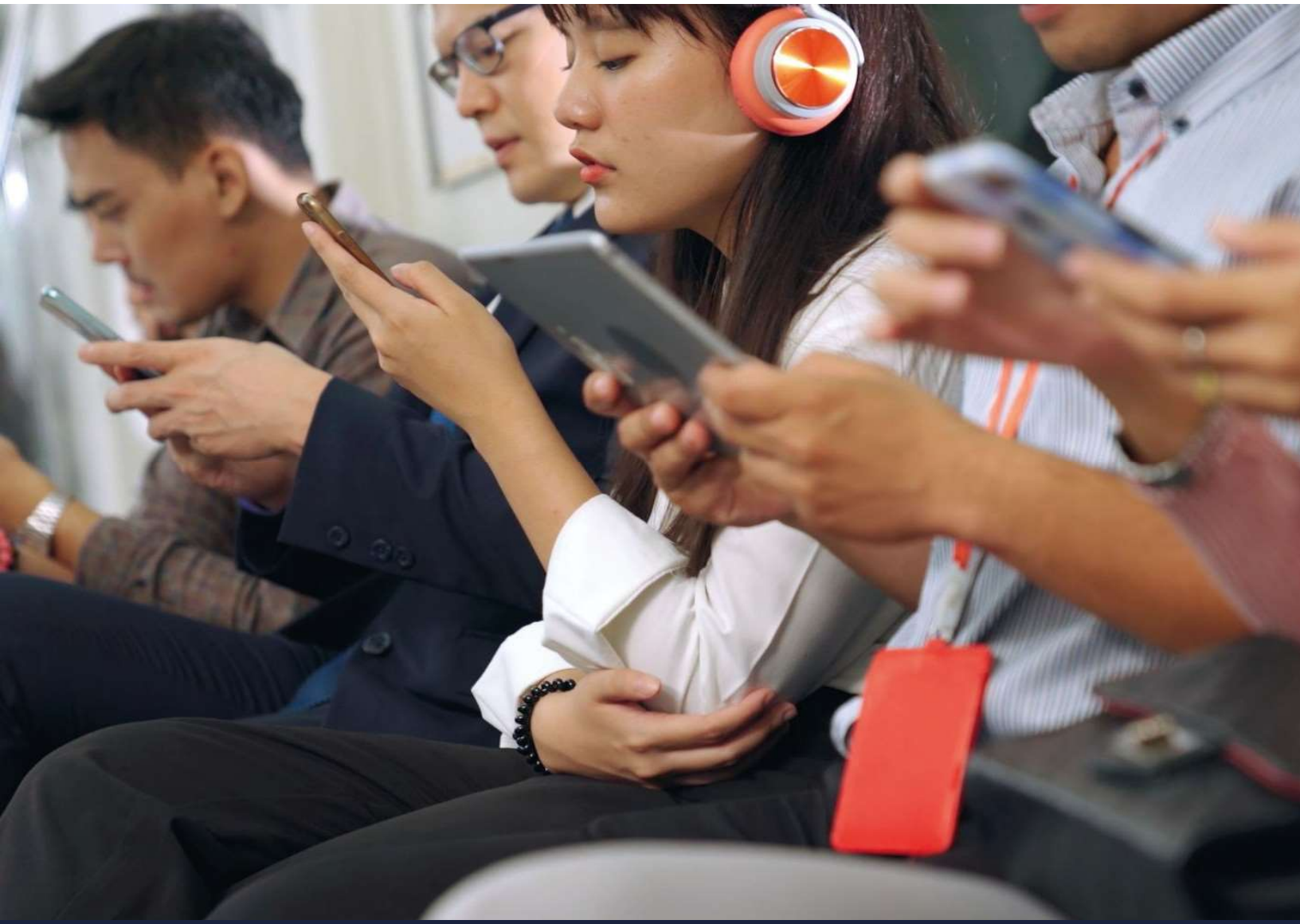
Internet Users Survey 2022



SURUHANJAYA KOMUNIKASI DAN MULTIMEDIA MALAYSIA
MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION

ISSN 1823-2523

Published by:

Malaysian Communications and Multimedia Commission
MCMC Tower 1, Jalan Impact, Cyber 6, 63000 Cyberjaya,
Selangor Darul Ehsan

Tel: +603 8688 8000
Fax: +603 8688 1000
Aduan MCMC: 1-800-188-030

http://www.mcmc.gov.my

Table of Contents

Executive Summary

The Internet User Survey 2022 ("IUS 2022") is part of a series of surveys by MCMC that started in 2012. The primary aims are to track Internet access and use, as well as to understand the evolving behaviours and trends of Internet use. The findings of IUS are relevant for policy development and industry growth as Malaysia pivots to the digital economy.

IUS 2022 was carried out when Malaysia was on the road to recovery from COVID-19 pandemic; during which a significant number of activities shifted to the Internet. As society embraces technology and digital transition more readily due to the pandemic, the change in user behaviours and trends of Internet use is expected to accelerate faster.

More importantly, the findings of IUS 2022 can form early data points to assist policymakers in ascertaining the extent of access vulnerability of different groups, should key public services (for example education) transition significantly to the digital platform.

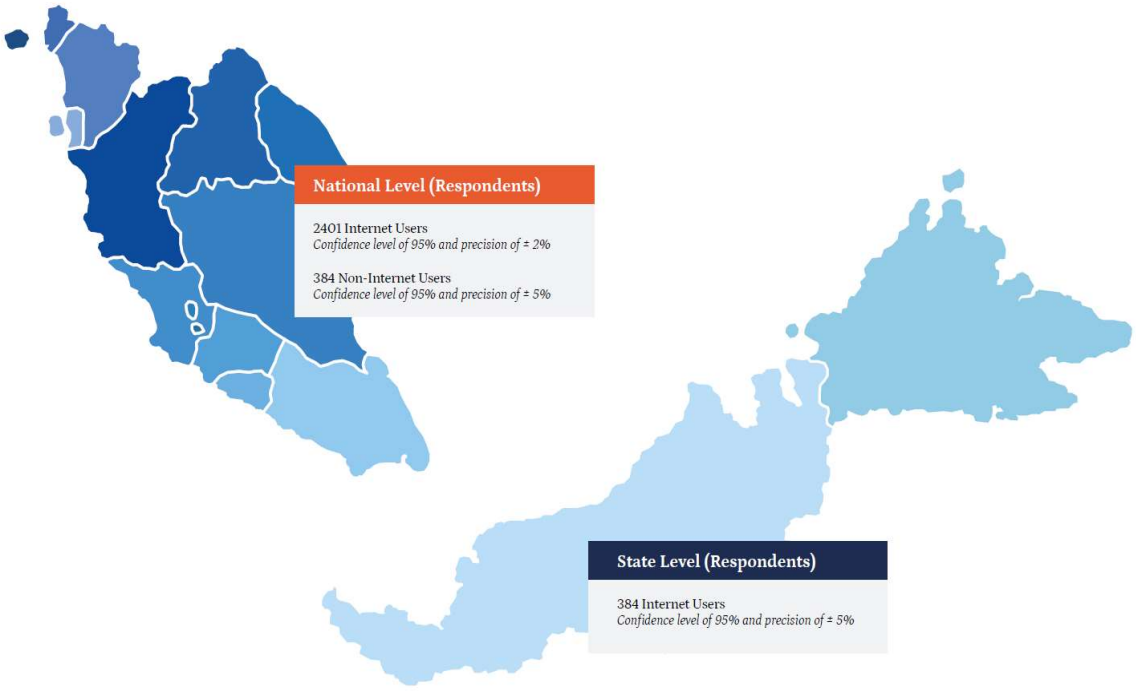
IUS 2022 reached a sample of 2,401 Internet users and 384 non-Internet users at the national level and a total of 384 Internet users for each state to meet the requirement for state-level surveys.

Respondents were selected randomly, and the interviews were carried out through telephone interviews.

The survey continues to track primary metrics for Internet access and usage; which includes duration of access, access by device and different types of Internet usage. The data from IUS 2022 adds on to a running time-series from the first Internet user survey in 2012.

IUS 2022 also focuses on emerging Internet issues as a continuation of previous surveys; namely online content, online child safety and online privacy/security.

Finally, IUS 2022 added a new area of COVID-19 impacts on online activities to gauge its impact on the public's Internet usage behaviour. The pandemic has led to a surge in the use of the Internet due to the nationwide lockdowns.


National Level (Respondents)
2401 Internet Users
Confidence level of 95% and precision of ± 2%
384 Non-Internet Users
Confidence level of 95% and precision of ± 5%
State Level (Respondents)
384 Internet Users
Confidence level of 95% and precision of ± 5%


IUS 2022 theme covered
Internet access & use
Online activities
Online content sharing
Online security & privacy
Child online safety & parental control
COVID-19 impact

Key findings of IUS 2022

Internet user
92.7%

Non-Internet user
7.3%

Uses fixed broadband
58.9%
37% INCREASE from 2020

TikTok
48%
users in 2022

2020

Internet user feeling secure online
14.1%

2021

10% more people
on average, spent more hours for

WORKING FROM HOME

STUDYING ONLINE

during the pandemic.

The most common type of cybercrime was **FRAUD/SCAMS** with **68.5% of respondents reported** to have experienced it.

6.4% more people
SELLS GOODS/ SERVICES online during the pandemic

During the pandemic, more than 50% of Internet users in rural area claimed facing problem with

Coverage (61.6%)

Speed (65.0%)

Connection reliability (56.4%)

Quality (53.0%)

Background & Objectives

The Internet Users Survey (IUS) is a series of purpose-built surveys conducted since 2012 to monitor Internet activities and understand the trends and tendencies among users. Consequently, the surveys have provided steppingstones thus far, to gauge Malaysia's standing in Internet adoption in recent years.

IUS 2022's objectives were:
1. To estimate the number and percentage of Internet users in the country
2. To study the attitudes and behaviours of users towards Internet use
3. To identify the recent trends in Internet usage

IUS 2022 provides extra highlights on behavioural trends of Internet use since 2012.

The data points collected from IUS 2022 are used to build predictive models to profile Internet users to keep abreast with the evolving nature of Internet use's sophistication in society.

Thus, IUS 2022 intends to facilitate stakeholders in assessing and comprehending better the extent of Internet usage in Malaysia. This can lead to better strategies and initiatives that are necessary to transition society to embrace digitalisation in light of the post-pandemic's new normal.

Methodology

The sample population was randomly selected from mobile-cellular users and further stratified by ethnicity, gender, age and state. The sample population was uploaded to a computer system that randomly dials respondents to meet the stratification requirements to ensure the respondents are representative of the population. IUS 2022 was canvassed and administered through telephone interview.

Fieldwork for this survey started on 31st December 2021 until 13th May 2022. The fieldwork took longer than anticipated due to the National Recovery Plan on reversing the damage from the COVID-19 pandemic. Although Malaysia transitioned to endemicity on April 1, the survey had to be administered remotely to abide by all the SOPs. Apart from the longer time taken to complete the fieldwork, the remote administration of the survey did not compromise the statistical accuracy and requirements.

IUS 2022 reached a sample of 2,401 Internet users and 384 non-Internet users at the national level and a total of 384 Internet users for each state to meet the requirement for state-level surveys.

There was only one stage of sample selection, as the survey adopted a stratified random sample. Sampling was done with probability proportional to the strata defined in terms of ethnicity, gender, age and state.

Data quality check was administered throughout the survey fieldwork. Basic frequency count was computed to assess the results. Cross- tabulation was imposed between relevant indicators to identify significant relationships that would deduce meaningful inferences pertinent to the objectives.

The data had been weighted to match nationality (Malaysian and non-Malaysian), ethnicity, gender, age and state where the 2022 population estimates from Department of Statistics Malaysia (DOSM) serves as the auxiliary information.

Important findings are featured in this report, complemented by supporting charts and tables for the convenience of readers. Comparisons across time were established in the analysis where available. The findings on current trends were analysed and contextualised against current developments in Malaysia and around the world. Information from external sources is included as supplementary data to support any discovery.

Full results of the survey are appended in the form of percentage tables at the end.

Challenges

Although Malaysia had transitioned to endemicity and began to ease more COVID-19 curbs, including lifting many movement restrictions and rules, these were carried out in stages since the safety precautions in health and care settings against COVID-19 were still factored in. The fieldwork was canvassed and administered remotely to ensure the IUS 2022 could be completed on time.

In addition, the remote canvassing presented a new complication. The response rate was lower at times, especially during festive and school opening seasons. This could also suggest that Malaysians were getting ready to return to normalcy, indicating that they were already seeing the end of the pandemic and adapting to a new norm in endemicity.

