

Figure 7.41: Network Performance for Wireless Broadband – Mandatory Standards Compliance for 2020

Service Provider	Overall (% of Time)		Overall Packet Loss (%) (≤ 3%)
	DL Speed ≥ 1 Mbps (≥ 80%)	Latency ≤ 250 ms (≥ 70%)	
Celcom	90.06	99.59	0.05
Digi	95.21	98.22	0.15
Maxis	97.59	99.66	0.04
U Mobile	91.69	98.84	0.18
Webe	88.74	98.43	0.11
YTL	98.05	99.44	0.01

Source: MCMC

Wired Broadband Access Service Performance

In terms of wired broadband network performance, the MCMC measures the QoS of home internet subscribers for both fibre and Digital Subscriber Line (DSL) internet access connections. Measurements are performed by connecting directly to the Customer Premise Equipment (CPE) or routers on the premises to gauge the actual service received compared to the customer's broadband subscription package. Network performance parameters for both fibre and DSL connections in the Mandatory Standards must be complied with by the wired service providers to safeguard the interest of consumers.

Figure 7.42 below shows the network performance of wired broadband services in Malaysia in 2020.

Figure 7.42: Network Performance for Wired Broadband – Mandatory Standards Compliance for 2020

Service Provider	Digital Subscriber Line Home Internet Access (%)				Fibre Home Internet Access (%)			
	Upload Speed	Download Speed	Latency ≤ 85%	Packet Loss	Upload Speed	Download Speed	Latency ≤ 85%	Packet Loss
	≥ 70% subscribed speed ≥ 90% of the time		≥ 90% of the time		≥ 90% of subscribed speed ≥ 90% of the time		≥ 95% of the time	
TM	100.00	99.96	100.00	0.06	99.74	98.41	99.84	0.02
Maxis	99.30	93.35	100.00	6.81	98.35	95.65	97.27	0.07
TIME					99.70	75.23	100.0	0.0

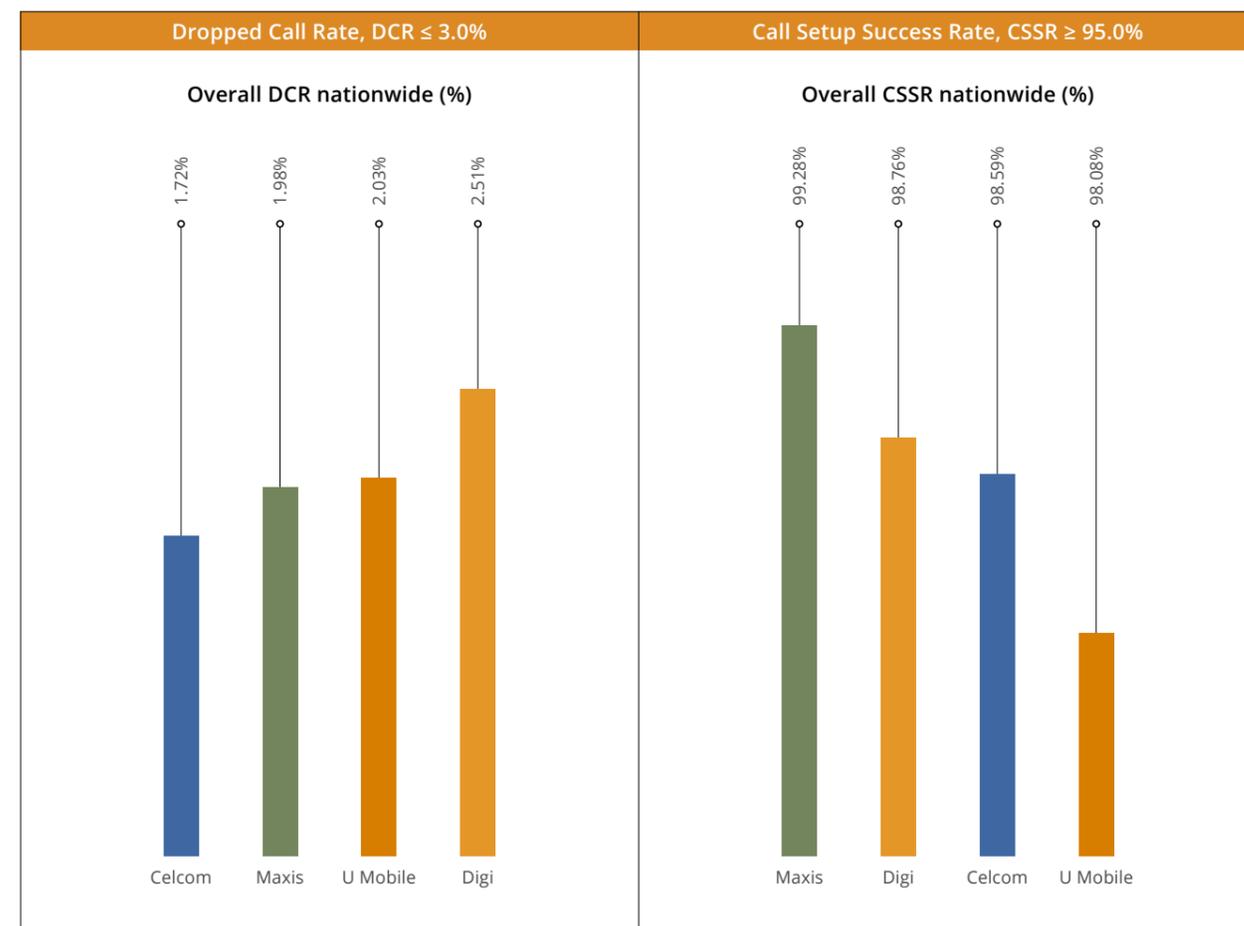
Source: MCMC

In terms of throughput and latency performance, a fibre connection as the last-mile access will be able to provide larger bandwidth capacity and better latency than DSL. This is due to the fibre technology itself, which is tailored to high-speed broadband by providing greater bandwidth to subscribers. Hence, the MCMC is embarking on providing gigabit connections to premises in Malaysia through the JENDELA initiative. Service providers are gradually moving toward replacing DSL technology with fibre for better performance, and this initiative will help in addressing consumers' growing expectations for faster internet speeds.

Public Cellular Service Performance

Public cellular voice call services are essential, even with today's trend of growing demand for data. Voice calls made on traditional circuit switch networks utilising 3G or 2G networks are still prevalent for communications between two parties. In realising the 3G sunset by 2021, the MCMC and service providers are working closely to enhance the deployment of Voice Over LTE (VoLTE) technology in order to provide equivalent or better voice call coverage. Hence, network performances of voice accessibility (Call Setup Success Rate, CSSR) and retainability (Dropped Call Rate, DCR) are measured nationwide by the MCMC to ascertain if service providers' networks meet the minimum requirements as stated in the MSQoS on Public Cellular Service. Figure 7.43 shows the performance of CSSR and DCR nationwide in 2020.

Figure 7.43: Public Cellular Service Performance - Mandatory Standards Compliance for 2020



Source: MCMC

Service providers are currently focusing on deploying VoLTE features in their networks. With this technology-enabled, consumers should be able to experience better voice call clarity. However, consumers need to ensure that their mobile devices support the VoLTE feature as it might not be supported by most of the older mobile devices.

SAFETY ASPECTS OF ELECTROMAGNETIC FIELD EXPOSURE (EMF) OF 5G NETWORKS IN MALAYSIA

In line with the implementation of the JENDELA initiative toward preparing the country's digital infrastructure for 5G network deployment, the MCMC has emphasised the safety aspects of this new mobile generation technology in relation to EMF. Initiatives undertaken by the MCMC include the following:

i) Radio Frequency – Electromagnetic Field (RF-EMF) Emission Measurement in Conjunction with the 5G Demonstration Project, Langkawi, Kedah

The MCMC, in collaboration with the Malaysian Nuclear Agency (ANM), conducted RF-EMF emission measurements in conjunction with the 5G demonstration project, which took place at Langkawi, Kedah from 20 to 22 January 2020. The objective of the assessment was to analyse the RF radiation levels based on the MCMC Mandatory Standard for Electromagnetic Field Emission from Radiocommunications Infrastructure (MS for EMF).

The RF-EMF measurements were conducted in five 5G Use Cases areas and six selected locations without 5G Use Cases in Langkawi, to compare the RF radiation levels between the designated 5G use case antenna and locations further from the 5G transmitter.

Figure 7.44 Locations of RF-EMF Measurements

No.	Location	Area
1	Hospital Sultanah Maliha (LH)	5G Use Cases
2	Berjaya Hotel & Resort (BR)	5G Use Cases
3	Langkawi International Airport (LA)	5G Use Cases
4	Teluk Burau (L01)	Non 5G
5	Pantai Datai (L02)	Non 5G
6	Teluk Yu (L03)	Non 5G
7	Tanjung Rhu (L04)	Non 5G
8	Durian Perangin Waterfall (L05)	Non 5G
9	Kilim Geoforest Park (L06)	Non 5G
10	Jalan Kelibang Kuah (L07)	5G Use Cases
11	Pantai Chenang (L08)	5G Use Cases

Source: MCMC

Figure 7.45: Locations of the Assessment on the Langkawi Map



The highest reading recorded for RF-EMF emission among the sites was only 0.9375% of the allowable exposure limit and thus adhered to the MS for EMF.



ii) Development of Technical Code on 5G Technology to Support the MCMC's Mandatory Standard for Electromagnetic Field Emission from Radiocommunications Infrastructure (MS for EMF).

The MCMC, via MTFSB and the Electromagnetic Field Sub Working Group under the International Mobile Telecommunications and Future Networks Working Group, developed a Technical Code on "Prediction and Measurement of EMF Exposure from Base Station" for the purpose of evaluating human exposure to EMF.

The Technical Code (TC) was developed to address the prediction and measurement methods in order to ensure industry compliance with the MS for EMF, especially on shared sites. The TC will also be used as one of the references for the new MS for EMF, which is scheduled to be revised in 2021.

In addition to the above, various types of information on EMF, among others, the results of related studies regarding potential health effects conducted under the MCMC initiative and standards and monitoring of RF EMF, as well as other reliable references, can be found on the MCMC website at <http://rfemf.mcmc.gov.my>.

This chapter reports on the performance and growth of the postal and courier industry. It provides data on postal and courier service traffic and the total number of courier licences in 2020. The chapter also emphasises that, among all the sectors in the C&M industry, this sector thrived during the COVID-19 pandemic, with an upsurge in e-commerce and package deliveries due to a shift in consumer shopping behaviour.

CHAPTER 8 :

POSTAL AND COURIER

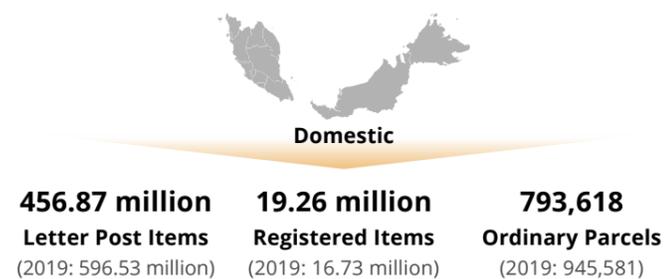
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KEY HIGHLIGHTS IN 2020

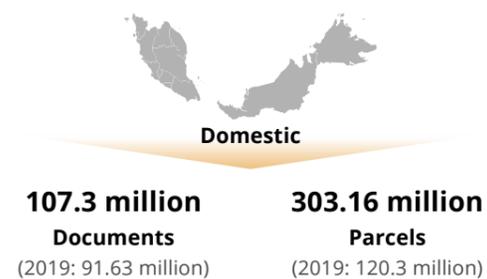
POSTAL AND COURIER SERVICES



POSTAL SERVICES TRAFFIC



COURIER SERVICES TRAFFIC



POSTAL SERVICES INDUSTRY PERFORMANCE 2020

The COVID-19 situation profoundly impacted all types of businesses and activities, slowing down many. As the COVID-19 virus spread during the first half of 2020, governments worldwide implemented the requisite policies to mitigate the spread of the virus. This resulted in a reduction in domestic and international mobility and severed global supply chains.

Similarly, the Government of Malaysia initiated the first phase of the Movement Control Order (MCO) on 18 March 2020 to curb the transmission rate of the virus. The MCO implemented a series of precautionary measures, including temporary closure of or restricted access to government and private premises, except those involved in "essential services" such as health, telecommunications and delivery services.

Pos Malaysia, along with other essential service providers, continued to play an important role in keeping the nation connected and in delivering essential goods. The spike in demand for parcels during the MCO offset the reduced revenue from postal services.