Besides the longer time taken to complete the fieldwork, the survey had to adopt specific time slots to ensure calls were made only in the timeframe that had produced the highest response rate. While this improved the response rate, it stretched call agents' working hours into the night and weekend, well beyond the regular office hours.

Stratified random sampling also led to different response rates for different states and strata. Certain states such as Perlis and Pahang experienced below-average response rates and more call agent hours had to be dedicated to meet the stratified sampling requirement for these states.

Findings

Percentage distribution of Internet users and non-Internet users

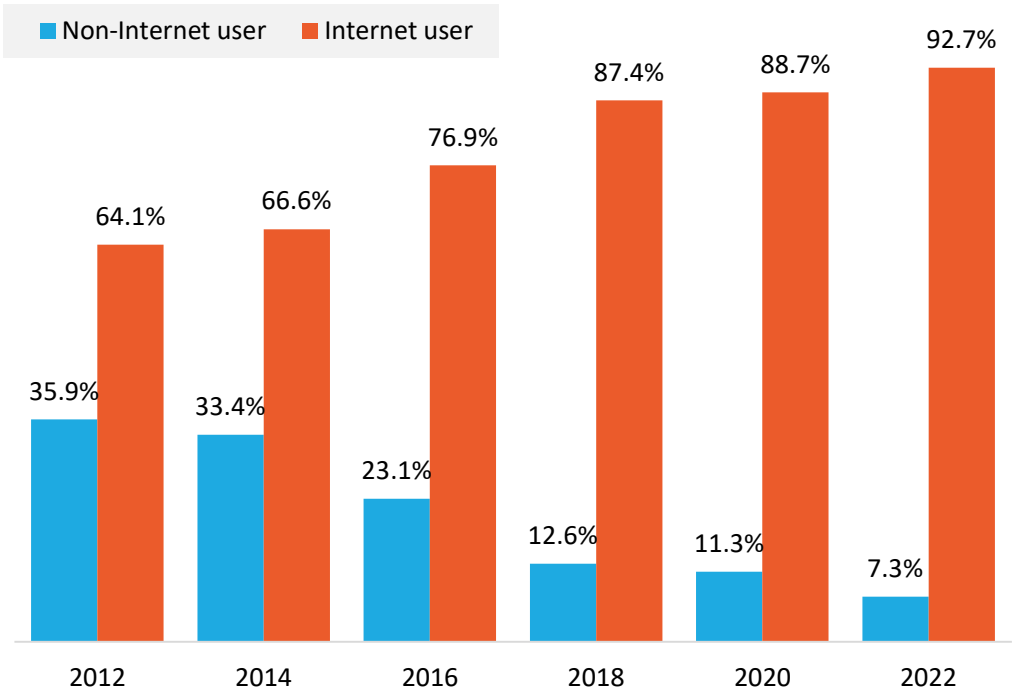


Figure 1 : Internet users and non-Internet users over the years, 2012-2022

The survey indicates that the percentage of Internet users in 2022 was estimated at 92.7%, an increase of 4.0% from 88.7% in 2020.

The percentage of Internet users appears to grow more visibly in 2022 as compared to the last 3 years, an inevitable trend that can be observed across the globe ever since the pandemic started in 2020. The outbreak of the COVID-19 virus highlights the prominent role of the Internet which accelerates the process of digitization in the crucial areas of economic, political and social life.

Nationwide lockdowns had entailed a rise in Malaysians acclimatizing and adopting the Internet to communicate and carry out daily tasks remotely from home. As reported by the International Telecommunication Union (ITU), the COVID-19 pandemic witnessed the number of Internet users grew to 4.9 billion in 2022 worldwide from 4.1 billion in 2019 as a direct impact of remote work and remote education within the reach of many[1].

As for non-Internet users, it can be observed that the percentage of the section of this population declined by as much as 4.0% in 2022 from 2020. The recent percentage stood at 7.3% from 11.3% in 2020. It is worth noting that this trend has continuously decreased ever since this survey started in 2012.

Non-Internet users by age

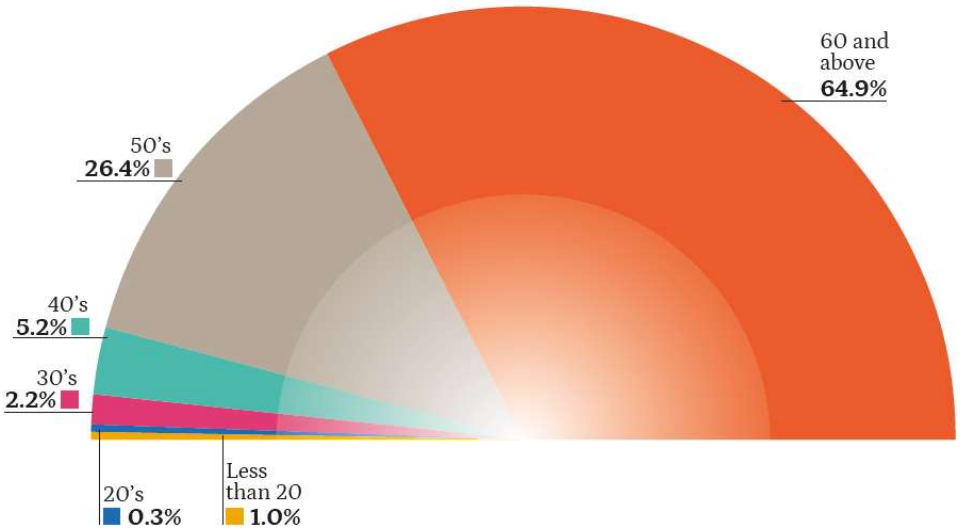


Figure 2 : Percentage of non-Internet users, by age group

[1] ITU 2021 Press Release. https://www.itu.int/en/mediacentre/Pages/PR-2021-11-29-FactsFigures.aspx

Reasons not using Internet, by age

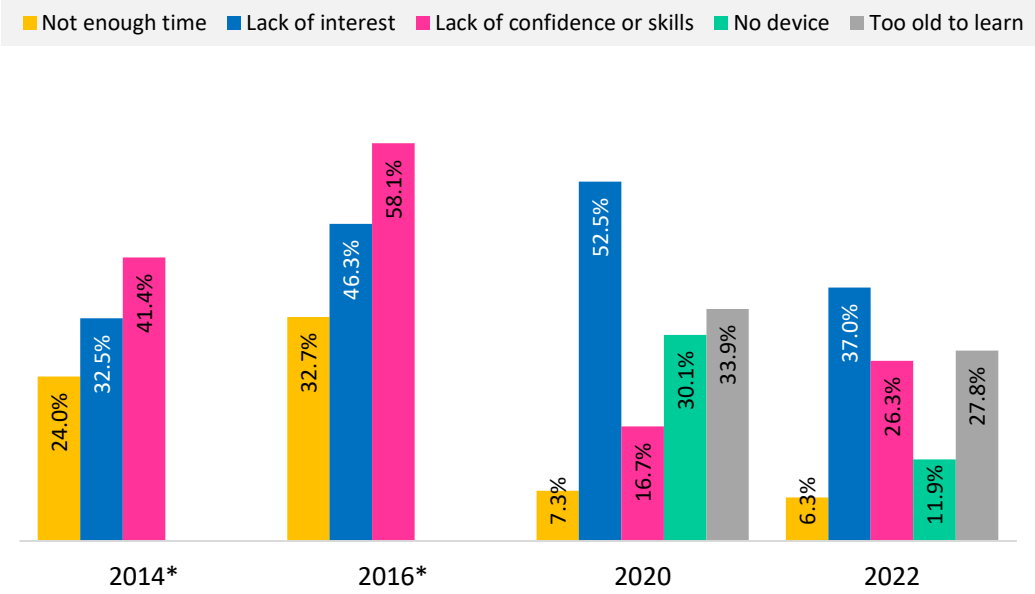


Figure 3 : Reasons for not using Internet across years, 2014-2022

Furthermore, the findings demonstrate that the top three reasons for not using the Internet among non-Internet users were lack of interest (37.0%), too old to learn (27.8%) and lack of confidence or skills (26.3%).

Despite 'lack of interest' being the most popular option in 2022, this figure declined quite substantially from 2020, from 52.5% to 37.0%.

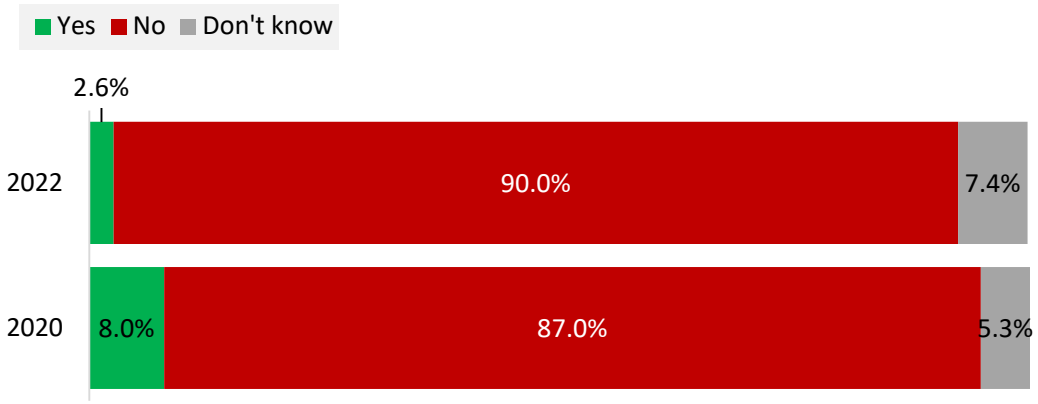


Figure 4 : Non-Internet users who intend to use Internet in the future

IUS 2022 identified that only a small percentage of non-Internet users (2.6%) intended to use the Internet again in the future, and this figure dropped by 5.4% since 2020. On the other hand, a large majority of non-Internet users thought otherwise (90.0%), increasing by 3.0% since last year.

Among those who intended to use the Internet again in the future, 64.2% of them would need someone to assist them to go online while 23.4% do not.

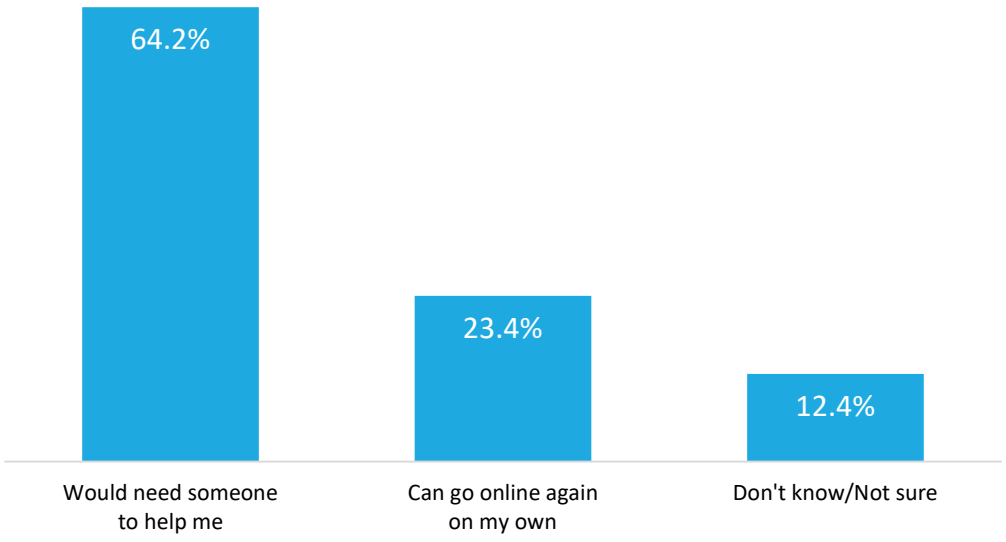


Figure 5 : Non-Internet users who intend to use Internet again

53.2%

Have used the Internet for more than 10 years

26.3%

Have used the Internet for between 5 to10 years

17.9%

Have used the Internet for less than 5 years

Internet access and use

Years of experience with Internet

The findings demonstrate a pronounced spike of more than 10% among Internet users who claimed to have been using the Internet for more than 15 years, from only 10.2% in 2020 to 26.1% in 2022.

From a broader perspective, Malaysia saw an increasing trend of people disclosing that they have been using the Internet for a minimum of 10 years, accumulating a total percentage of 53.2% in 2022 compared to only 28.2% the preceding year.

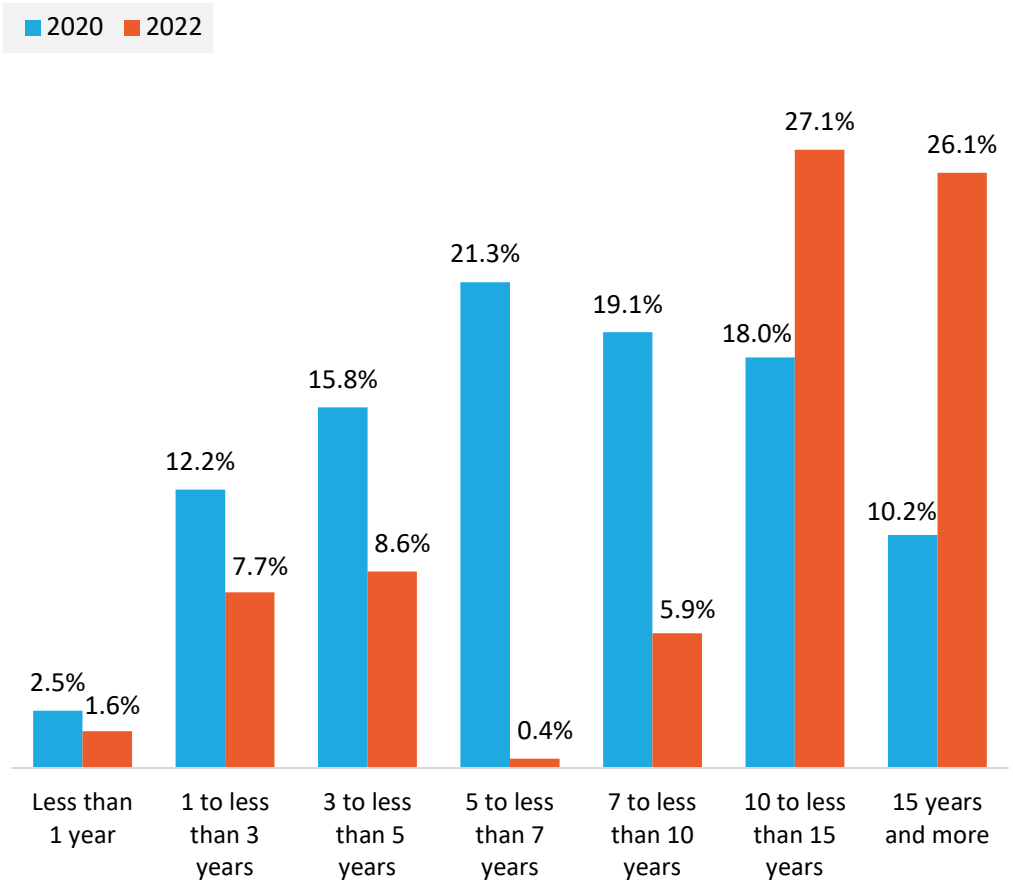


Figure 6 : Years of experience with Internet

Duration of daily use of Internet

A look at the average hours of daily use of Internet in 2022 reveals that 38.5% of Internet users engaged with online activities for a minimum of 9 hours per day, a slow decrease from the previous year (42.0%). However, when taking into account the margin of error, the trend for 2022 is actually constant to 2020.

The steady trend likely reflected the continuous dependency on Internet streaming and consumption of digital content as some of learning institutions and workplaces were still not fully opened.

Further, the donation of online devices to underprivileged communities by the government and various NGOs had also encouraged Internet usage amongst school and university students as part of their learning activities during the pandemic.

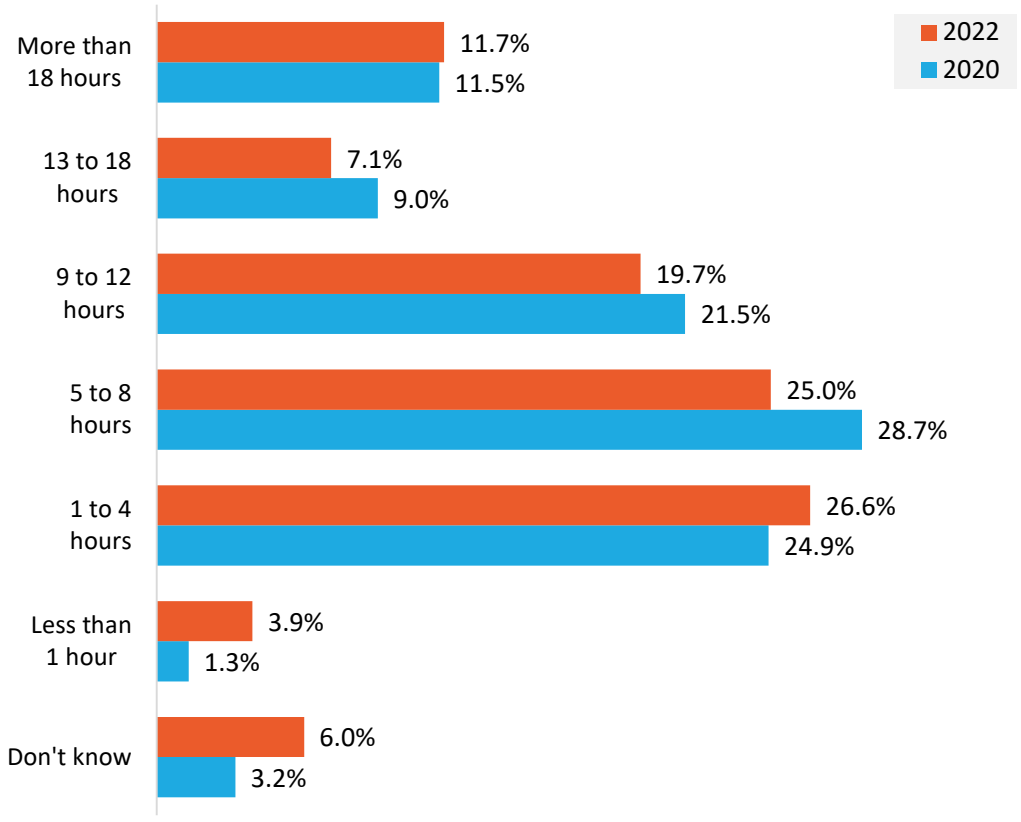
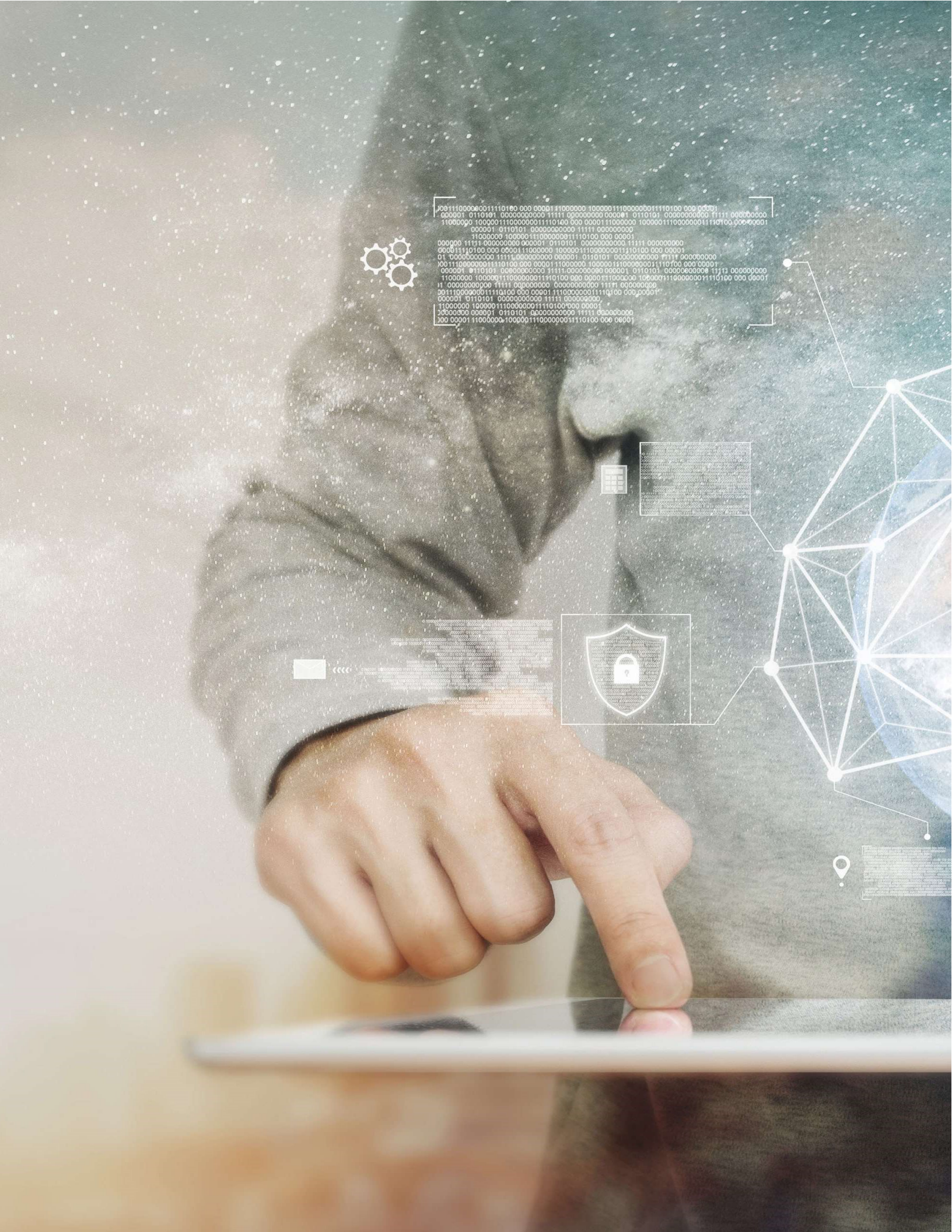


Figure 7 : Hours spent on the Internet



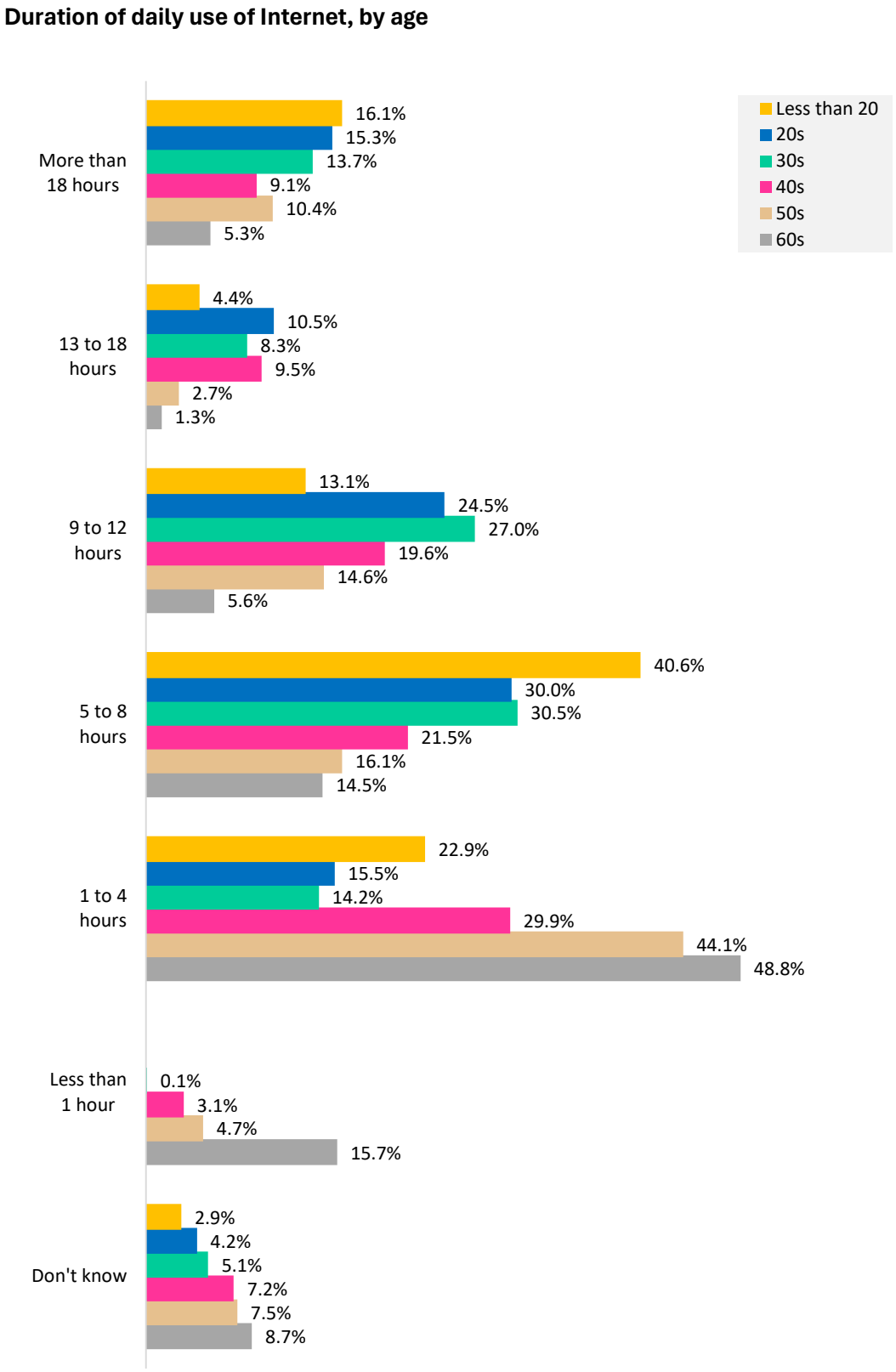


Figure 8 : Hours spent on the Internet, by age group

The breakdown by age shows that the highest percentage of people in their 20s used the Internet within the range of 5-8 hours while respondents who were older (those in their 50s and 60s) were inclined to do so for only 1 to 4 hours.