Nevertheless, it is anticipated that there will still be uncertainty over the pandemic's future impact on the postal services given the continuous decline in mail volume. On the other hand, parcel volume will keep rising, given the shift in consumer behaviour toward online buying trends



Postal Services Access

The key function of the MCMC under the Postal Services Act 2012 (Act 741) is to ensure the implementation of the universal postal services provisions in Malaysia. Pos Malaysia Bhd is the sole appointed and licensed universal postal services provider, providing basic and competitive postal services in Malaysia. Basic postal services as defined under the Postal Services (Universal Service) Regulations 2015 comprise:

Provision of basic and registered domestic and international mail and parcel services	Provision of five-day-a-week collection and delivery services, except in rural areas	Provision of a minimum of 1,000 postal outlets nationwide
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Figure 8.1: Postal Infrastructure 2020

Types	Total
Post Office	674
Mini Post Office	136
Postal Agent	232
Stamp Vendor	381
Mobile Post Office	21
Post Offices Accepting Financial Transactions	674
Sorting Office	20
International Office of Exchange	1

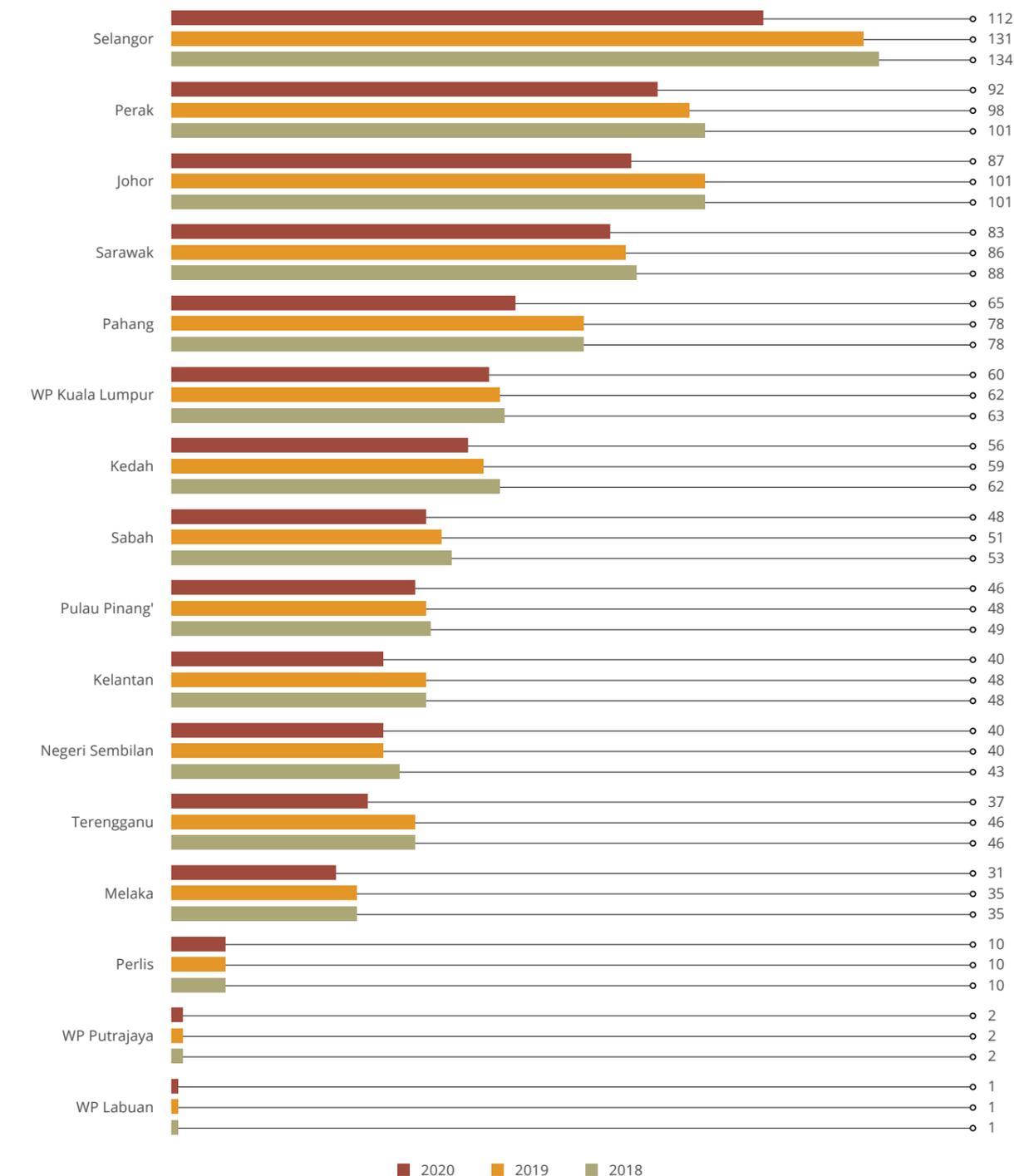
Source: Pos Malaysia

Postal infrastructure comprises establishments where customers may apply for postal services. These include post offices, mini post offices, postal agents, stamp vendors, mobile post offices, post offices accepting financial transactions and sorting offices.

As shown in Figure 8.1, there were 674 post offices and 136 mini post offices in Malaysia as at end-2020. Out of the total 810 post offices, 63% were located in urban areas while the remaining were in rural areas. Notably, there was a reduction of 86 post offices compared with 896 post offices in 2019.

By state distribution, Selangor had the highest number of post office establishments, with 112 offices, followed by Perak (92) and Johor (87). The figure below shows the total number of post offices by state (including mini post offices) between 2018 and 2020.

Figure 8.2: Post Offices by State 2018 – 2020



Source: Industry, MCMC

Postal Services Traffic

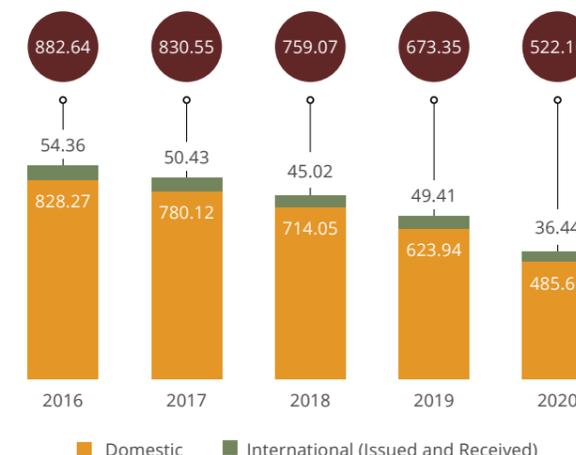
There were 522.1 million postal items delivered in 2020, a decline of 22% from 673.35 million in 2019. Postal items in domestic services and international services reduced by 22% and 26%, respectively. Postal items comprise letter post items, registered mail, ordinary parcels, express items, post-free items and advertising items.

For letter post items in domestic services, a total of 456.89 million items were handled (2019: 596.53 million). There was a decline of 23% or 139.64 million.

For letter post items in international services, 30.9 million items were handled, with 23.68 million items issued and 7.22 million items received in 2020.

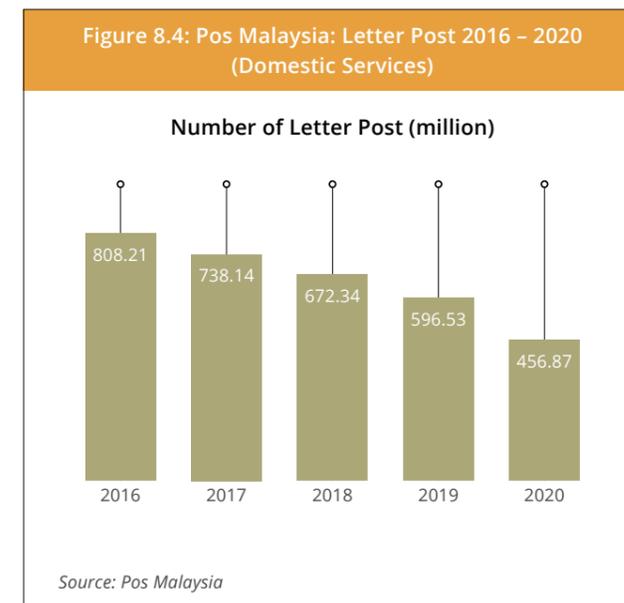
The total volume of international letter post items showed a decline between 2019 and 2020, mainly due to the closing of internal borders and slowing down of business activities globally due to COVID-19.

Figure 8.3: Pos Malaysia: Postal Services Traffic 2016 – 2020 (Overall)
Number of Postal Items (million)

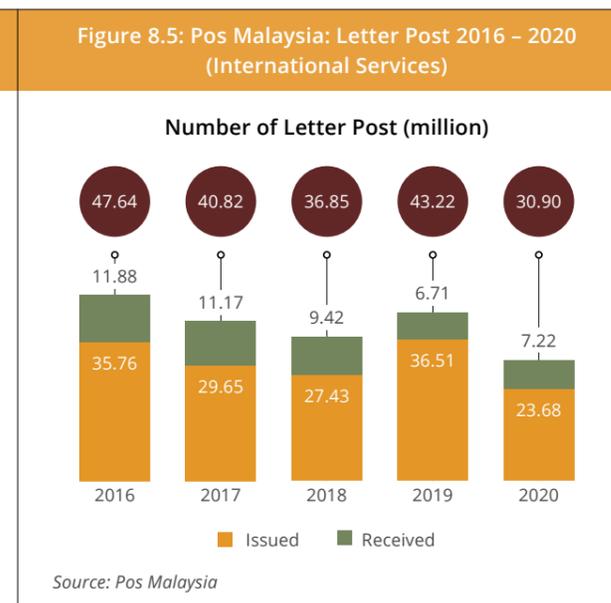


Notes: 1. Items handled by postal segment only. Pos Laju items are classified as courier traffic
2. For 2018, 2019 and 2020, there were 2.1 million, 1.2 million and 2.3 million post-free items (domestic), respectively
3. For 2018, 2019 and 2020, there were 1.6 million, 1.1 million and 0.5 million express items (domestic), respectively, while there were 1.4 million, 2 million and 3.5 million express items (international), respectively
4. For 2017, 2018, 2019 and 2020, there were 19 million, 17.7 million, 7.5 million and 6 million advertising items (domestic), respectively

Source: Industry, MCMC

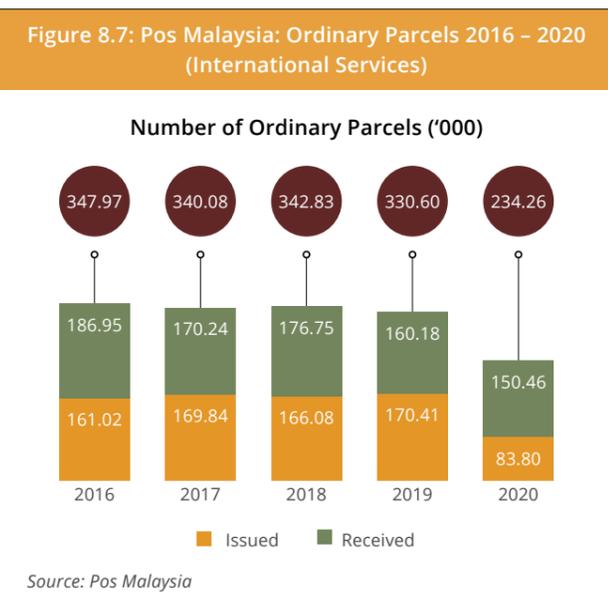
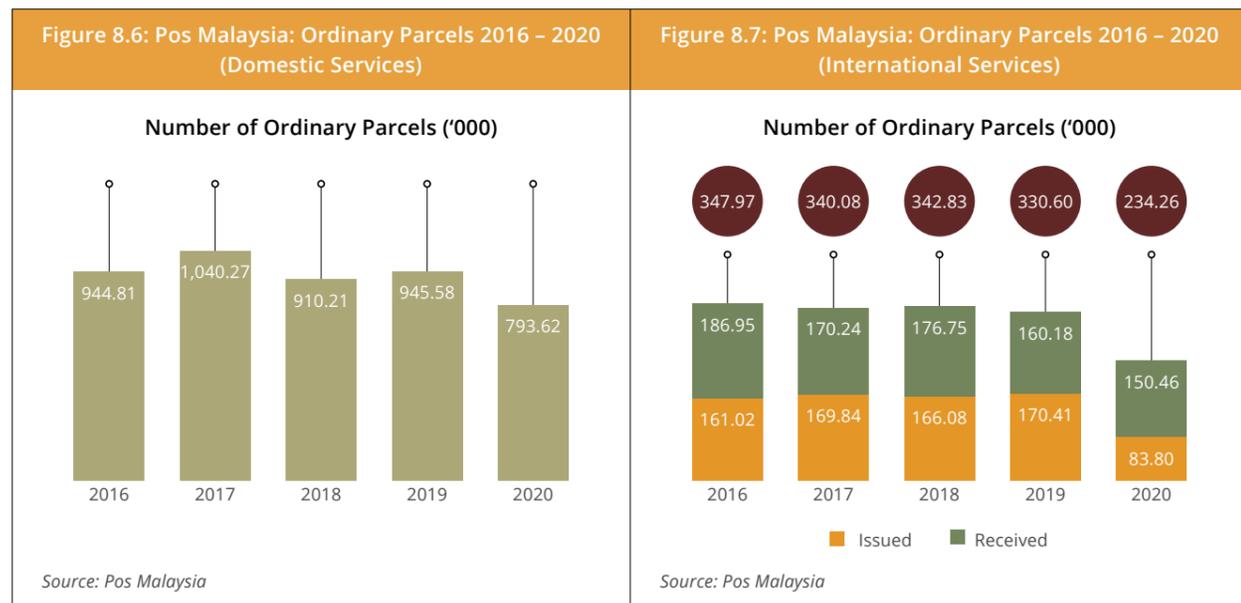