Categorisation of Internet users by the length of access

The decrease in hours spend on the Internet usage is probably due to the survey fieldwork was canvassed towards the end of Movement Control Order (MCO) where the government began to gradually ease COVID-19 curbs, including lifting many movement restrictions and rules, reflecting lesser dependency on the Internet used for daily activities.

Table 1: Categorisation of Internet users by the length of access

Year	Mild	Regular	Heavy
2022	30.5%	44.7%	18.8%
2020	26.2%	50.1%	20.5%
2018	48.8%	37.3%	13.8%

Notes:
For the purpose of this survey, the Internet users are categorised as follows:
Mild : Spend less than 5 hours a day
Regular : Spend 5 to 12 hours a day
Heavy : Spend more than 12 hours a day

Figure 9 : Location of access

More than 80% of Internet users (82.3%) stated their own home as the most frequent place to go online, perhaps not surprising considering that MCO was not fully lifted.

This figure saw an increase of 11.8% of Internet users accessing the Internet from home since 2020. This was followed by 'On the go', which was the second most popular option with more than 50% of Internet users opting for this choice.

The 'Free Wi-Fi anywhere' became the least favoured option among respondents, replacing 'another person's home' in 2020. This could be due to advised by the government to avoid public places for safety purposes.

Another thing worth highlighting is the increase of 8.7% of people accessing the Internet from their workplace, indicating that some corporate offices might have started implementing a hybrid system as the country moves toward endemicity.

53.2%

of those who access the Internet from home are using fixed broadband, a 9.8% increase from 2020

Broadband access

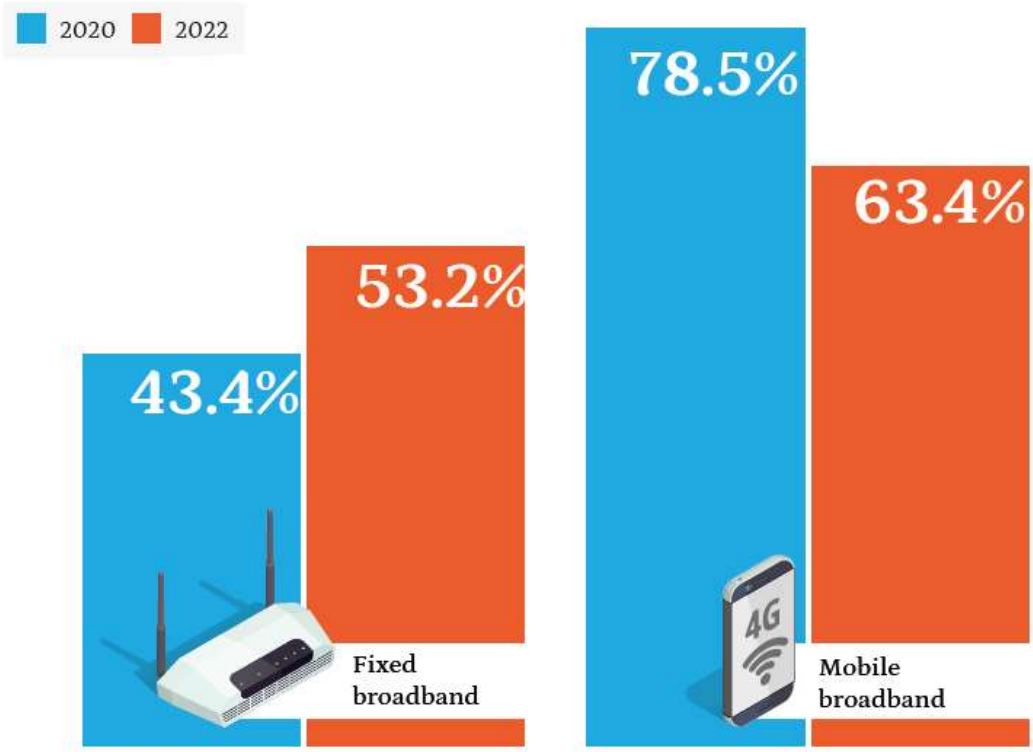


Figure 10 : Internet access from home

For Internet users who accessed the Internet from the comfort of their own home, more than half stated that they utilized mobile broadband (63.4%).

A more thorough observation of the data also shows that there was an increase of 9.8% for people accessing the Internet using a fixed broadband as compared to the alternative.

One reason that might possibly explain the sudden spike in demand for fixed broadband among Internet users is that it was a more reliable medium to access stable and functional Internet connection – users are less likely to experience slow speed Internet and data usage caps. Fixed broadband is much more suited to situations where people need to work or study from home – fixed broadband often acquires more bandwidth, enabling users to download heavy files and stream video at high speed.

Furthermore, the implementation of the national digital infrastructure plan, Pelan Jalinan Digital Negara (JENDELA) greatly contribute to making fixed broadband connectivity more readily available to the public. The JENDELA project, a joint effort between MCMC and service providers, highlights the need for robust, high quality and affordable digital connectivity throughout the country, with a particular focus in rural areas.

From September 2020 – December 2022, the industry players collectively fiberized 2,780,580 premises, upgraded 37,977 base stations to 4G technology, built 1,778 new mobile towers and enabled Satellite Connectivity to 839 sites to enhance the overall digital connectivity and experience. As of 31 December 2022, approximately 7.74 million premises have access to fibre broadband while 96.92% of all populated areas have access to 4G network[2].

Despite the noticeable increase of fixed broadband, one can still see that mobile broadband was the most preferred choice of broadband type among the majority of Internet users.

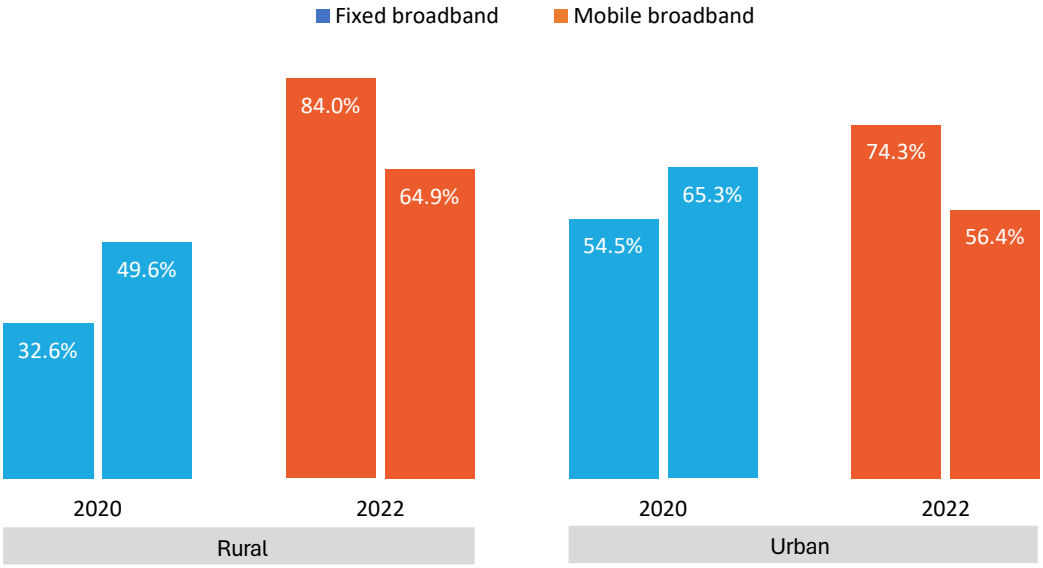


Figure 11 : Access the Internet from home, by strata

Comparing IUS 2020 and IUS 2022, fixed broadband usage at home increased in both rural and urban areas by 17.0% and 10.8% respectively. On the other hand, usage of mobile broadband from home decreased by 19.1% in rural area and 17.9% in urban. Mobile broadband usage experienced a noticeable decline due to lockdown, whereby more Internet users used fixed broadband as an access to the Internet.

[2] JENDELA Phase 1 Concluding Report – https://myjendela.my/Sitejendela/media/Doc/JENDELA-Phase-1-Concluding-Report.pdf

Personal hotspot

There was a noticeable increase of 9.0% among Internet users who accessed personal hotspots with Wi-Fi and Bluetooth. As addressed in the last 2020 survey report, this finding is consistent with the widespread use of mobile broadband and it explains why mobile broadband remains the more popular choice among Internet users. The capability of smartphones to support mobile tethering for users to access the Internet on other devices makes mobile broadband the preferred option.

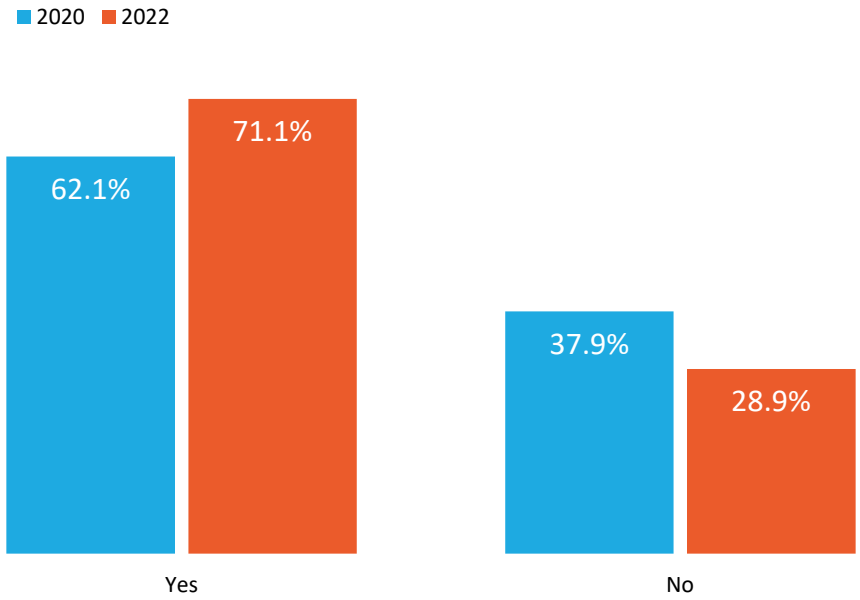


Figure 12 : Experience with personal hotspot

Device to access Internet

When Internet users were asked what kind of devices they use to access the Internet, there was a slight decrease of users who claimed so through smartphones, from 98.7% to 94.4%. However, it remains the most popular choice of device to access the Internet with it dominating the chart.

On the flip side, there was an increasing trend among those using other devices, but this was particularly more evident among PC/Desktop, Tablets and Smart TV users. The percentage of Internet users accessing the Internet from PC/Desktop increased from 16.2% in 2020 to 20.6% in 2022 while tablets increased from 6.4% to 14.4% within the same period. Internet users who accessed the Internet using smart TV increased from a mere 5.9% to 21.7%. The surge in work-from-home and study-from-home had meant good news for the laptop and tablet market and this was reflected in the data collected. Similarly, the demand for Smart TV skyrocketed because the trend toward digital entertainment peaked at the height of lockdowns.