Source: Pos Malaysia

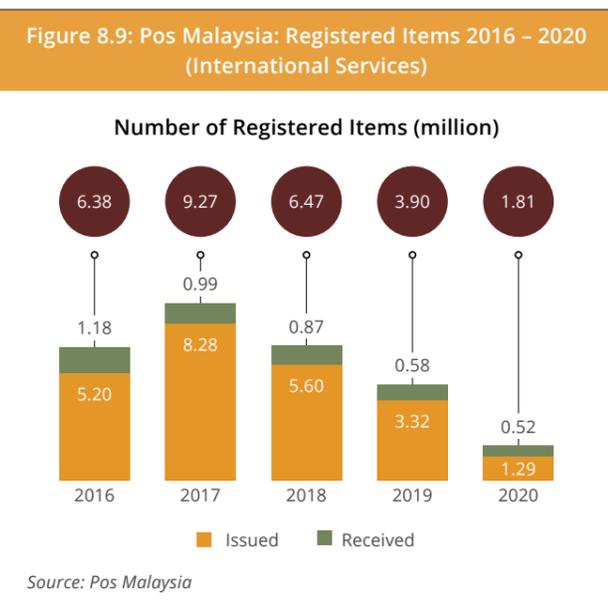
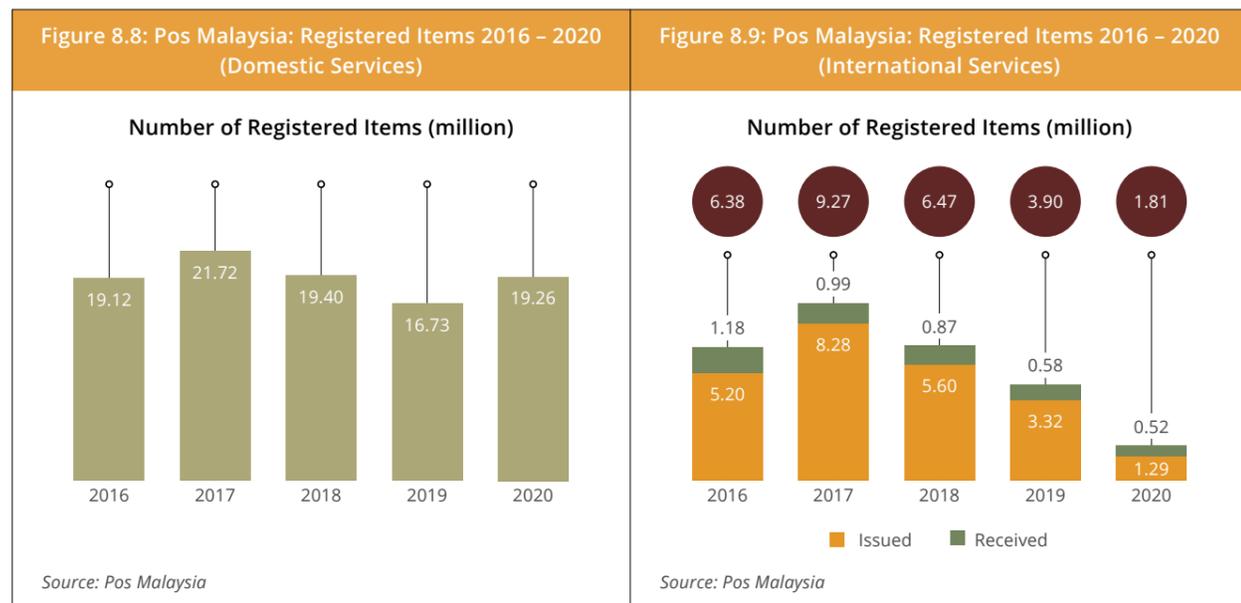


Source: Pos Malaysia

For ordinary parcels in domestic services, there were 793,618 parcels handled in 2020, a reduction of 16% compared with 945,581 items in 2019. Similarly, ordinary parcels in international services also declined by 29% to 234,262 items in 2020 compared with 330,596 items in 2019.



For registered items in domestic services, there were 19.26 million registered items in 2020, an increase of 15.1% from 16.73 million in 2019. In international services, there were 1.81 million registered items handled compared with 3.9 million registered items in 2019.



As at end-2020, the total number of employees in the postal services industry increased by more than 6% to 22,862 from 21,548 in the previous year. This postal employment figure is inclusive of both in-house and outsourced employees.

According to the Universal Postal Union report²⁰, the outbreak of COVID-19 not only affected the global economy but also had significant consequences for international supply chains. Notably, the long-term trends affecting postal operators were accelerated during the first months of the crisis, with network disruptions soaring as e-commerce boomed. As the barriers to international logistics eased following the relaxation of lockdown measures, e-commerce proved resilient, although not sufficiently enough to change the fortunes of postal operators.

²⁰ Universal Postal Union report, Postal economic outlook 2020, Navigating accelerated change during an unprecedented crisis, September 2020.

COURIER SERVICES

Licensing Scheme Under Postal Services Act 2012

There are three types of licences classified under the Postal Services Act 2012, namely Class A, Class B and Class C. In short, the scope of services for Class A includes international and domestic courier services, Class B includes international inbound and domestic services and Class C is for domestic intra-state services. Any interested party may apply for a licence according to the scope of the services they wish to provide and must adhere to the special conditions outlined below:

Figure 8.10: Courier Services Licence: Special Conditions

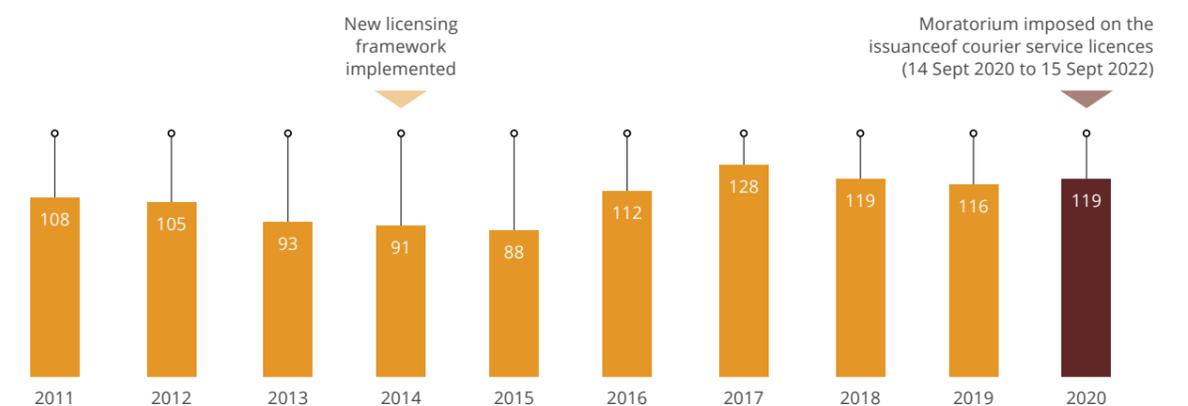
CLASS A	CLASS B	CLASS C
<ul style="list-style-type: none"> Licensee may perform services as follows: <ol style="list-style-type: none"> international courier services; and domestic courier services nationwide Provide track and trace system Provide at least five outlets locally Provide appropriate customer service 	<ul style="list-style-type: none"> Licensee may perform services as follows: <ol style="list-style-type: none"> international inbound service only; and domestic courier services nationwide Provide track and trace system Provide at least five outlets locally Provide appropriate customer service 	<ul style="list-style-type: none"> Licensee may perform domestic intra-state services Due to geographical reasons, these areas are considered as one: <ol style="list-style-type: none"> Selangor, Kuala Lumpur and Putrajaya Sabah and Labuan

Source: MCMC

Licensing Profile

As at end-2020, there were 119 courier licences. The rapid growth of e-commerce activities in Malaysia has boosted the local courier service industry, resulting in the industry becoming over-competitive with more than 100 courier licences granted over the past five years.

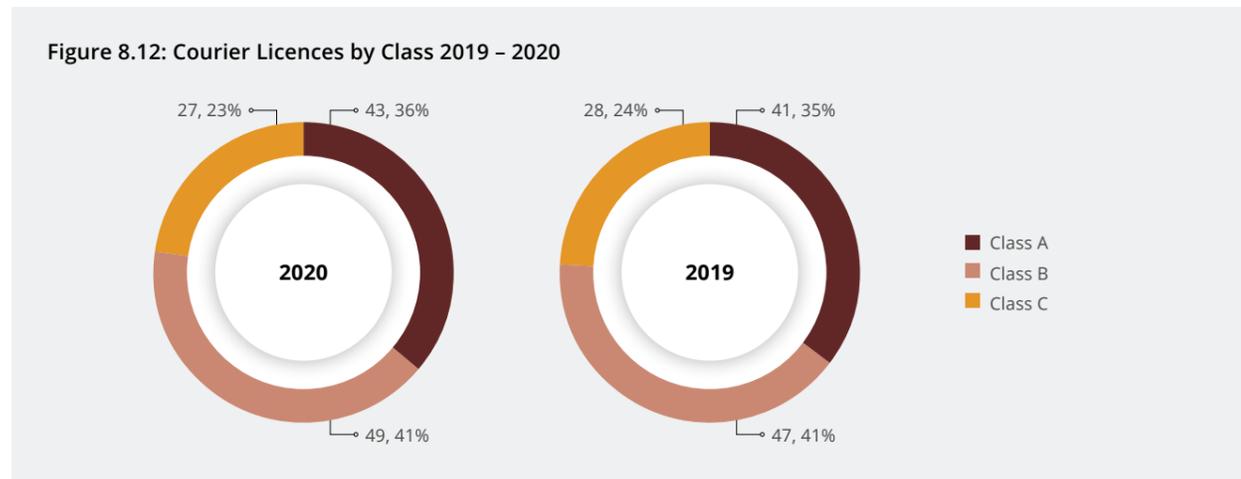
Figure 8.11: Total Number of Courier Licences 2011 – 2020



Source: Industry, MCMC

There were 119 courier service licensees as at end-2020. By licence type, there were 43 Class A, 49 Class B and 27 Class C licences.

The breakdown of courier licences is shown in Figure 8.12.



Source: MCMC

The Moratorium on Non-Universal Service Licences

A two-year moratorium was imposed by the Minister of Communications and Multimedia Malaysia, effective from 14 September 2020 to 15 September 2022. The moratorium was implemented to provide an opportunity for the government, together with the postal and courier licensees, to formulate new plans for the sector, which faces various challenges from technological changes and market trends. During this period, the MCMC will not accept any new licence applications for non-universal services (courier services) after 14 September 2020.

Courier Services Traffic

As at end-2020, courier service providers had handled the massive amount of 462 million courier items (2019: 247.64 million), showing an 87% increase from 2019. Such a big increase in traffic indicates the huge demand from e-commerce consumers due to the #stayathome new norm to curb the spread of COVID-19.

Figure 8.13 shows the overall courier services traffic over the past five years, exhibiting continuous increments in courier items handled. Note that the traffic for courier items includes documents, parcels and other items, which are made up of non-priority mail, walk-in courier services and prepaid and express post.

Further breakdowns on the types of courier items are available in the following section.

Figure 8.13: Courier Services Traffic 2015 - 2020 (Overall)
Number of Courier Items (million)



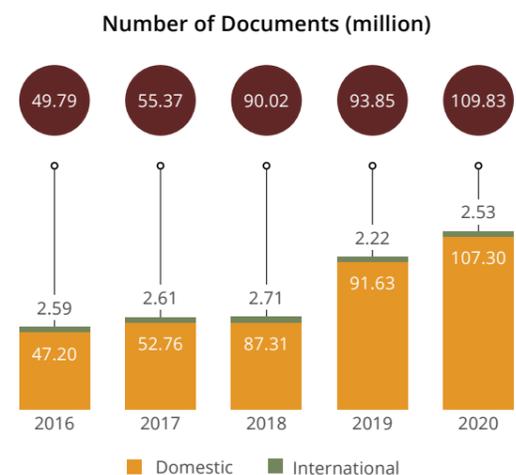
Note: For 2020, courier traffic was collated from 102 courier companies and for 2018 and 2019, courier traffic was collated from 98 courier companies, both figures including Pos Laju. Prior to that, it was based on the top 10 courier companies. Overall, courier items include documents, parcels and others (non-priority mail, walk-in courier service and prepaid and express post.)

Source: Industry



In 2020, the total volume of documents in domestic services increased by 17% to 107.3 million compared to 91.63 million in 2019. The total volume of documents in international services experienced an increase of 14% to 2.52 million from 2.22 million.

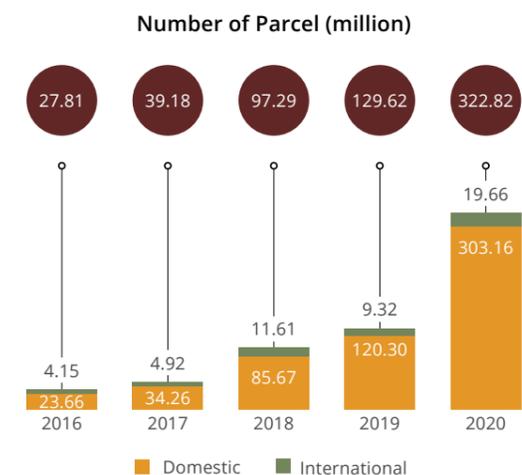
Figure 8.14: Courier Services Traffic 2016 - 2020 (Documents)



Note: For 2020, courier traffic was collated from 102 courier companies and for 2018 and 2019, courier traffic was collated from 98 courier companies, both figures including Pos Laju. Prior to that, it was based on the top 10 courier companies.

Source: Industry

Figure 8.15: Courier Services Traffic 2016 - 2020 (Parcels)



Note: For 2020, courier traffic was collated from 102 courier companies and for 2018 and 2019, courier traffic was collated from 98 courier companies, both figures including Pos Laju. Prior to that, it was based on the top 10 courier companies.

Source: Industry

In 2020, the number of parcels handled increased by 58% to 322.82 million from 129.62 million in 2019, with domestic and international parcels comprising 303.16 million and 19.66 million, respectively.