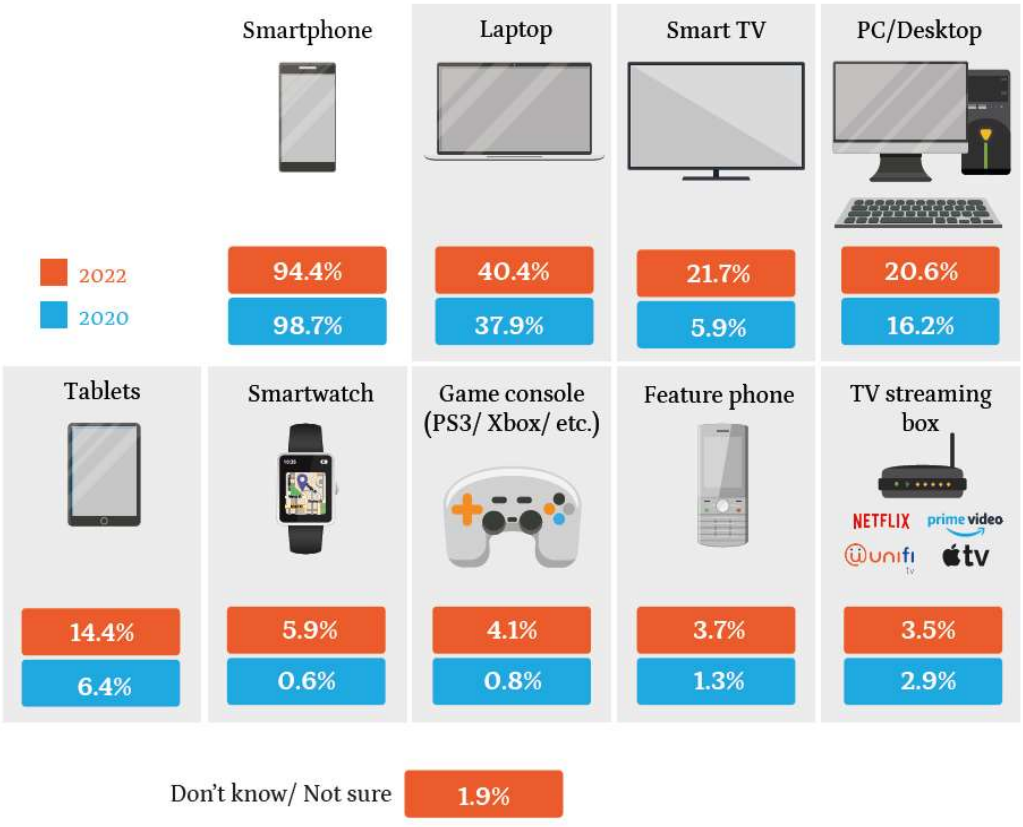


Figure 13 : Device to access Internet

94% +13%

used the Internet to communicate by voice or video (compared to 81% in 2020)

92% +18%

used the Internet to get information (compared to 74% in 2020)

Online activities

Based on the chart, a vast majority of Internet users in Malaysia use the Internet for social purposes. The percentage of Internet users who communicate by text increased by 0.3%, from 98.0% in 2020 to 98.3% in 2022.

The drastic jump by 18.1% in the Internet usage to get information might be an indication that the Internet has indeed become an integral tool for Internet users studying and working from home with devices close at hand.

Perhaps unsurprisingly, there was an increase in Internet users who watch or download videos online, at 89.6%, a slight increment of 1.9% from 2020.

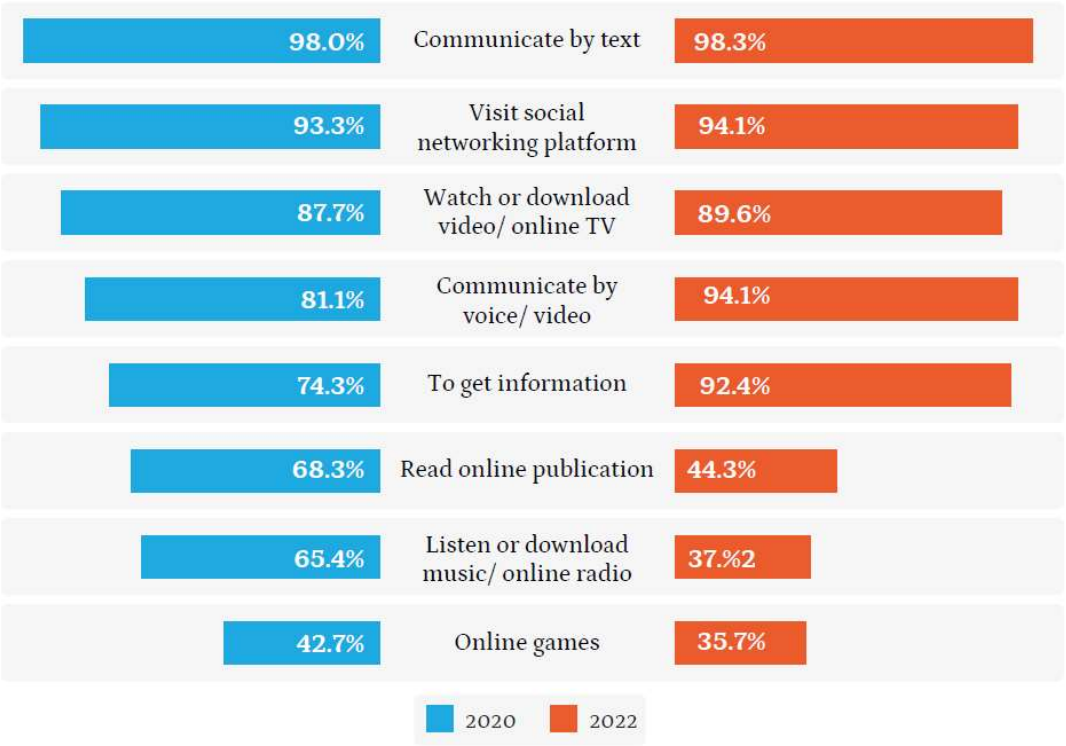


Figure 14 : Online activities

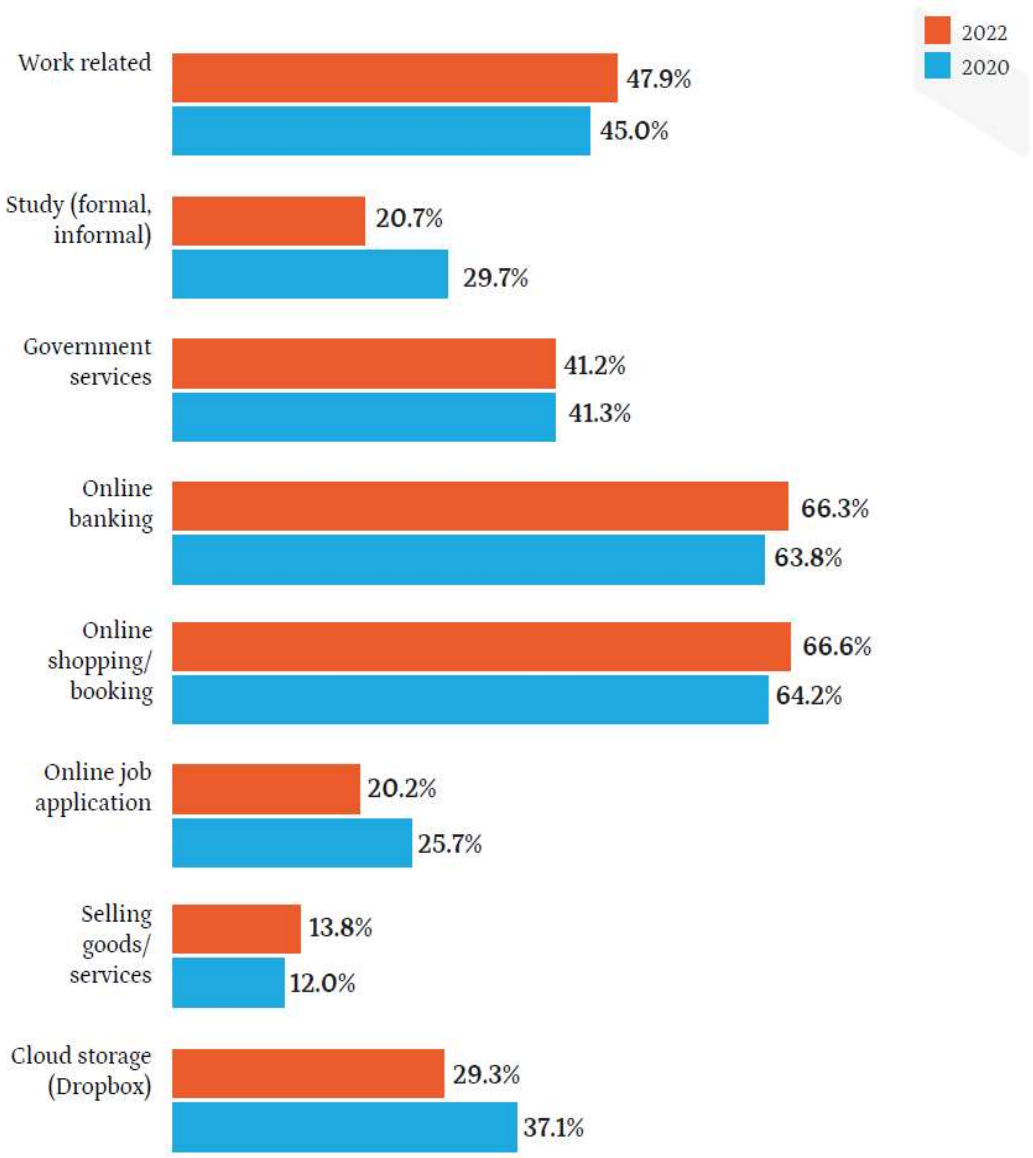


Figure 15 : Other online activities

According to IUS 2022, when respondents were asked what other purposes they use the Internet for, online shopping and selling goods online could both be seen on the rise — 66.6% and 13.8% respectively.

Media consumption

According to IUS 2022, 53.7% of Internet users listening or downloading music or online radio on a daily basis, increased by 5.4% from 2020. Further, a slight increase was also noted in watching or downloading video or online TV as well as reading online publications on a daily basis with 0.3% and 0.7% respectively.

Nevertheless, online media consumption on a weekly basis witnessed a declining trend in 2022, compared with 2020.

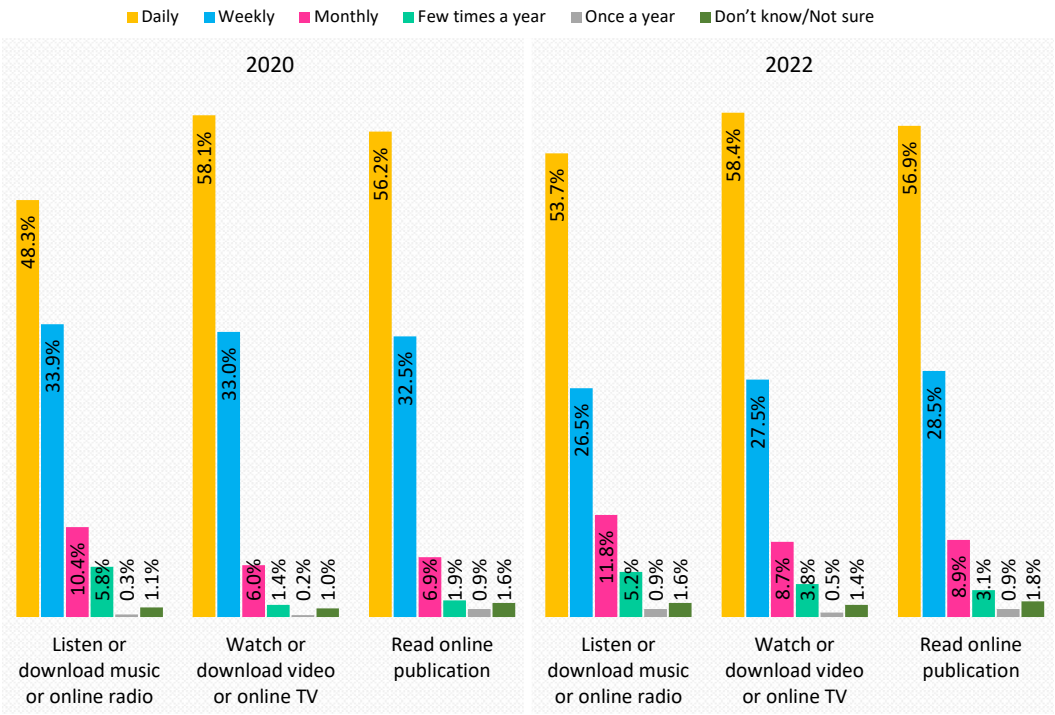


Figure 16 : Online media spent

Digital economy

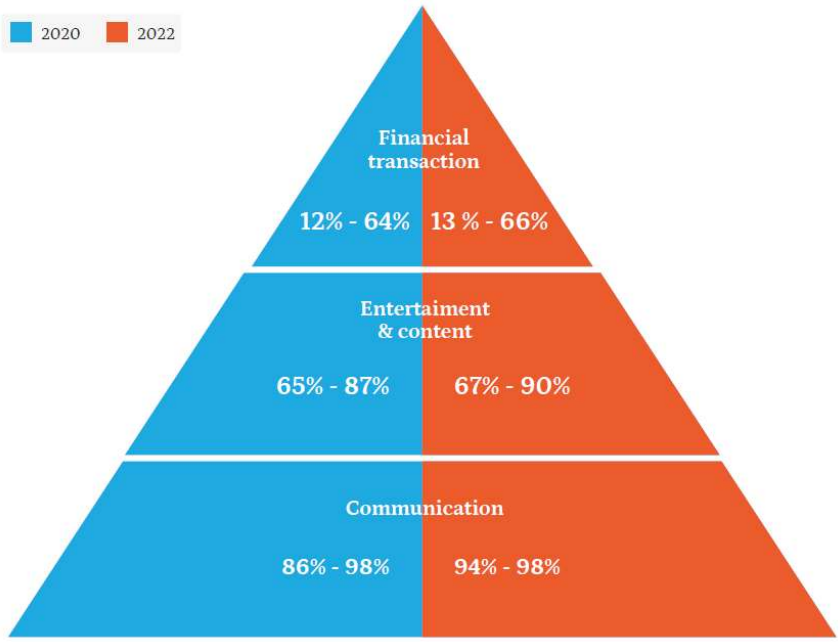


Figure 17 : Pyramid of transaction-based and non-transaction-based online activities

Furthermore, the categorization of different types of online activities allows an insight into the pervasiveness of the digital economy.