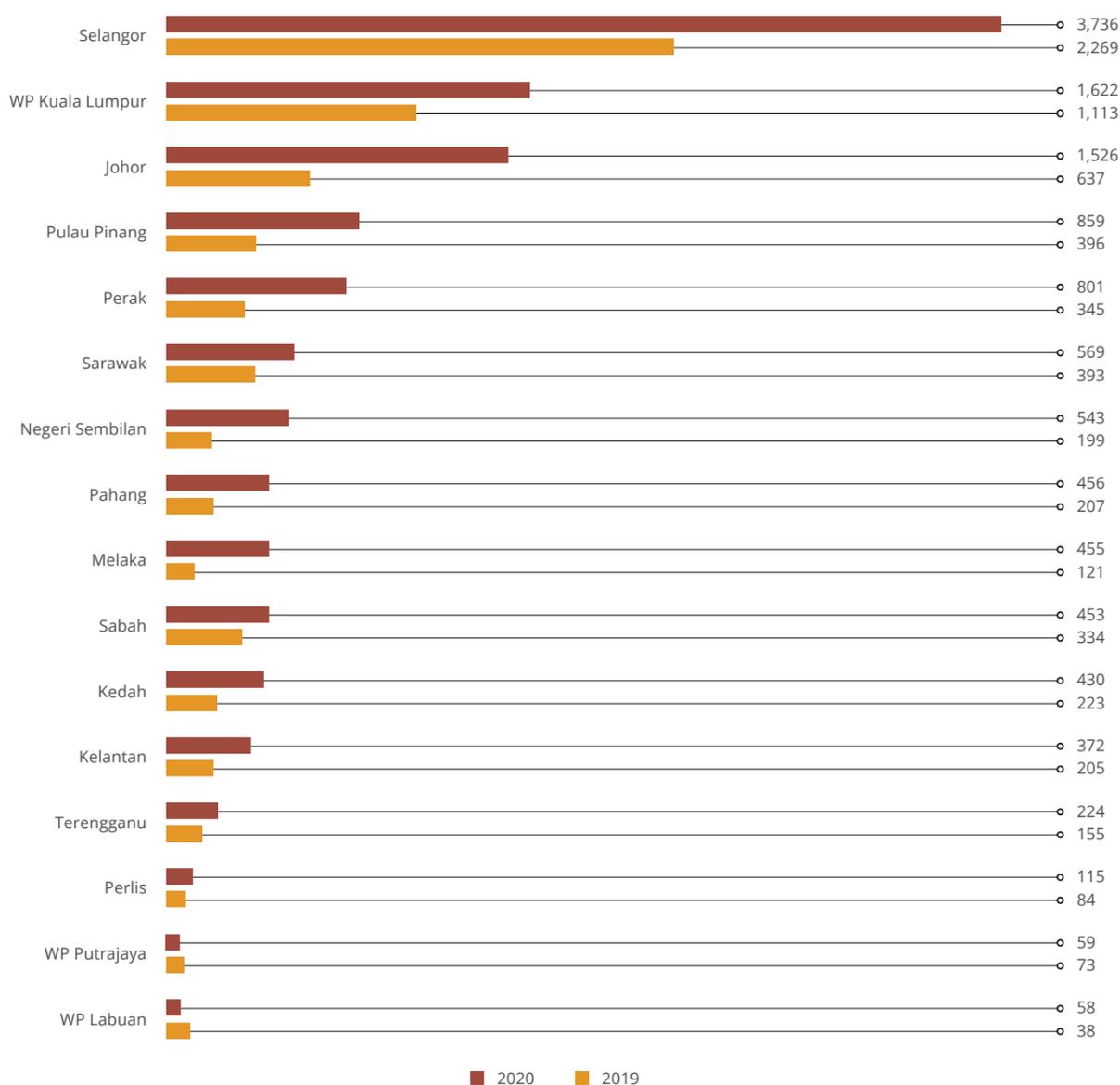
Courier Infrastructures

Courier infrastructures consist of the basic physical and organisational structures and links that bring buyers and sellers together. They also serve as distribution channels and collectors of revenue, facilitate and complete transactions and fulfil the demand for orders. They include hubs, branches, gateways, franchises, affiliates, agents, drop-in centre and others.

As at end-2020, there were 12,278 courier infrastructures, an increase of 81% compared with 2019 (6,792), and their distribution by states is shown in the figure below.

By state, Selangor had the highest number of courier infrastructures at 3,736 in 2020, followed by Kuala Lumpur and Johor with 1,622 and 1,526 courier infrastructures, respectively.

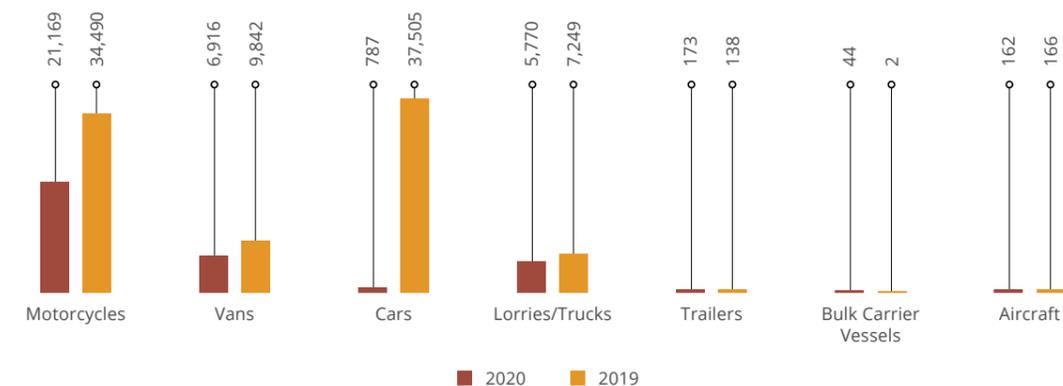
Figure 8.16: Courier Infrastructures by States



Source: Industry

In 2020, the number of courier vehicles increased by 55.3% to 89,392 from 35,021 in 2019. Interestingly, cars emerged as the most-used vehicles for delivery in 2020, constituting 42% of total courier vehicles, followed by motorcycles (34,490) and vans (9,842).

Figure 8.17: Courier Vehicles 2019 – 2020



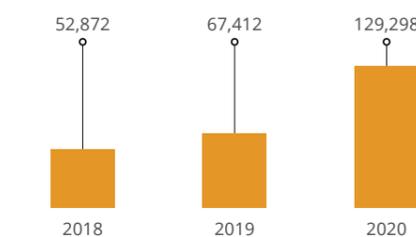
Source: Industry

Employment in Postal and Courier Services

As at end-2020, the total number of employees (both full-time²¹ and part-time²²) in the postal and courier service industry increased by more than 50% to 129,298 from 67,412 in the previous year.

By job categories, pickup and dispatch staff constituted 73% of total courier employees. This was a 2.5-fold increase to 94,565 staff from 37,486 in 2019. As courier service is a labour-intensive industry, the rise in pickup and dispatch staff is crucial in fulfilling the physical delivery work for “last mile” delivery.

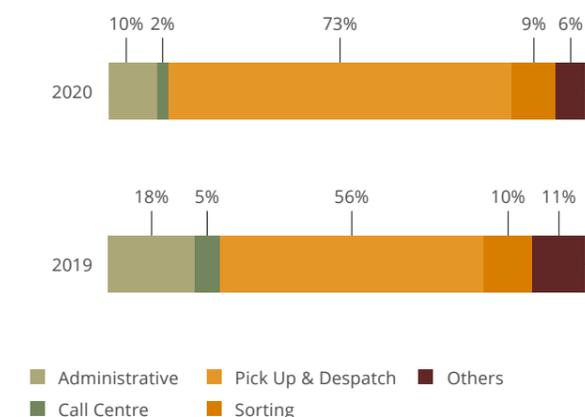
Figure 8.18: Employees in the Postal and Courier Service Industry 2018 – 2020



Source: Industry

Administrative staff constituted 10% or 13,167 staff in 2020 compared with 12,227 in 2019. Sorting staff increased by 56.8% to 10,926 in 2020 from 6,969 in 2019, mainly due to an increase in parcel volume. However, the number of call centre staff decreased by 21.8% to 2,757 staff from 3,317 in 2019.

Figure 8.19: Employment 2019 – 2020



Source: Industry

²¹ Full-time staff includes established or unestablished staff under contract to the designated operator, including persons employed by contractors, or temporary staff taken on during holiday periods or for occasional events. However, retired employees as well as workers in subsidiaries abroad (if applicable) should be excluded. This covers 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.

²² Part-time staff includes established or unestablished staff under contract to the designated operator, including persons employed by contractors, or temporary staff taken on during holiday periods or for occasional events. However, retired employees as well as workers in subsidiaries abroad (if applicable) should be excluded. This covers all employees working for less than the normal number of working hours each week.

Notably, the increase in employment in the courier sector was due to the surge in e-commerce, particularly during the COVID-19 pandemic, as movement restrictions and social distancing measures led to a sudden, large increase in couriered items. Thus, the additional courier staffing was vital to ensure the quality of service (QoS) of delivery standards.

In addition, based on our survey findings, nearly 60% of courier service providers engaged freelancers as riders to deliver items during the MCO period to cope with the high demand. These service providers believe that engaging freelancers is a more viable option as huge demands are seasonal. Although the costs of freelancers are higher than average costs, they tend to perform better in terms of delivery quality and efficiency. Hence, better performance and lower fixed costs from engaging freelancers provide a win-win situation for both consignees and service providers.

Based on industry feedback from the IPR 2020²³, 51% of respondents indicated that they plan to increase their workforce (2019: 37%); thus, service providers are optimistic about the courier business in 2021.

QUALITY OF SERVICE

Under the Postal Services Act 2012, the MCMC has a role in regulating the services of licensees, including monitoring performance and facilities standards. Since 2010, the MCMC has conducted a sampling test for delivery services among the 10 major courier companies in Malaysia. Measurements consist of delivery services (speed and reliability) and customer service (counters and call centres).

From the performance measurements, seven out of 10 test samples received adhered to the set period of D+1 for delivery in the main cities of the Peninsula and D+2 for delivery in Sabah and Sarawak. For reliability tests, nine out of 10 test samples were received within three days of delivery (D+3).

In terms of customer service, the average waiting period to receive service at the counter was three minutes and the service period at the counter was between five to 10 minutes, while for the quality of customer service at the call centre, on average, industry performance was at an acceptable level.



CONSUMER COMPLAINTS

As at end-2020, a total of 13,683 complaints regarding postal and courier services were received by the MCMC, an increase of 547% compared with 2019.

During the COVID-19 crisis, the postal and courier industry was a vital service that was at the forefront of serving the nation. As a result, the increase in the number of complaints was due to the surge in the number of parcels as postal and courier services became one of the main means to acquire daily necessities and essential items.

Figure 8.20: Postal and Courier Services Complaints



Source: MCMC

The breakdown of complaints received by categories in 2020 is as follows:

Figure 8.21: Complaints Received by Category



Source: MCMC

Based on the figure above, nearly 55% of the total complaints received by the MCMC were regarding "Late Delivery". This was followed by "Unsatisfactory Delivery Service" with 2,565 complaints and "Item Lost" with 1,851 complaints.

Similarly, according to the responses submitted to the IPR 2020 questionnaire, many service providers highlighted that late or delayed delivery was the most challenging complaint for them to handle. The factors causing delays included incorrect addresses and failure of delivery personnel to get in touch with recipients as the telephone number provided was inaccurate or non-responsive. In addition, insufficient manpower and reduced frequency of freight caused this issue to become more prevalent.

In 2020, courier service providers faced a new set of extraordinary challenges in fulfilling delivery services. This was the implementation of the first phase of the MCO on 18 March 2020 to curb the spread of COVID-19. During this period, there were restrictions on travel, with roadblocks on major roads and highways that caused congestion and further added on to the delay in delivery. However, service providers stated that they notified customers about the delays and offered an extended Service Level Agreement (SLA).

In addition, for incoming international items transported via airfreight, there was an increase in delayed deliveries due to fewer flights or limited flights. As a result, this also affected deliveries to East Malaysia due to fewer cargo flights.

Another challenge brought about by the new normal for courier service providers was offering contactless delivery to curb the spread of COVID-19 and safeguard delivery personnel and customers. Hence, a picture was taken for proof of delivery instead of getting the customer's signature. While most customers understood this necessity, some felt that their privacy (including taking a picture of their front porch) had been violated.

Some customers requested physical proof of delivery like the company chop or a signature or IC number. However, in red zone areas during the MCO, service providers were compelled to practise contactless delivery; thus, they were not able to provide full proof of delivery.

Missing and lost items are complaints that are also challenging for service providers. In order to resolve or mitigate this issue, service providers have taken steps to improve their processes in the form of tracking parcel movements and reporting lost items to the customers in real-time.

Complaints about fake items are also difficult to handle, especially for items ordered on cash on delivery (COD) terms via Facebook or Instagram instead of through reputable e-marketplaces. Most customers blame the courier service providers for this issue. Service providers have opted to close the business accounts of irresponsible sellers with repeated cases.

²³ Responses received from IPR 2020 questionnaire.

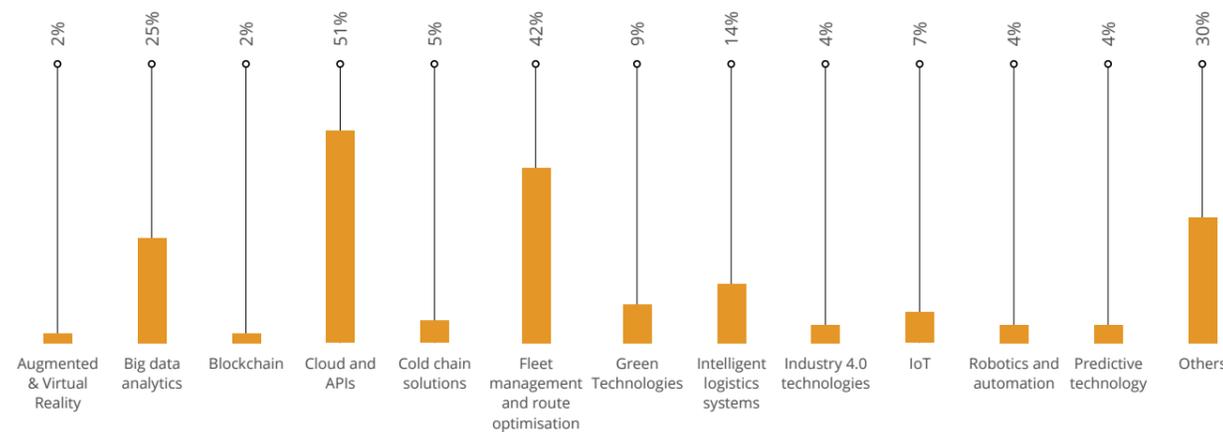
EMERGING TECHNOLOGIES FOR POSTAL AND COURIER SERVICES

Strategies in a Digital World

Digital transformation is unlocking new business models and optimising existing operations in enterprises. Hence, postal and courier services must also transform to improve their operational excellence through innovative service offerings. Integrating all aspects of their businesses into a powerful digital core and leveraging IoT, AI and blockchain will enable postal and courier services to better manage, analyse and predict key business opportunities.

As a result, service providers can provide best-in-class e-commerce and delivery service experiences, increasing customer loyalty and customer demand for delivery services to generate new revenue streams.

Figure 8.22: Adoption of Emerging Technologies by Courier Service Providers



Note: Collated based on the survey for the IPR 2020. Respondents may choose multiple responses.