The different types of online activities can be classified using a pyramid diagram; with the base representing non-transaction-based online activities, such as using the Internet to communicate and keeping social networks, and the summit representing transaction-based online activities, such as banking, shopping, etc.

IUS 2022 witnessed a noticeable gap between transaction-based activities and non-transaction-based activities. Multiple series of lockdowns have had a profound effect on the online behaviour of Internet users and this trend continues to this day.

On a positive note, IUS 2022 saw an increase in transaction-based online activities, which was consistent with last year's findings. The initiative launched by the government called MyDIGITAL[3] might be a contributing factor to this trend as it aimed to assist the country's transformation into a digitally driven national economy on top of achieving sustainable socioeconomic development. This initiative was set in motion in early 2021 hence the country's vision to become more prominent in the digital economy is expected to grow faster and improve in the near future with greater digital connectivity and robust telecommunication infrastructure.

[3] MyDigital and 4iR https://www.malaysia.gov.my/portal/content/31187

Social networking and comunication applications

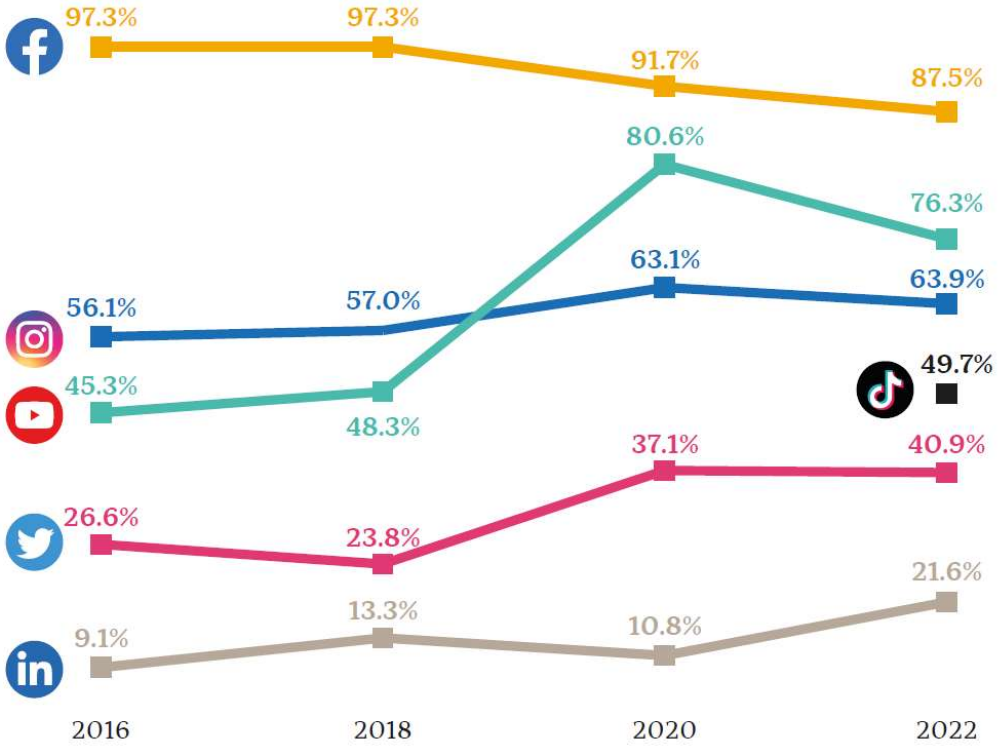


Figure 18 : Social networking applications

It was reported that Facebook saw a percentage decline in the number of Malaysian users from 91.7% in 2020 to 87.5% in 2022. This finding was in line with a report disclosed by Meta showing how Facebook has lost about 500,000 to 1,000,000 daily active users and reported its slowest revenue growth in a decade, marking Meta's worst ever performance on Wall Street[4]. This could be due to the younger generation, including those in Malaysia, gradually moving away from Facebook and shifting toward newer social media platforms instead, further weakening Facebook's top spot.

Given the ever-increasing popularity of new social networking sites, LinkedIn unexpectedly experienced a growth spurt in the number of people using its platform, from 10.8% in 2020 to 21.6% in 2022.

[4] How many Users is Facebook Actually Losing? https://www.makeuseof.com/how-many-users-facebook-losing/#:~:text=So%20How%20Many%20Users%20Have,depending%20on%20the%20news%20source

The chart also demonstrates that TikTok's performance soared in 2022 with a remarkable increase in popularity, achieving growth that outperformed Twitter (rebranded to 'X') with 49.7% users, compared to Twitter users of only 40.9%. TikTok snowballed into one of the most popular applications in 2022 and its growth has been unprecedented with one billion active users reported in September 2021 worldwide. According to the latest TikTok user statistics[5], the app currently has 386.6 million users aged 18 to 24, suggesting that it has earned immense traction among younger users and is expected to be the fastest-growing social media platform among marketers in the few years to come.

[5] TikTok Statistics Marketers Need To Know. https://www.shopify.my/bLog/tiktok-statistics#:~:text=The%20Latest%20TikTok%20user%20statistics,Largest%20of%20aLL%20age%20groups

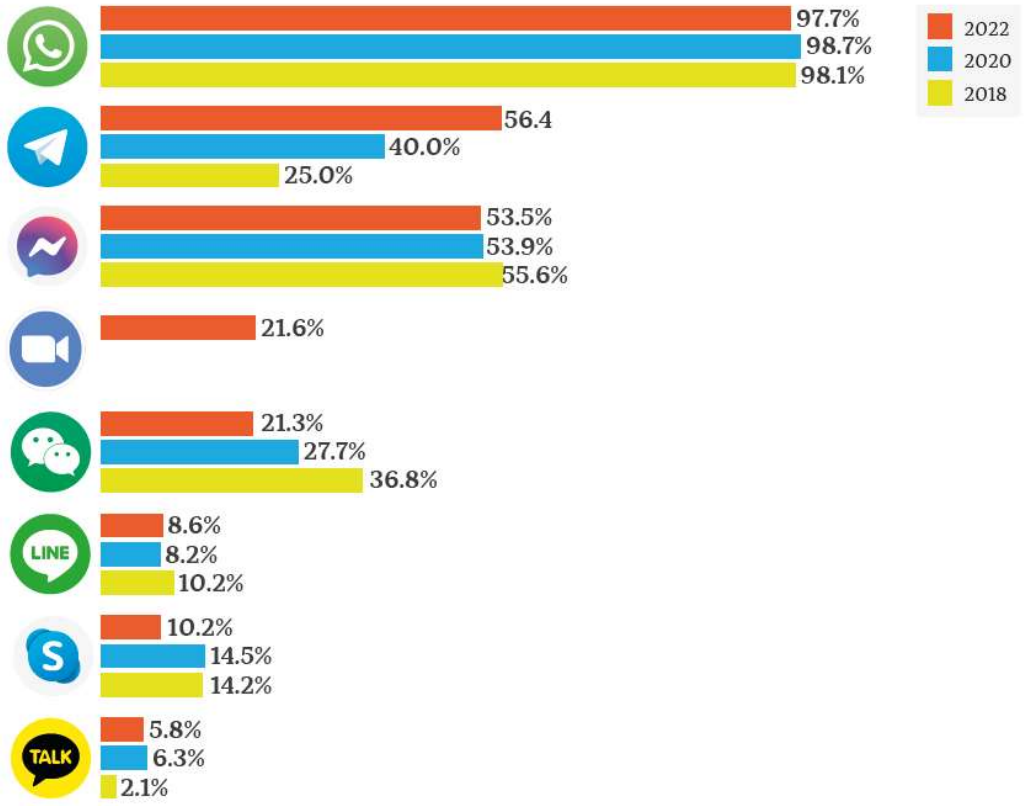


Figure 19 : Social networking applications

In IUS 2022, WhatsApp continued to be the most popular choice for communication with it dominating over 90% of users in 2022, a consistent trend that could be observed since 2018.

On the flip side, WeChat and Skype witnessed its user base declining, while Telegram witnessed a surge in popularity to 56.4% in 2022 from 40.0% in 2020. This could be attributed to WhatsApp facing intense scrutiny following controversy over privacy settings that prompted a significant number of users migrating to Telegram[6].

The messaging service has been under fire since it updated its terms and conditions, granting permission for the app to share user data with its parent company Facebook. This move was met with backlash from users who claimed their private data was breached and compromised.

Furthermore, the Zoom app also earned substantial popularity in 2022 with 21.6% users reported using the app — although it was not included in the previous editions of IUS.

[6] Is Telegram really safer for your data than WhatsApp? https://www.alstonasquith.com/is-telegram-really-safer-for-your-data-than-whatsapp/

Online content sharing

Types of online content shared

The findings revealed there is no change in the types of internet content shared by Internet users especially at the top three contents shares. Despite of this trend, the top three contents share shows are decreased of 4.1%, 10.7% and 11,5 % respectively. The IUS 2022 also showed that educational content has decreased 6.9% compared to 2020.

In addition, the most noticeable increase was 13.9% in political policy issues followed by a rise of promotion and discount at 3.5 %.

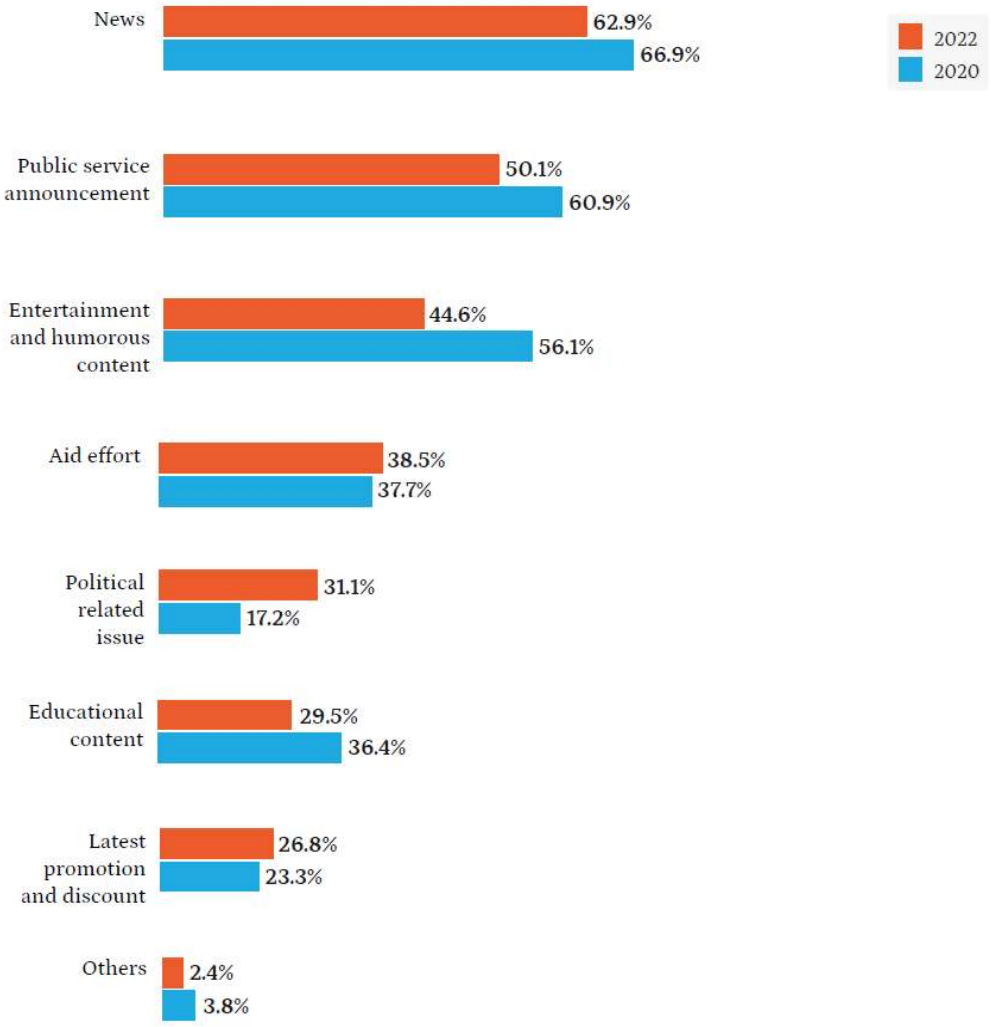


Figure 20 : Types of content shared online

Purpose of sharing online content

Furthermore, in comparison with 2020, only 70.8% of users share content because it is beneficial for them in 2022 versus 71.9% in 2020. The decrease is also more pronounced for the sharing of raising awareness with 38.6%, as opposed to 53.6% in 2020.