Source: Industry

Based on responses submitted to the IPR 2020 questionnaire, 51% of the respondents have adopted cloud and application programming interfaces (APIs) to improve their business processes and service offerings. These interfaces allow systems and data to be stored on the cloud safely and securely, accessible anytime and anywhere.

By using API services, customers can process and track their shipments easily and at any time. As e-commerce platforms are integrated with shipment tracking, data will automatically flow to the service providers without user interaction. This feature has greatly reduced processing time to prepare for shipments.

Other API uses include integration with payment platforms such as Touch 'n Go and others to ease payment and thus enables business expansion with partnering apps, subsequently reducing manpower for data entry.

Cloud-based accounting and call management systems have ensured seamless operational work within the courier companies. As an example, during the MCO period, customer service agents could work from home and take incoming

calls from the call centre using the cloud-based call management system.

Fleet management and route optimisation technologies have also been extensively adopted by courier service providers. Based on our survey, 42% of respondents have adopted these technologies to optimise operations and increase productivity.

Fleet management and route optimisation have contributed to better planning and understanding of customer behaviour as well as better-organised delivery routes to make delivery more efficient. This includes identifying the best route for trucks for last-mile delivery and ensuring the safety of delivery personnel during late-night deliveries.

Intelligent logistics systems, fleet management and route optimisation and big data analytics have been identified as the top three technologies that courier service providers plan to invest in over the next one to three years for future expansion.

NATIONAL POSTAL AND COURIER INDUSTRY LAB (NPCIL)

The postal and courier industry is one of the core components of e-commerce activities and the digital economy. Since January 2020, COVID-19 has impacted businesses as the lockdown in China has disrupted the entire supply chain of business operations globally. When the government imposed the MCO on 18 March 2020, it affected economic and social activities but also triggered a wider adoption of digital technologies among businesses and consumers. This increasing demand for e-commerce and online marketplaces has translated into a surge in parcel deliveries, with courier companies seeing an unexpected increase in parcel traffic volume nationwide.

The new norms (accelerated digitalisation, social distancing, proliferation of online shopping and others) in the aftermath of the COVID-19 pandemic are beneficial to the parcel delivery segment. However, the industry is facing new challenges as a result of an overly crowded playing field with cut-throat competition, resulting in razor-thin margins in the courier business.

In an effort to mitigate the stiff competition among courier service providers, the MCMC has taken a proactive approach by imposing a moratorium period of two years on the issuance of new courier service licences, effective from 14 September 2020 to 15 September 2022. Throughout the moratorium period, the MCMC will not accept new licence applications in all categories to carry out courier services.

The moratorium was implemented to provide an opportunity for the government, together with the postal and courier licensees, to formulate new plans for the sector, which faces various challenges from technological changes and market trends. In addition, the MCMC will review the licensing framework toward ensuring the postal and courier industry remains competitive, inclusive and relevant to current global developments.

During the moratorium period, the MCMC mobilised the energy and capabilities of internal and external stakeholders, ensuring their cooperation and participation through the NPCIL. In general, the NPCIL aims for first-class postal and courier services through the 4R Strategy, namely:

- a) **Reliability;**
- b) **Reach** enabled through seamless coverage;
- c) **Relevance** through industry growth in a digital economy; and
- d) **Resilience.**

The NPCIL has set the strategic goal of improving the performance and capacity of the postal and courier industry in keeping with the main direction of "True North", which encompasses "Delivering Quality of Service and Seamless Coverage" to all Malaysians sustainably to support the projected three-fold e-commerce industry growth from seven parcels per capita to 21 parcels per capita by 2025.

Figure 8.23: NPCIL: National Aspiration

Outcomes	National Aspirations
Committed Quality of Service set by Industry & Government	First-class Quality of Service for the Rakyat
Industry-led digitalisation projects and Courier Coverage Mapping	Improved integration of last-mile delivery
Strengthening of licensing regulatory framework	Seamless customer experience

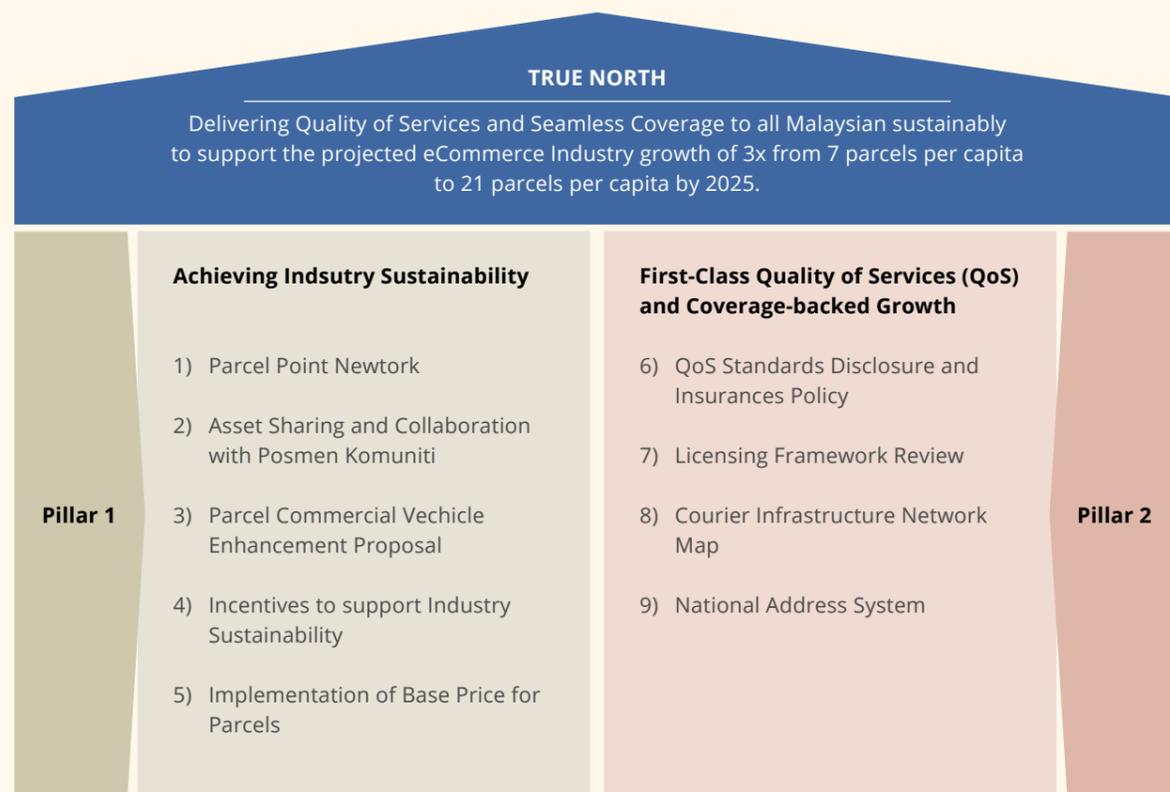
Source: MCMC

The NPCIL focused on the growth of the courier industry and the long-term viability of its players, with the goal of achieving True North. Nine strategic initiatives were developed, being recommendations resulting from the lab's activities, as follows:

Asset Sharing and Collaboration with Posmen Komuniti	Postal Commercial Vehicle Enhancement Proposal	Incentives to Support Industry Sustainability	Implementation of Base Price for Parcels
Quality of Service Standards Disclosure and Insurance Policy	Courier Infrastructure Network Map	Licensing Framework Review	National Address System

All these strategic initiatives were developed pursuant to the findings of the lab's activities, as illustrated below.

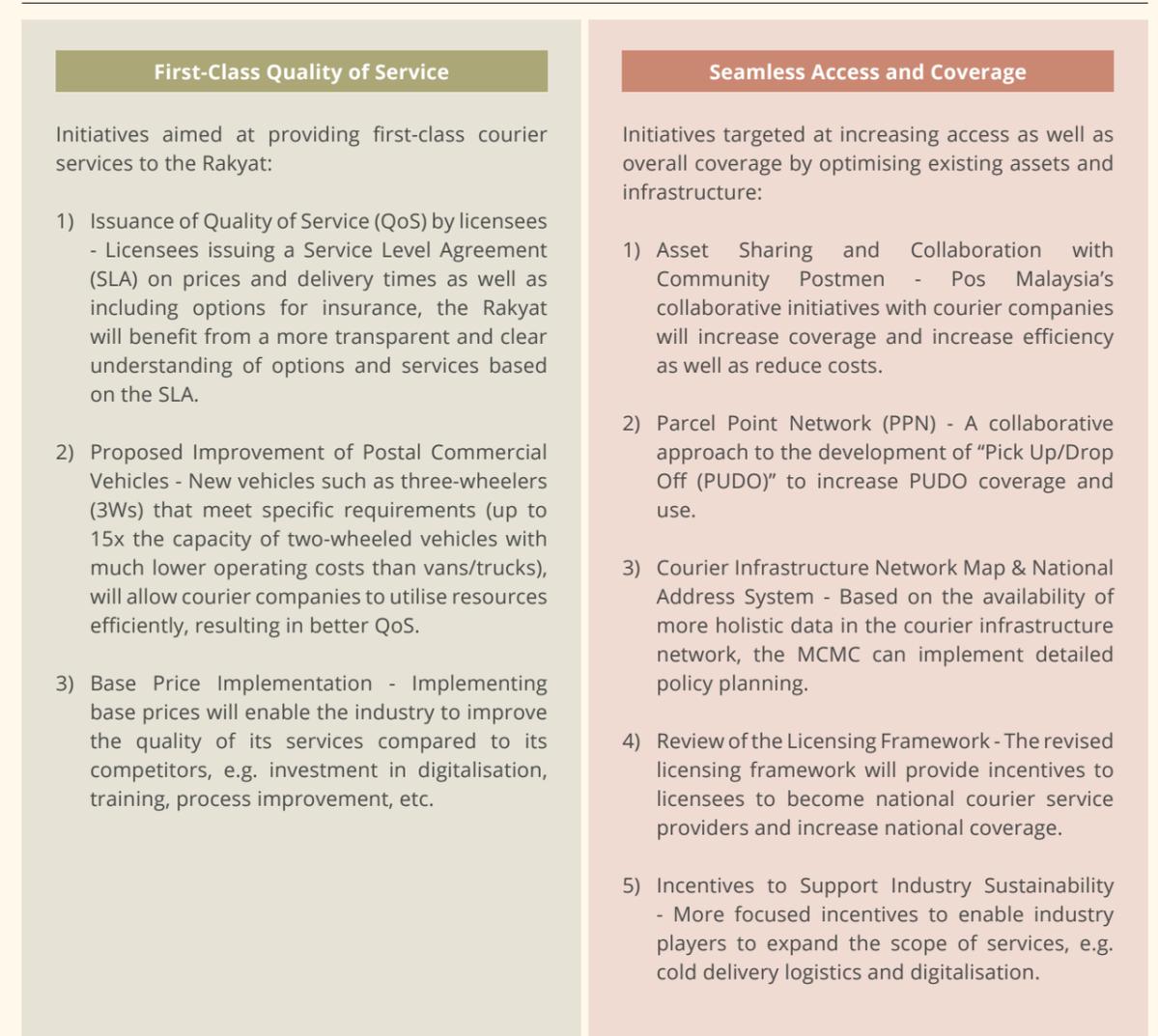
Figure 8.24: NPCIL: True North



Source: MCMC

Principal outcomes arising from the implementation of the strategic initiatives are detailed in Figure 8.25 below:

Figure 8.25: Principal Outcomes of the NPCIL



Source: MCMC



CHAPTER 9 :

OUTLOOK

Heading into 2021, the C&M industry is expected to be on the growth path tracking the overall Malaysia's economy and other economies globally on the back of current development and progress in COVID-19 vaccine rollouts that could reinforce economic activities worldwide.

Under the new norm, the relationship between people and technology will deepen as the reliance on digital connections for work, education, healthcare, daily commercial transactions and essential social interactions becomes more crucial. These would provide more opportunities for service providers and on the other end would subsequently benefit users in terms of wider choice of services and competitive pricing.



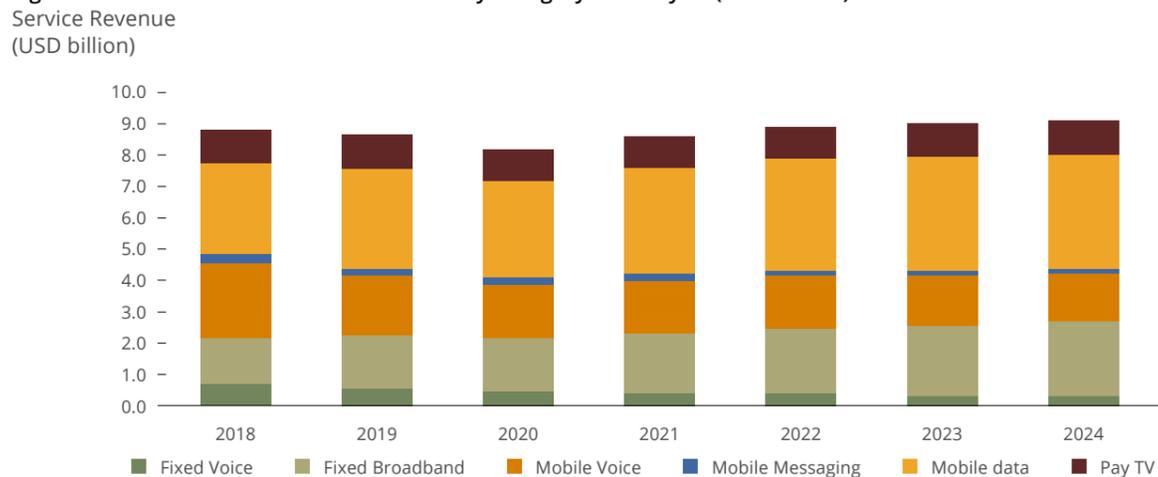
TELECOMMUNICATIONS

The Malaysian telecommunications industry saw a steady growth in recent years, driven by increasing population, broadband penetration rate and rising adoption of digital services.