It appears that the finding supports the prevailing assumption that Internet users become more vigilance when it comes to content available on the Internet.

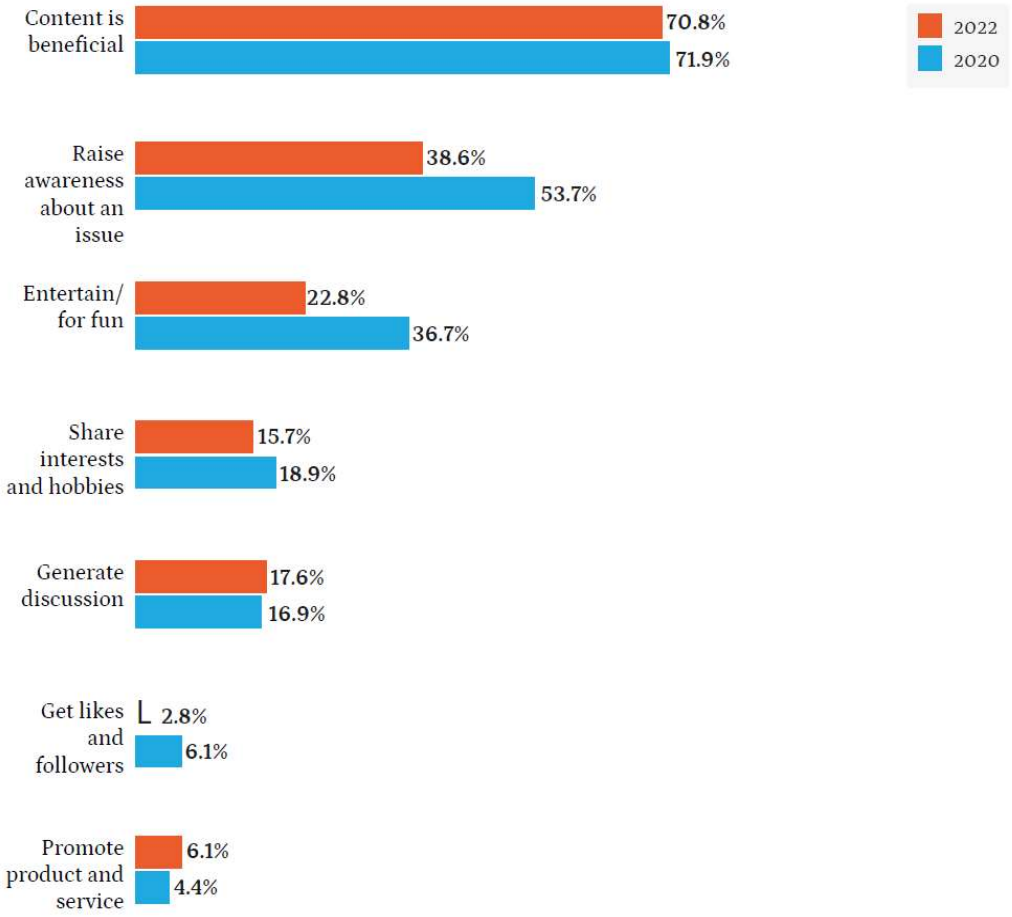


Figure 21 : Purpose of sharing content online

Online content sharing platform

For all the sharing platforms listed, the number of users actively sharing content across different mediums have decreased steadily since 2020.

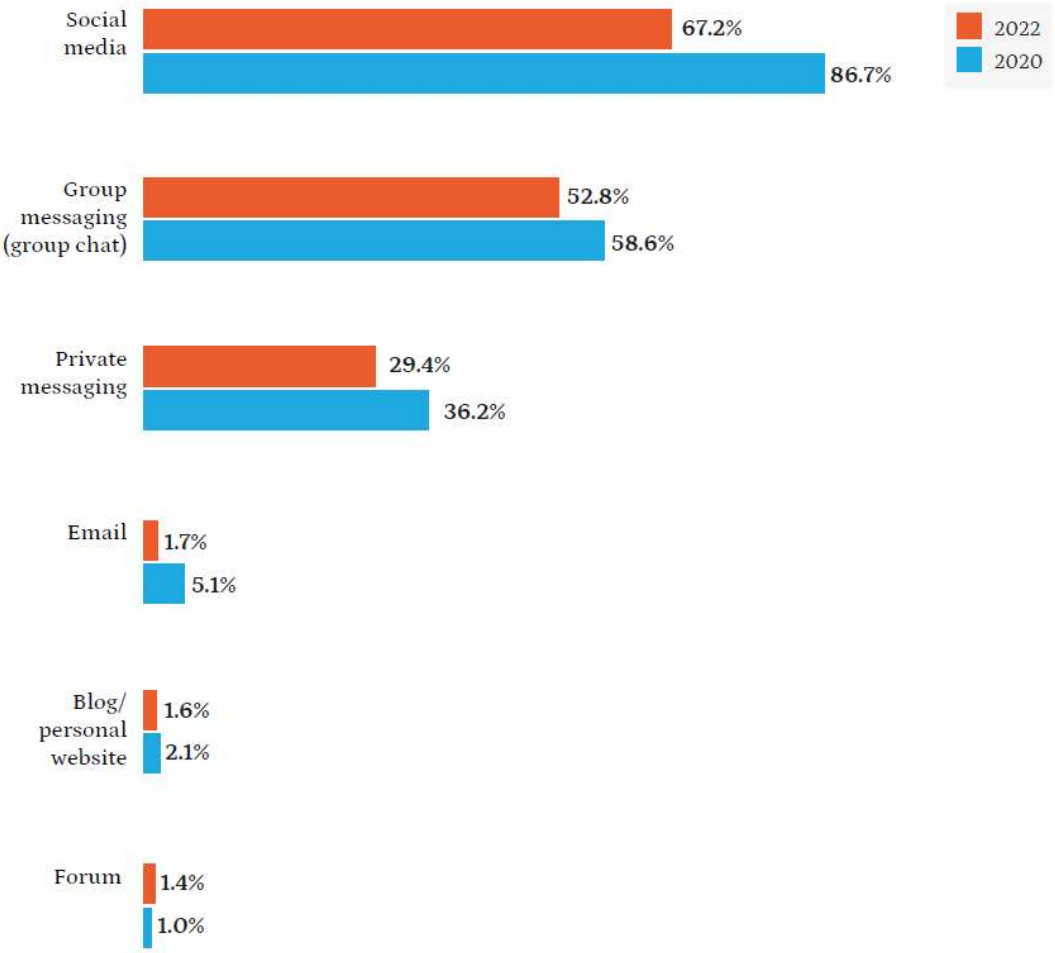


Figure 22 : Online content sharing platforms

As much as 67.2% of Internet users in 2022 shared contents online through social media, a drop from 86.7% in 2020. However, this medium remains the most popular method to share online contents.

The ease of sharing functions available on social media that require minimal effort from users would most likely be the reason why social media was the most preferred online content sharing platform by Internet users.

Action taken before sharing content online

IUS 2022 identified a shift in Internet users' behaviour before sharing content online. This supports the general hypothesis that the concerns over the harm of the Internet are on the rise and Internet users are taking appropriate precautions to avoid harmful consequences.

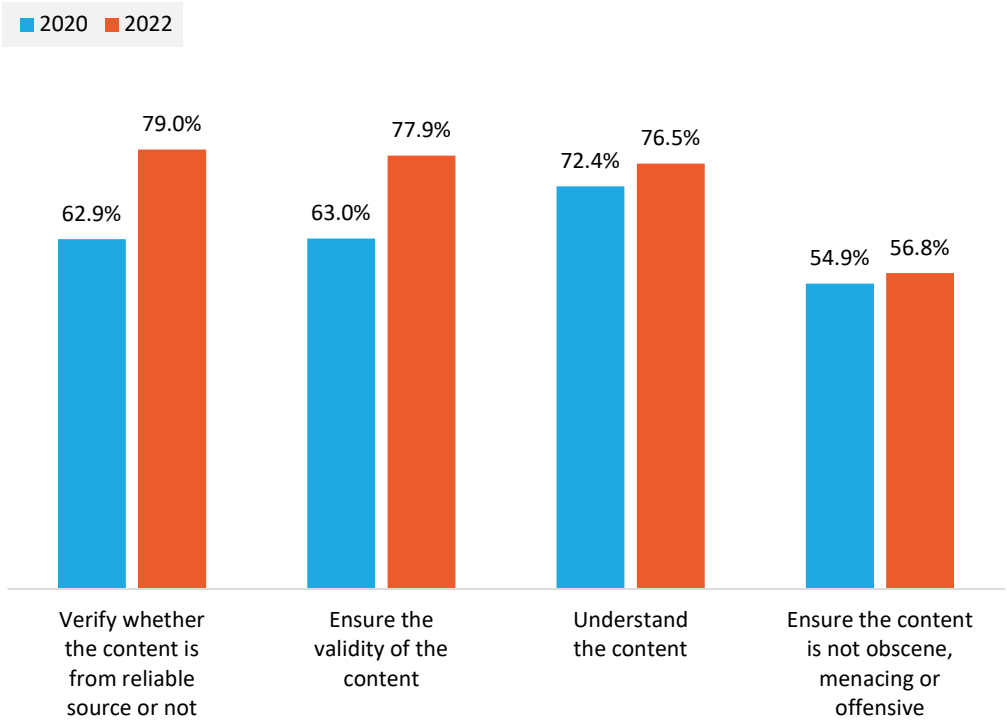


Figure 23 : Actions taken before sharing content online

The numbers garnered in 2022 suggest that people have become more cautious in sharing online contents compared to the last survey with an increase in the following actions; they ensured the content was not offensive (56.8%), made sure it was valid (77.9%), and verified whether it was reliable (79.0%). This could be due to the fact that more people are now more aware of the risks of sharing their personal information online or using social media platforms for inappropriate purposes.

Frequency of sharing content online

In response to the question of how frequently they share online content, there was a decreasing trend in people sharing it daily and weekly and an increasing trend in those sharing it monthly.

Although experiencing a drop, the majority of Internet users (46.0%) shared content on a weekly basis, while 16.2% did so on a daily basis.