According to GlobalData, the overall telecom revenue is expected to increase and recover from 2021 and reach RM36.9 billion²⁴ or USD9.1 billion in 2024, indicating a CAGR of 1.1% over 2019-2024, led by increasing service revenues from mobile data, fixed broadband and Pay TV segments.

Fixed broadband revenue will be the fastest growing segment with revenue expected to reach RM9.7 billion²⁵ (USD2.4 billion) by 2024. This is driven by robust growth in fibre to the home (FTTH) subscriptions on the back of ongoing investments by the government in fixed broadband network expansion.

Figure 9.1: Total Telecom Services Revenue by Category in Malaysia (2018 – 2024)



Source: GlobalData

²⁴ The exchange rate for 2024 is estimated at USD1 = RM4.05

²⁵ Ibid.

Whilst COVID-19 has brought unprecedented challenges to the economy, it did not have much impact on the prospect of Malaysian telecommunications industry as it is regarded as an essential service. In fact, the MCO contributed greater voice/data usage given the increasing online shopping, entertainment and educational and work-from-home activities, which in turn mitigated other declining revenues such as roaming revenue.

ACCELERATING DIGITAL READINESS

COVID-19 has fast-tracked some technology trends. For example, digital learning is not a new concept but previously, it was mostly limited to higher education courses. Almost overnight, COVID-19 shut down physical education establishments around the world, leaving teachers and students to quickly adopt digital learning.

In Malaysia, students embraced online teaching facilitation and learning tools via applications such as Zoom, Skype, Microsoft Teams, Google Meet and WhatsApp. COVID-19 has also compelled organisations and companies to adopt remote working to ensure business continuity during MCO. However, not all of Malaysia has been equipped with the infrastructure for high-speed internet access.

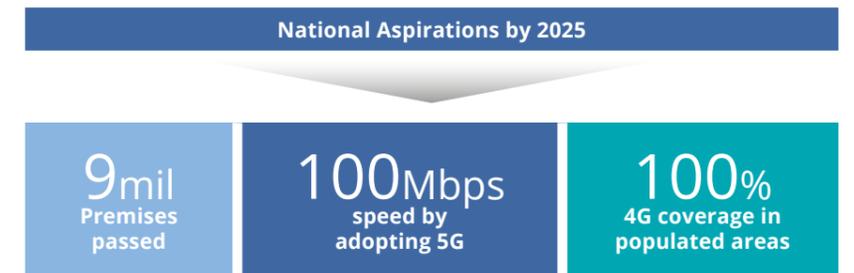
The COVID-19 pandemic situation saw the needs to reassess our digital infrastructure to improve the shortcomings and prepare the country to be better equipped to undertake the digital economic drive in an inclusive manner. Our digital activities have expanded since, leading to new demands being placed on our existing connectivity. The fixed and mobile networks that enable our digital lifestyles have proved critical during the crisis, not only for certain segments of the society, but for everyone.

Recognising the urgency to meet these needs, a few initiatives have been developed by MCMC and the government to improve the country's digital infrastructure and prepare the country for the deployment of 5G technology.

JENDELA

Pelan Jalanan Digital Negara (JENDELA) was announced by the Prime Minister on 29 August 2020. JENDELA was formulated by MCMC and the industry stakeholders to rapidly lay the foundation for comprehensive and high-quality broadband coverage as well as preparing the country for the deployment of 5G technology. Among the national aspirations under JENDELA by 2025; fibreise nine million premises, 100Mbps mobile broadband speed by adopting 5G and 100% 4G coverage over populated areas.

Figure 9.2: JENDELA National Aspirations by 2025



Source: MCMC

JENDELA is implemented in two phases. Phase 1 (2020-2022) includes 4G mobile coverage: from 91.8% to 96.9% in populated area, average mobile broadband speed from 25Mbps to 35Mbps, 7.5 million premises passed, gradual retirement of 3G networks by end 2021 and 5G commercial roll out in Q4 2021. Phase 2 (2023 and beyond) aims at utilising FWA and other fit-for-purpose technologies to address further gaps in digital divide.

JENDELA will provide better connectivity to drive digital transformation of the population towards embracing the national aspirations of a Digital Nation and the Wawasan Kemakmuran Bersama 2030.

MYDIGITAL

The Malaysia Digital Economy Blueprint (MyDIGITAL) was announced on 19 February 2021 to accelerate the nation's digital enablers towards a technologically advanced economy by 2030. It is a holistic approach encompassing digital connectivity (fibre and 5G), digital infrastructure (cloud and cybersecurity) as well as digital skill sets and talents, towards making life and business easier for Malaysians as a connected nation. MyDIGITAL is expected to create 500,000 new job opportunities in the digital economy, which is expected to contribute 22.6% of Malaysia's gross domestic product (GDP) and generate over RM70 billion in domestic and foreign investments by 2030.

MyDIGITAL will facilitate four important digital infrastructure projects that need to be strengthened to accelerate the creation of an efficient digital ecosystem. A total of RM21 billion will be invested over five years to facilitate JENDELA's comprehensive digital infrastructure plans. A total of RM1.65 billion will be invested by several telcos to strengthen international submarine cable network connectivity by 2023. This will open doors for faster and more stable data transfers and is expected to lower Internet costs to consumers.

MyDIGITAL plans to boost the growth of the cloud industry by adopting a cloud-first strategy in the public sector and appointing Cloud Service Providers (CSP) and Managed Service Providers (MSP) to build Malaysia's capabilities in this area. Between RM12 billion and RM15 billion is expected to be invested by CSP over the next five years.

In the first phase (2021-2022) of the blueprint, the government aims to move towards a paperless environment and migrate 80% of public data to hybrid cloud systems by the end of 2022. With this cloud-first strategy, the government may engage in more effective data collection and management, resulting in lower information management costs in the long run. This initiative will create demand for cloud services in Malaysia and increase the confidence of foreign and local companies to invest in this space.

5G FAST FORWARD

5G will be a game changer for many industries. Industries that will benefit the most from 5G are those heavily impacted by COVID-19 in terms of increasing demand for applications and services. These industries include healthcare, education and the public sector. The use of digital or virtual applications and remote services within these industries will become the norm, and 5G will be a priority for data-intensive applications. Thus, Malaysia's transition to 5G need to be fast-tracked for the nation to be digitally ready.

The implementation of 5G nationwide involves a total of RM15 billion to be invested over the next 10 years and will be borne by the private sector. Digital Nasional Bhd (DNB), the Ministry of Finance-owned special purpose vehicle (SPV) will undertake the deployment of 5G infrastructure and network nationwide. The SPV will offer 5G connections via a wholesale model that is regulated to ensure better transparency and fairness. DNB will manage the cost and coverage of 5G network by reducing duplications. Telecommunication companies may focus on providing better internet services and 5G solutions for customers.

Improving Accessibility, Affordability and Skills

Communications and digital technologies now pervade all aspects of our lives. They are essential in providing the access to education, employment, travel, entertainment, health and safety. It reaches a point where nobody can afford to be left behind. It calls for an inclusive approach to bring reliable connectivity and digital literacy to rural or remote areas and for underprivileged segments of the community such as the low-income bracket, the disabled and the aged population. This is known as addressing the digital divide and it concerns with accessibility, affordability and skills.

Pertaining to accessibility, the Malaysian government has put a strong emphasis on improving digital connectivity through enhancing the national digital infrastructure. This is currently being carried out under JENDELA plan which includes extending fibre optic reach, as well as expanding the coverage of 4G. Under the first phase, 1,661 new towers will be built in sub-urban and rural areas, particularly in the interior parts of Sabah and Sarawak.

The resolve to provide accessibility for all Malaysians is further reflected under the Universal Service Target project which includes the installation of 839 satellite transmission sites for the provisioning of broadband access service. The target areas under these initiatives are either too remote to be accessed for tower construction or too far from the existing network grid.

Providing everyone with affordable internet is another important element in bridging the digital divide. Broadband is now considered as a third essential utility after water and electricity, hence the pricing regime must strive to accommodate the budget of most Malaysians, especially those in the B40 income bracket. Internet access and affordability are crucial factors in social engineering towards digital transformation and perhaps in eradicating poverty through guided participation in the digital economy activities.

Apart from ensuring that everyone has the access to the internet at an affordable price, it is also imperative to ensure that Malaysians have adequate digital literacy or digital skills to attain meaningful achievements from the digital facilities provided to them. One of the initiatives to promote digital literacy is via Pusat Internet Komuniti (PIKs) under the purview of the MCMC. To date, there are 873 PIKs throughout the country. The purposes of the PIKs are to provide collective Internet access focusing at under-served target areas, offering training programmes related to ICT, entrepreneurship and multimedia, as a collective effort in upgrading socio-economic and human capital upskilling of rural communities while reaching out to close the digital divide between urban and rural communities.

As the scope and scale of activities within the PIKs are evolving, MCMC is looking into transforming the PIKs into entities that are self-sustaining or at least partially self-sustaining; while being a catalyst to effect positive change in the lives of the communities in the areas where they are situated.

INTERNATIONAL CONNECTIVITY

Building a sophisticated and hyper-scale digital infrastructure requires huge bandwidth capacity and extensive connectivity within and between countries. Resilient and adequate connections ensure uninterrupted and cost-effective services. Any disruptions or lags may compromise digital operations and cause significant losses which lead to poor reputation or rating.

Understanding network resilience is increasingly important in attracting steady inflow of investments in digital economy. Thus, MCMC is looking into developing a strategic plan for the development of a national interconnection ecosystem to ensure that Malaysia continue to remain competitive as an attractive business destination, especially for international content providers such as cloud-based services and over-the-top media services. The mission to establish Malaysia as a major global centre and hub for communications and multimedia information and content services is clearly stated in the national policy objectives under the Communications and Multimedia Act 1998.

The strategic plan for the development of a national interconnection ecosystem will be formulated in 2021, at the National Interconnection Ecosystem Lab (NIEL) involving MCMC and all key stakeholders. The outcome of the lab will further facilitate other initiatives such as JENDELA, 5G implementation, MyDIGITAL and Malaysia Digital Economy.

CONTENT SERVICES

Consumer behaviour, content offerings, business models and technological advancements will chart the industry direction in the next few years. In 2021, we expect to see more benefits from digital transformation for consumers in terms of content offerings and competitive pricing, whilst service providers will experience more business opportunities.

With regard to digital TV platform, Free-To-Air (FTA) TV is still the preferred medium amongst consumers mainly due to the zero long-term financial commitment. In addition, FTA TV audience may look forward to have more channels and services on the digital platform in years to come. As for Pay TV, the service still captures many households due to

offerings of niche and exclusive content such as live sports as well as thematic channels on movies and documentaries. However, increasing competition from OTT service providers intensifies the pressure on Pay TV service providers to reduce tariffs or provide attractive bundle services.

According to GlobalData, aggregated Pay TV ARPU will decline from RM75.43²⁶ (USD18.22) in 2019 to RM70.96 (USD17.52) by 2024, in line with decline in ARPU levels from the direct to home (DTH) and IPTV segments as competition from OTT video services increase pressure to reduce tariffs on Pay TV service providers. IPTV ARPU will drop from RM27.12²⁷ (USD6.55) in 2019 to RM20.37 (USD5.03) by 2024, as service providers continue to offer IPTV services as a part of broadband bundle plans to stimulate adoption.

There are some glimpses of prospects for broadcasters to boost revenue such as harnessing content through online platforms. However, major challenges could hamper revenue growth of the sector as advertising budgets move away from traditional media to digital alternatives due to the escalation of shift in consumer behaviour to online.

Like other media industries, radio broadcasting is also facing increasing competition from new media platforms and changing consumer expectations. Radio broadcasters are facing stiff competition for listenership from music streaming services and new multimedia platforms. With the significant and ongoing developments in new digital technologies, more radio broadcasters in Malaysia are expected to migrate to digital platform in the near future.

ADVERTISING EXPENDITURE

Consumers are spending more time online for entertainment, shopping and social media interactions during the movement restrictions due to the COVID-19 pandemic. The behaviour is likely to become imbedded, compelling many consumer-centric industries to advertise their products and services on digital channels.

Magna, the centralised Mediabrands resource for intelligence, investments and innovation strategies, forecasts that Malaysian advertising expenditure would grow by 15% in 2021. This growth, in tandem with GDP projections, lies mainly in the digital space driven by video and social media.

Nielsen Malaysia which looks at data and industry trends, observed that production houses, sports channel and streaming services were more active on digital platform while digital ads for retail sector were driven substantially by fast food and e-commerce operators.

²⁶ The exchange rates for 2019: USD1 = RM4.14; 2024: USD1 = RM4.05

²⁷ Ibid.

According to Hong Leong Investment Bank Research, media companies are placing more emphasis on digital transformation initiatives that have growing relevance during the pandemic. It cited the introduction of paywall by Star Media Group and more OTT offerings by Astro Group as examples.

Continued growth of digital advertising is expected on the back of more shift in consumer behaviour online. While the prospect of digital advertising seems highly positive, Nielsen is of the view that advertisers should consider a multimedia, multi-channel advertising strategy that not only includes digital but also capitalises on the rediscovery of new habits formed around traditional media such as FTA TV.

E-COMMERCE

Malaysia is currently the largest e-commerce market among ASEAN member countries largely due to its rapid economic growth, advanced digital technology infrastructure and high internet penetration. According to GlobalData, e-commerce in Malaysia recorded a total of RM30.2 billion in 2020, which is an increase of 24.8% compared to RM24.2 billion in 2019. This upward trend is expected to continue in 2021, with estimated 20% growth at a total value of RM36.1 billion.

The demand in e-commerce has escalated as the world deal with the COVID-19 pandemic and embracing the new normal. People are changing their spending habits, ordering items online and reducing non-essential interaction. We foresee an increase in online shopping from all kinds of goods although MCO has been relaxed as people have experienced the comfort and convenience of shopping online.

By 2025, the Malaysian e-commerce market is targeted to be worth RM1.5 trillion compared with RM460 billion in 2018. Furthermore, by 2025, it is targeted that 875,000 micro, small and medium enterprises (MSMEs) will adopt e-commerce compared with 489,958 at the end of 2020.

COURIER

Since the MCO, e-commerce platforms in Malaysia have been inundated with orders, putting unprecedented pressure on courier service providers and last-mile delivery segments. Courier service providers had a hard time in coping with customer expectations under the MCO. Unhealthy competition from smaller couriers favouring only lucrative areas also began to inflict negative impacts on bigger courier companies with nationwide delivery obligations.

Service providers realised the need to invest more into technology like artificial intelligence (AI), machine learning, robotics, automation and smart warehousing to improve efficiency and further prepare for more opportunities that will arise from e-commerce. Some mid-sized to larger service providers have invested in digital transformation ranging from hubs with sophisticated sorting centres to tracking mechanism, whilst small players invested in websites enhancements for better customer experience.

As e-commerce is expected to increase vis-à-vis increase in parcel deliveries, the courier industry may offer alternative employment opportunities. Based on IPR2020 survey findings, nearly 60% of courier service providers engaged freelancers as riders to deliver items during the MCO period to cope with the high demand. Half of respondents (51%) indicated that they plan to increase their workforce in 2021, of which we expect to be a mix of full-time employment and freelancers.

Since the pandemic, many of those who lost their jobs have turned to become delivery partners, working as freelancers for many courier services as part of the gig economy. Malaysia has about four million gig economy workers and the number is growing by day, especially during the pandemic. This is mainly due to the rising unemployment rates as a result of the economic crisis caused by COVID-19. According to the Department of Statistics Malaysia, Malaysia's unemployment rate rose 4.5% in 2020, the highest rate recorded since 1993.

Following the Moratorium on issuance of new courier licences effective from 14 September 2020 to 15 September 2022 and the National Postal and Courier Industry Lab (NPCIL), Pelan Accelerator Kurier Negara (PAKEJ) is currently being finalised as a strategic action plan to improve the quality of courier services nationwide. Through the Parcel Point Network (PPN), PAKEJ will link the one-stop facility centre for courier services known as Pick-Up Drop-Off or 'PUDO' to facilitate seamless coverage. This provides better access and delivery coverage as well as improving consumer experience. PUDO will be made available at selected Pusat Internet Komuniti (PIK), convenient stores, public transport hubs and few other locations.

NEW TRENDS

The COVID-19 pandemic has spurred disruption and digitalisation at the same time. The global lockdowns in 2020 have increased the use of technology in almost every aspect of our everyday lives. Whether it is e-commerce, e-payments, teleconferences or online learning, the use of technology has become even more prevalent now more than ever.

The era of digital transformation

From the business perspective, based on a report by Omdia²⁸, Malaysian enterprises have identified workplace mobility, 5G enterprise services and edge computing as the top three technologies and services in demand post-COVID-19. Underlining these technologies, 5G is acting as a digital enabler of critical enterprise solutions. It unlocks opportunities adjacent to cloud computing and Internet of Things (IoT) such as app development/management, security, Artificial Intelligence/Machine Learning and edge services.

Cloud computing has seen a big jump in its adoption in 2020. The scalable and on-demand cloud models helped organisations achieve cost efficiency while its business continuity provided the impetus for organisations to accelerate their digital business transformation plans rapidly.

In Malaysia, the cloud computing market is expected to be worth RM15 billion (USD3.7 billion)²⁹ in 2024, growing at a compounded annual rate of 13% from 2020. In view of this, the local telcos are capitalising on this rapidly increasing interest in cloud products and businesses through acquisitions and partnerships. For instance, Maxis acquired local cloud solutions company Infrastructure Consulting & Managed Services (ICMS) for their talent pool of experts, while TM partnered with Huawei Malaysia to enhance the telco's cloud capabilities and services. Moving forward, it is expected to see renewed and continuous interest in migrations to the cloud. Subsequently, this will lay a foundation for the deployment of emerging technologies such as big data analytics, artificial intelligence, machine learning, virtual reality and others.

(Under the MyDIGITAL initiative announced on 19 February 2021, the Government has announced conditional approvals to four Cloud Service Providers (CSP), namely, Microsoft, Google, Amazon and Telekom Malaysia, to build and manage "hyper-scale" data centres and cloud services. This announcement is in line with the Government's efforts in accelerating and creating an effective ecosystem, paving the way for sophisticated digital infrastructure and solutions for the country. The hyper-scale data centres, as well as hybrid cloud services, would increase data storage space, thus reducing operating costs and improving analytical efficiency. It is expected that the CSP companies will invest between RM12 billion and RM15 billion over the next five years.)

In 2021, we can expect Virtual Reality (VR) and Augmented Reality (AR) technologies being further integrated into our lives. Although these technologies have primarily been used for gaming thus far, AR and VR have enormous potential in training, entertainment, education, marketing, and even in health industry such as to train doctors to do surgery and rehabilitation after an injury. Adoption of AR and VR will accelerate with the impending need of the COVID-19 situation along with the growth of the 5G network and expanding internet bandwidth. Automation, with the help of Artificial Intelligence (AI), robotics, and the IoT, will also be a key alternative solution to be further adopted by the manufacturing sector during the health crisis to mitigate the disruption.

New lifestyle in the new normal

During the beginning of the MCO, the transition to working from home and being confined at home forced people to adopt and use new technologies at an accelerated pace. Online communications platforms have become household technology almost overnight. It is not unusual to be interacting with "bots" for online business enquiries or ordering from online shops. Bots are defined as an autonomous programme on the internet or another network that can interact with systems or users. In fact, many Malaysian home-based businesses have their beginnings as a "dropship", fundamentally a business arrangement in which a manufacturer sends products directly to buyers at the request of businesses who advertise and sell the products but do not stock them.

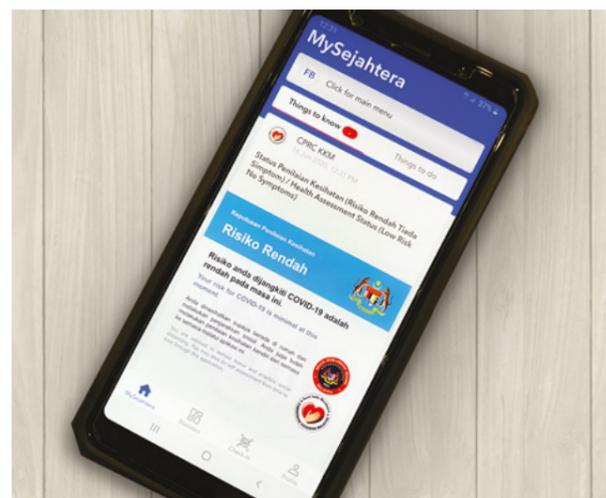
These practices foreshadow a business trend where enterprises adopt different digital tools to manage their operations smoothly. In fact, the significant spike in demand for these online tools has worked as a catalyst for other organisations to develop work-from-home products and services.

In ensuring seamless connectivity, telecommunications service providers are continuously upgrading their network and updating their broadband speeds on the back of JENDELA initiative and as aforementioned the acceleration of 5G deployment.

²⁸ Omdia, Digital Enterprise Services Insights: Shifting Malaysia IT Priorities and Spending Post-COVID-19, October 2020.

²⁹ The exchange rate for 2024 is estimated at USD1 = RM4.05

Besides, COVID-19 and the resulting lockdowns fundamentally altered consumers' entertainment usage, whereby consumers looked to digital entertainment to provide a welcoming distraction and also to connect them to friends and family. Increase in creative content especially in video and mobile games is also prevalent during the pandemic. The trend in digital consumption of content will impact the traditional broadcasting industry as streaming and interactive content are gaining popularity. The local broadcasters shall embrace this change in content consumption trends to diversify their digital content investment and production, and at the same time, explore international opportunities.



Another landmark technology adoption for Malaysian is the usage of MySejahtera app, which is an important tool to monitor the COVID-19 outbreak in the country. The features of the app include COVID-19 health guidelines, information on the nearest health facilities, clinic appointment booking, COVID-19 hotspot tracking and contact tracing. MySejahtera has helped the government in managing information on infections, as well as monitoring the epidemic and registration for COVID-19 vaccine. *(The Communications and Multimedia Minister in April 2021 commented that MySejahtera app has the potential to become a super app in future with various features such as e-finance, e-commerce education and delivery services).*

Like most other industries, the courier industry is currently experiencing immense change; local players are facing higher competition from global players with much higher scale. As the competition become more closely intertwined, this brings both risk and opportunity for the local players to develop towards meeting these challenges.

Moving forward, the courier industry players need to take evolutionary moves to improve their operating models. Digitalisations of the business operations have to be accelerated using new technologies from data analytics to automation and platform solutions. This will enable greater efficiency as customer expectations evolve and new online shopping behaviour that demand better delivery and fulfilment needs.

With the surge in online transactions last year, it is imperative to strengthen digital governance as well as make online transactions more secure. Hence, in a bid to increase the scope and quality of online services for a better user experience, the Government is implementing the national digital identity (NDID) and digital signatures. The Government aims to implement the NDID as a trusted digital identification and verification for individuals, ensuring flexible and secure online transactions. Ultimately, this will reduce administrative costs while delivering more efficient services.

LOOKING AHEAD

Just like the rest of the world, Malaysia has spent much of 2020 reacting and adapting to the disruptions created by the COVID-19 pandemic. One of the key learnings from the pandemic is that technology is essential for growth and development as well as the lifeline for communities faced with day-to-day challenges. The fight against the virus is not yet won but with the vaccination programme aggressively rolling out, it promises a more positive outlook as we move into the second half of 2021. The country is at full speed in the development of 4IR technology and the implementation of digital technology towards transforming Malaysia into a digitally-enabled and technology-driver high income nation and a regional lead in the digital economy.

APPENDIX 1

Communications and Multimedia: Facts and Figures, 2020

1. 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 end of the year. This is different from the Malaysian demographic practice of using mid-year population as the population for that year. If the practices need to be synchronised to the demographic norm, then the penetration rates as at the end of June of that year must be used.
2. Where a table is not accompanied by a source acknowledgment, that table carries data that emanated solely from the Malaysian Communications and Multimedia Commission (MCMC).
3. Preliminary figures are italicised. Revised figures are underlined.
4. The added total may differ due to rounding.
5. Wilayah Persekutuan includes Wilayah Persekutuan Kuala Lumpur, Wilayah Persekutuan Labuan and Wilayah Persekutuan Putrajaya.

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Symbols and Abbreviations

KKMM	Ministry of Communications and Multimedia Malaysia
DOSM	Department of Statistics, Malaysia
MCMC	Malaysian Communications and Multimedia Commission
ICT	Information and Communications Technology
ITU	International Telecommunication Union
-	Nil
..	Data not available

APPENDIX 1

APPENDIX 1

1 MALAYSIA BASIC INDICATORS

Year	Quarter	Population (million)	Households (‘000)	Domestic Product (GDP)		Consumer Price Index (CPI)
				Current Prices (RM billion)	Constant Prices (RM billion)	
Note		a	b	c		d
2019	4	32.7	8,170.7	395.8	370.1	122.3
	1	32.6	8,209.4	367.2	344.1	120.9
2020	2	32.7	8,217.9	301.8	289.4	119.1
	3	32.7	8,226.9	368.0	351.1	120.1
	4	32.7	8,235.5	378.2	357.4	120.6

Source: DOSM, MCMC

Explanatory notes:

- Population projections as at end of period, based on Census 2010.
- 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.
- Base year is 2015.
- 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.

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
2019	4	32.8	123.7	135.4	86.3
	1	33.8	118.5	134.2	87.3
2020	2	34.5	116.7	132.8	87.6
	3	35.6	117.4	132.8	88.1
	4	37.2	118.7	133.6	89.0

Explanatory notes:

- The fixed-broadband penetration rate per 100 premises is calculated by dividing the total fixed-broadband subscriptions 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 1Mbit/s and above is taken into account for calculation.
- The mobile-broadband penetration rate per 100 inhabitants is calculated by dividing the total mobile-broadband subscriptions by total number of population and multiplying by 100. A penetration rate over 100% can occur because of multiple subscriptions.
- 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.
- 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. Calculation for penetration rate includes household that may have more than one subscriptions from different service providers.
- 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.

3 FIXED-BROADBAND PENETRATION RATE PER 100 PREMISES BY STATE (%)

Year	2019		2020		
	4	1	2	3	4
Quarter					
Note					
State					
Johor	34.2	35.2	35.6	36.4	37.2
Kedah	20.1	20.7	21.4	22.2	23.3
Kelantan	11.6	12.0	12.2	12.8	13.8
Melaka	34.0	35.1	35.5	36.5	37.6
Negeri Sembilan	32.5	33.5	34.5	35.6	37.1
Pahang	20.0	20.6	20.8	21.5	22.5
Perak	28.1	28.9	29.3	30.1	31.1
Perlis	20.5	21.1	21.9	22.5	23.5
Pulau Pinang	41.1	42.0	42.9	44.0	45.1
Sabah	15.3	16.0	16.1	16.8	17.4
Sarawak	22.0	22.8	23.0	23.9	24.7
Selangor	48.3	49.5	50.9	52.4	53.8
Terengganu	19.6	20.0	20.3	20.9	21.9
Wilayah Persekutuan	47.6	49.1	50.0	52.3	61.0
Malaysia	32.8	33.8	34.5	35.6	37.2

Explanatory note:

The fixed-broadband penetration rate per 100 premises is calculated by dividing the total fixed-broadband subscriptions 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 1Mbit/s and above is taken into account for calculation.

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4 MOBILE-BROADBAND PENETRATION RATE PER 100 INHABITANTS BY STATE (%)

Year	2019		2020		
	4	1	2	3	4
Note					
State					
Johor	141.7	135.5	130.7	129.3	130.2
Kedah	99.6	96.1	98.6	99.5	102.2
Kelantan	92.4	89.0	92.2	92.6	98.1
Melaka	115.7	112.5	111.5	111.7	113.3
Negeri Sembilan	137.0	133.5	130.2	132.9	133.4
Pahang	102.0	97.2	98.7	99.9	103.6
Perak	116.0	111.1	110.7	113.6	113.6
Perlis	108.2	104.9	110.5	110.8	111.1
Pulau Pinang	142.8	141.9	136.9	132.9	141.4
Sabah	81.9	77.9	78.8	80.1	80.9
Sarawak	107.0	102.5	102.0	103.2	102.1
Selangor	130.0	126.7	122.4	122.7	121.1
Terengganu	95.7	91.5	93.2	95.4	97.9
Wilayah Persekutuan	234.9	217.7	209.8	210.1	213.0
Malaysia	123.7	118.5	116.7	117.4	118.7

Explanatory note:

The mobile-broadband penetration rate per 100 inhabitants is calculated by dividing the total mobile-broadband subscriptions by total number of population and multiplying by 100. A penetration rate over 100% can occur because of multiple subscriptions.

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)	(million)		(%)	(%)
Note		a	b		c	d
2019	4	2.95	40.43	43.38	32.8	123.7
	1	3.04	38.67	41.71	33.8	118.5
2020	2	3.10	38.12	41.22	34.5	116.7
	3	3.20	38.37	41.57	35.6	117.4
	4	3.35	38.84	42.19	37.2	118.7

Explanatory notes:

The added total may differ due to rounding.

a. Includes ADSL, SDSL, VDSL, Satellite, FTTH/B, fixed wireless, fixed WiMAX, Ethernet, Metro-E and Gigawire.

b. Includes prepaid, postpaid, and Pay Per Use.

c. The fixed-broadband penetration rate per 100 premises is calculated by dividing the total fixed-broadband subscriptions 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 1Mbit/s and above is taken into account for calculation.

d. The mobile-broadband penetration rate per 100 inhabitants is calculated by dividing the total mobile-broadband subscriptions by total number of population and multiplying by 100. A penetration rate over 100% can occur because of multiple subscriptions.

6 NUMBER OF FIXED-BROADBAND SUBSCRIPTIONS BY SPEED RANGE

Year	Quarter	1 - 30 Mbit/s	30 Mbit/s - 50 Mbit/s	50 Mbit/s - 100 Mbit/s	100 Mbit/s - 500 Mbit/s	500 Mbit/s - 1 Gbit/s	≥ 1 Gbit/s
		(million)					
Note							
2019	4	0.83	0.54	0.06	0.80	0.71	-
	1	0.79	0.60	0.06	0.85	0.72	0.02
2020	2	0.78	0.66	0.06	0.89	0.70	0.02
	3	0.72	0.76	0.06	0.95	0.70	0.02
	4	0.66	0.88	0.06	1.03	0.71	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.

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7 NUMBER OF FIXED-BROADBAND SUBSCRIPTIONS BY TECHNOLOGY

Year	Quarter	Fibre Optic	Copper	Others
		a	(million) b	c
2019	4	2.04	0.73	0.18
	1	2.11	0.68	0.24
2020	2	2.20	0.67	0.23
	3	2.33	0.61	0.26
	4	2.51	0.55	0.29

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, fixed WiMAX, Ethernet, Metro-E and Gigawire.

8 NUMBER OF MOBILE-BROADBAND SUBSCRIPTIONS BY TECHNOLOGY

Year	Quarter	At most 3G	At most 4G
		(million)	(million)
2019	4	5.15	35.28
	1	3.95	34.72
2020	2	3.98	34.14
	3	2.79	35.58
	4	2.61	36.23

Explanatory notes:

The added total may differ due to rounding.

9 NUMBER OF MOBILE-CELLULAR SUBSCRIPTIONS AND PENETRATION RATE

Year	Quarter	Postpaid	Prepaid	Total	Penetration Rate
			('000)		Per 100 Inhabitants (%)
2019	4	13,342	31,259	44,601	135.4
	1	13,503	30,263	43,766	134.2
2020	2	13,412	29,968	43,380	132.8
	3	13,460	29,959	43,420	132.8
	4	13,571	30,153	43,724	133.6

Explanatory notes:

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.

10 MOBILE-CELLULAR PENETRATION RATE PER 100 INHABITANTS BY STATE

State	2019	2020
	%	%
Johor	150.5	146.4
Kedah	114.6	115.7
Kelantan	109.8	112.5
Melaka	128.3	126.4
Negeri Sembilan	146.0	146.3
Pahang	114.0	116.1
Perak	125.8	129.0
Perlis	137.9	126.2
Pulau Pinang	153.9	158.5
Sabah	85.7	87.5
Sarawak	116.5	114.7
Selangor	136.0	135.2
Terengganu	110.7	110.6
Wilayah Persekutuan	256.5	243.3
Malaysia	135.4	133.6

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11 MOBILE NUMBER PORTABILITY

Year	Quarter	Number of Porting Request	Number of Successful Porting
		('000)	
2019	4	1,271.5	564.2
	1	1,019.1	454.5
2020	2	973.8	431.8
	3	1,248.5	541.5
	4	1,130.4	484.7

12 PERCENTAGE OF MOBILE-CELLULAR SUBSCRIPTIONS BY GENDER

Year	Male	Female
	%	
2018	63.4	36.6
2019	63.4	36.6
2020	61.9	38.1

13 NUMBER OF SHORT MESSAGE SERVICES

Year	Quarter	Total	Per Subscription
		(million)	
Note		a	
2019	4	1,199.0	26.9
	1	975.2	22.3
2020	2	705.1	16.3
	3	806.8	18.6
	4	511.6	11.7

Explanatory note:

a. Figure refers to the number of SMSes sent within the period.

14 NUMBER OF PAY TV SUBSCRIPTIONS AND PENETRATION RATE

Year	Quarter	Number of Subscriptions			Penetration Rate
		Households	Non-Households	Total	Per 100 Households
Note		('000)			(%)
					a
2019	4	7,103.4	13.9	7,117.4	86.3
	1	7,168.9	14.1	7,183.0	87.3
2020	2	7,202.0	10.0	7,212.0	87.6
	3	7,247.0	11.1	7,258.2	88.1
	4	7,328.9	10.4	7,339.3	89.0

Explanatory notes:

Pay TV is inclusive of IPTV and Satellite TV.

a. 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. Calculation for penetration rate includes household that may have more than one subscriptions from different service providers.

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15 NUMBER OF CERTIFICATION AUTHORITIES

Year	Quarter	Number of Licences
2019	4	4
	1	4
	2	4
	3	4
2020	4	4

Explanatory note:

Refers to Certification Authorities licenced under the Digital Signature Act 1997.

16 NUMBER OF CERTIFICATES ISSUED BY TYPE

Year	Quarter	Domestic Holder			Foreign Holder	Total
		Individual	Organisation		Organisation	
		Corporate	Government	Government & Corporate		
('000)						
2019	4	43.4	456.7	13,310.1	1.2	13,811.3
	1	46.4	473.9	13,673.2	1.2	14,194.7
2020	2	48.2	493.5	14,568.9	1.2	15,111.8
	3	53.4	516.3	14,819.6	1.2	15,390.5
	4	53.4	533.5	14,898.1	1.2	15,486.1

APPENDIX 2

Postal and Courier: Facts and Figures, 2020

- 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.
- Where a table is not accompanied by a source acknowledgement, that table carries data that emanated solely from MCMC.
- Preliminary figures are italicised. Revised figures are underlined.
- The added total may differ due to rounding.
- Wilayah Persekutuan includes Wilayah Persekutuan Kuala Lumpur, Wilayah Persekutuan Labuan and Wilayah Persekutuan Putrajaya.

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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

Source: Pos Malaysia Berhad

Explanatory notes:

- Post Office refers to post office with online system.
- 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).
- 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.
- A Stamp Vendor is a third party (individual/businesses) who is authorised by Pos Malaysia Berhad to sell postage stamps on its behalf.
- 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.

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

Source: Pos Malaysia Berhad

Explanatory notes:

- Post Office Accepting Financial Transaction include permanent offices and mobile offices (including rural delivery personnel) providing financial services (money orders, Cash on Delivery (COD), payments etc.).
- 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.
- A processing hub for international inbound and outbound postal and courier items.

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	

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

Explanatory notes:

- Others include supervisor of postmen and wakil posmen.
- 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.

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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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

Explanatory notes:

- Commencing 2018, number of vehicles refer to vehicles owned by Pos Malaysia Berhad and vehicles owned by outsource contractors related to postal and courier activities. Prior to 2018, number of vehicles refers to vehicles owned by Pos Malaysia Berhad only.
- Commencing 2019, number of vans includes 14 Pos On Wheels (POW) vans in Peninsular Malaysia.
- Commencing 2019, number of lorries/trucks includes 6 Go2U (Pos Laju mobile units) and 18 POW lorries in Sabah & Sarawak.

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

Source: Pos Malaysia Berhad

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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	18.5
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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

11 FINANCIAL SERVICE

Year	Money Order ('000)					
	Number	Domestic Service		International Service		
		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

Source: Pos Malaysia Berhad

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

Source: Pos Malaysia Berhad

Explanatory note:

- 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.
- Commemorates important events in history which took place locally or internationally or events that are significant such as inaugural ceremony, anniversary and etc.
- Featuring national aspects such as agriculture, crops and so on. Normally, it will change once every 5 years.
- Standing Order Deposit Account (SODA). 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.

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13 COURIER INFRASTRUCTURE

Year	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others
Note	a	b	c	d	e	f	g	h
2017	18	323	10	39	47	322	454	129
2018	217	1,105	27	52	48	1,567	1,178	273
2019	322	1,184	35	112	73	1,899	2,814	343
2020	380	1,220	35	203	17	4,161	5,881	381

Explanatory notes :

- 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.
- 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.
- Gateway refers to a point at which freight moving from one area to another is interchanged between transportation lines (airport).
- 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.
- 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.
- 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.
- 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.
- Others includes service centre, kiosk etc.

14 COURIER INFRASTRUCTURE BY STATE

Year	State	Hub	Branch	Gateway	Franchise	Affiliate	Agent	Drop-in-centre	Others
Note		a	b	c	d	e	f	g	h
2019	Johor	33	132	2	27	6	151	252	34
	Kedah	12	67	0	7	3	90	39	5
	Kelantan	9	75	0	5	0	80	33	3
	Melaka	8	32	0	3	5	41	22	10
	Negeri Sembilan	8	62	0	5	2	58	57	7
	Pahang	16	71	0	5	4	84	22	5
	Perak	16	101	0	16	17	97	81	17
	Perlis	1	21	0	1	1	57	2	1
	Pulau Pinang	21	70	3	0	4	65	222	11
	Sabah	20	100	5	5	0	163	37	4
	Sarawak	30	84	7	11	4	201	52	4
	Selangor	121	210	15	15	17	448	1,313	130
	Terengganu	11	51	0	9	1	67	9	7
	Wilayah Persekutuan	26	108	3	3	9	297	673	105
Total		332	1,184	35	112	73	1,899	2,814	343
2020	Johor	44	154	1	42	0	370	875	40
	Kedah	16	70	1	10	1	169	155	8
	Kelantan	12	76	0	8	0	189	81	6
	Melaka	12	40	0	5	0	114	274	10
	Negeri Sembilan	13	66	0	4	0	153	298	9
	Pahang	18	93	0	10	1	130	197	7
	Perak	20	138	0	24	10	236	353	20
	Perlis	2	16	0	0	0	63	32	2
	Pulau Pinang	28	83	3	14	3	224	490	14
	Sabah	21	83	6	12	1	247	76	7
	Sarawak	20	83	7	15	0	356	82	6
	Selangor	137	154	16	40	1	1,222	2,031	135
	Terengganu	9	60	0	6	0	97	43	9
	Wilayah Persekutuan	28	104	1	13	0	591	894	108
Total		380	1,220	35	203	17	4,161	5,881	381

Explanatory notes:

Please see note Table 13

APPENDIX 2

LIST OF FIGURES

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

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.

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

Explanatory note:

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.

17 COURIER TRAFFIC

Year	Document ('000)		Parcel ('000)		Others ('000)	
	Domestic	International	Domestic	International	Domestic	International
Note	a					
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

Explanatory note:

- a. Includes non-priority mail, walk-in courier, prepaid, post express etc.

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LIST OF ABBREVIATIONS

3G	3 rd Generation
4G LTE	4 th Generation Long Term Evolution
5G	5 th 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
B	
BAS	Wired Broadband Access Service
C	
C&M	Communications and Multimedia
CA	Certification Authority
CAS	Content Applications Services
CASP	Content Applications Service Provider
CCID	Commercial Crime Investigation Department
CFM	Communications and Multimedia Consumer Forum of Malaysia
CMA	Communications and Multimedia Act 1998
CSSR	Call Setup Success Rate
D	
DCR	Dropped Call Rate
DEL	Direct Exchange Line
DIAS	Dial Up Internet Access Service
DL	Download
DLL	Digital Leased Line Service
DSL	Digital Subscriber Line
DTH	Direct-to-Home
DTTB	Digital Terrestrial Television Broadcasting

E	
EMF	Electronic Magnetic Fields
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
H	
HSBB	High Speed Broadband
I	
iDTV	Integrated Digital TV
ICT	Information and Communications Technology
IoT	Internet of Things
IP	Internet Protocol
IPTV	Internet Protocol Television
ISP	Internet Service Provider
ITU	International Telecommunication Union
K	
KLIA	Kuala Lumpur International Airport
L	
LTE	Long Term Evolution

LIST OF ABBREVIATIONS

M	
Mbps	Megabits Per Second
MCS	Mobile Content Services
MNC	Multi-National Companies
MNO	Mobile Network Operator
MNP	Mobile Network Portability
MO	Modus Operandi
MRT	Mass Rapid Transit
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
QR Code	Quick Response Code

R	
R&D	Research and Development
RAO	Reference Access Offers
RBB	Rural Broadband
RFID	Radio Frequency Identification

S	
SB	Statutory Bodies
SDSL	Symmetric Digital Subscriber Line
SGOV	State Government
SIM	Subscriber Identity Module
SMS	Short Messaging Service
STB	Set Top Box
SUBB	Suburban Broadband
SVOD	Subscription Video On Demand

U	
UHD	Ultra High Definition
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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