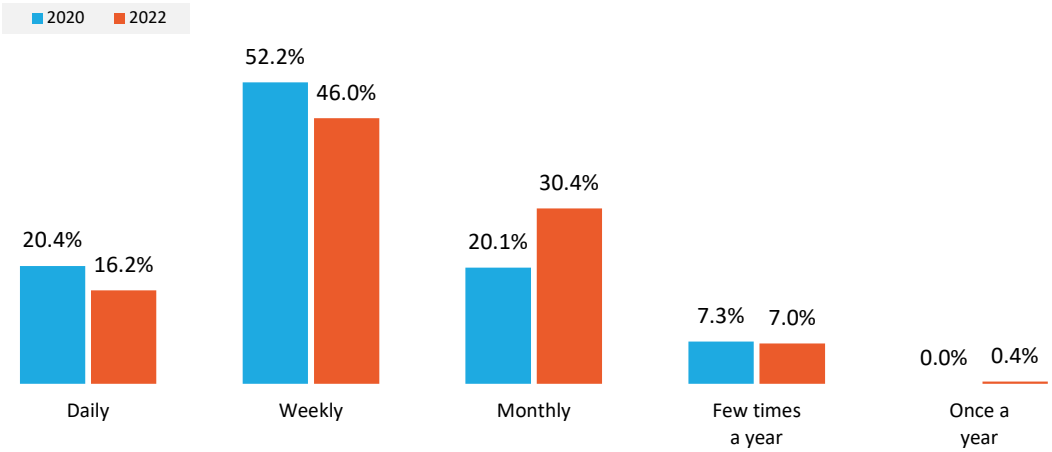
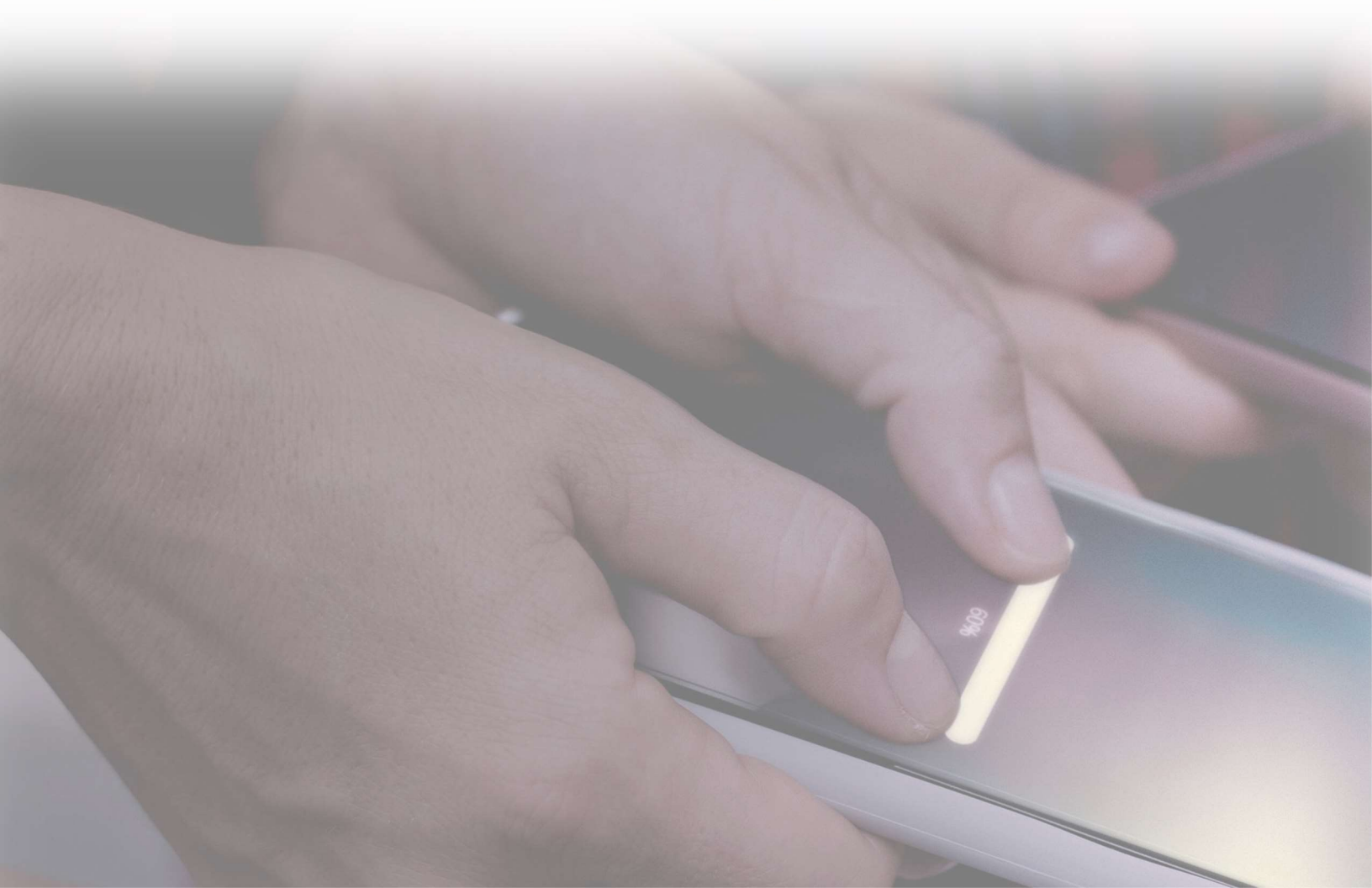


Figure 24 : Frequency of sharing content online



Speed of sharing online content

When asked how quickly Internet users share online content, a vast majority of Internet users (90.2%) claimed to only share content online after reading it through, indicating an awareness of responsible sharing amongst the general public. This number increased by 11.3% in 2022 from 78.9% in 2020.

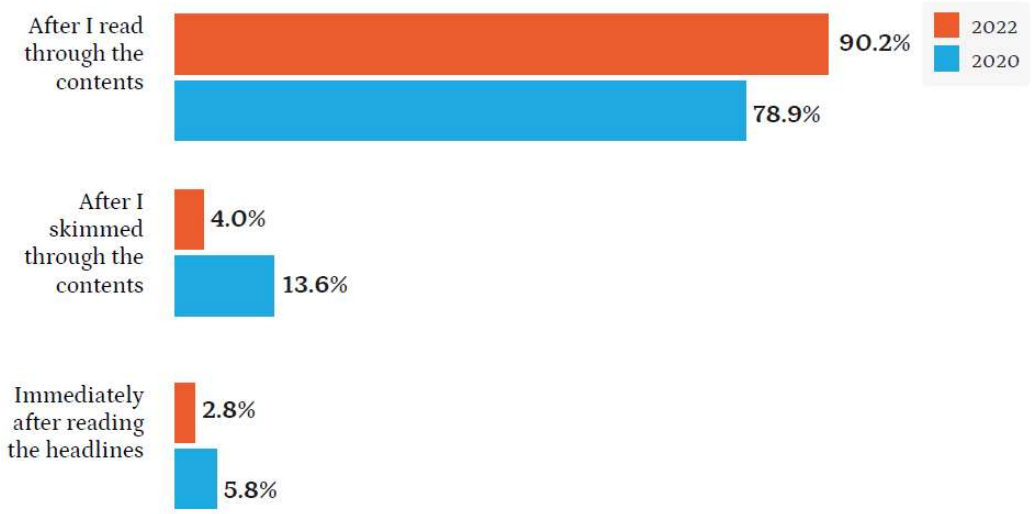


Figure 25 : Speed of sharing content online

Awareness of fake news

The percentage of people who failed to understand what constitutes fake news decreased slightly to 3.2% in 2022 from 4.9% in 2020. On the bright side, the percentage of Internet users who reported being able to understand and identify fake news increased from 91.3% in 2020 to 94.3% in 2022. This implies that Internet users are becoming increasingly more wary of the impact of fake news on their lives and critical when consuming news from various online platforms.

In addition, 95.4% reported that fake news is still a problem in Malaysia, increasing 3.1% from the previous survey. The proportion of respondents who believed that fake news was not a problem and were uncertain about it decreased by 2.7% and 1.2%, respectively.

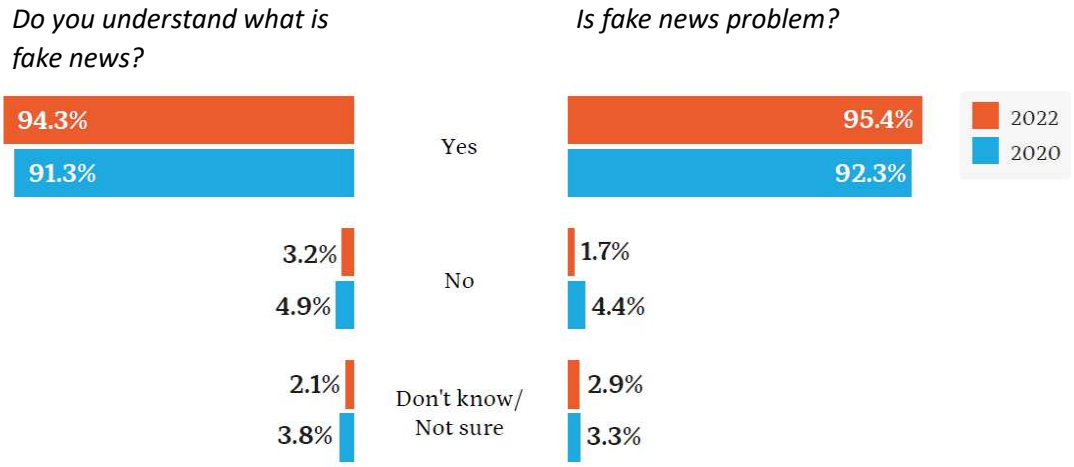


Figure 26 : Fake news

SEBENARNYA.MY portal

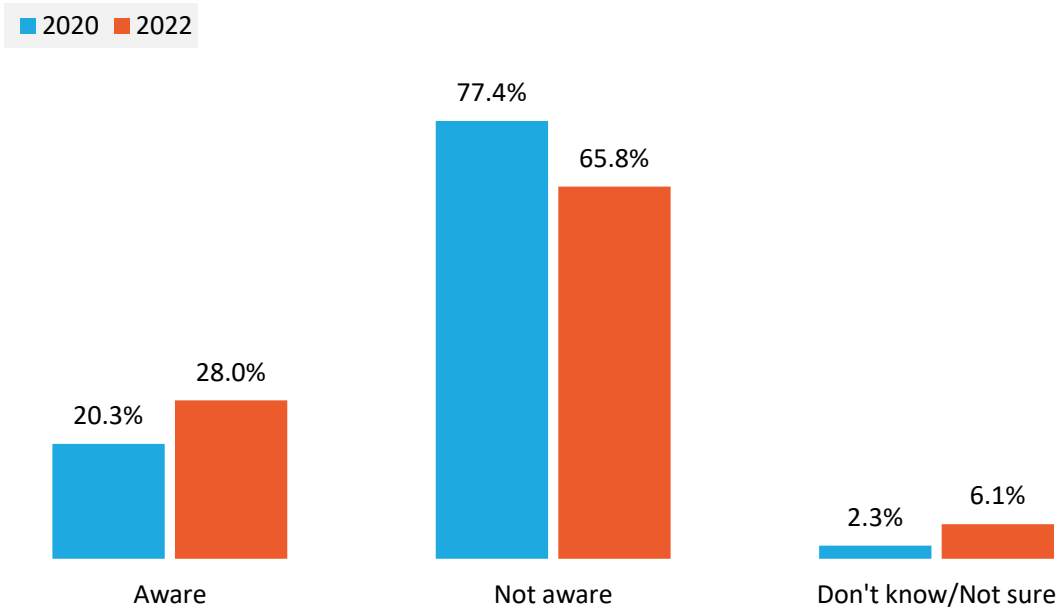


Figure 27 : Awareness of SEBENARNYA.MY portal

MCMC launched SEBENARNYA.MY, a portal aimed to impede the proliferation of fake news. From a general viewpoint, based on the results obtained from IUS 2022, one could deduce that the level of awareness of the local portal is still low amongst the public.

A deeper analysis revealed a spike of 7.7% (from 20.3% to 28.0%) amongst Internet users who are aware of the existence of this portal. At the same time, the number of Internet users stating 'no' also decreased from 77.4% to 65.8%.

Online security and privacy

The outbreak of COVID-19 has spiralled into an enormous challenge for businesses to protect their company's data as companies accelerate their digital transformation and the world becomes more digitally connected – and vulnerable – than ever. The coronavirus pandemic has forced employees to adapt to a new operational model in which 'working from home' has become the new normal.

Such rapid acceleration of digitalization becomes a more lucrative target for cybercriminals – hence cybersecurity is now a major concern. The increase in working from home is seen as the main contributor to data security being compromised and heightened technology risks since individuals working at home do not experience the same level of inherent cybersecurity protection and deterrent measures as when they work from the office. For instance, remote work was identified as a factor for data breaches in 17.5% of companies as reported by IBM's Data Breach Report 2021[7].

Malaysia has had an established reputation in protecting data security and privacy. According to ITU's Global Security Index 2020, Malaysia was ranked fifth globally and second in the Asia-Pacific region in terms of the country with the highest level of commitment to cybersecurity[8].

IUS 2022 aimed to dive deeper into the issue of online security and privacy in tandem with the societal change in attitude towards data protection and privacy.

[7] BM Cost of a Data Breach Report 2021 https://www.ibm.com/downloads/cas/OJDVQGRY#:~:text=The%20percentage%20of%20companies%20where,50%25%20or%20less%20working%20remotely.

[8] ITU Global Security Index 2020. https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2021-PDF-E.pdf

35.8% -19.3%

felt secure when using the Internet (compared to 55.1% in 2020)

45.4% +20.0%

felt neutral when using the Internet (compared to 25.4% in 2020)

18.8% - 0.6%

did not feel secure when using the Internet (compared to 19.4% in 2020)

Security perception

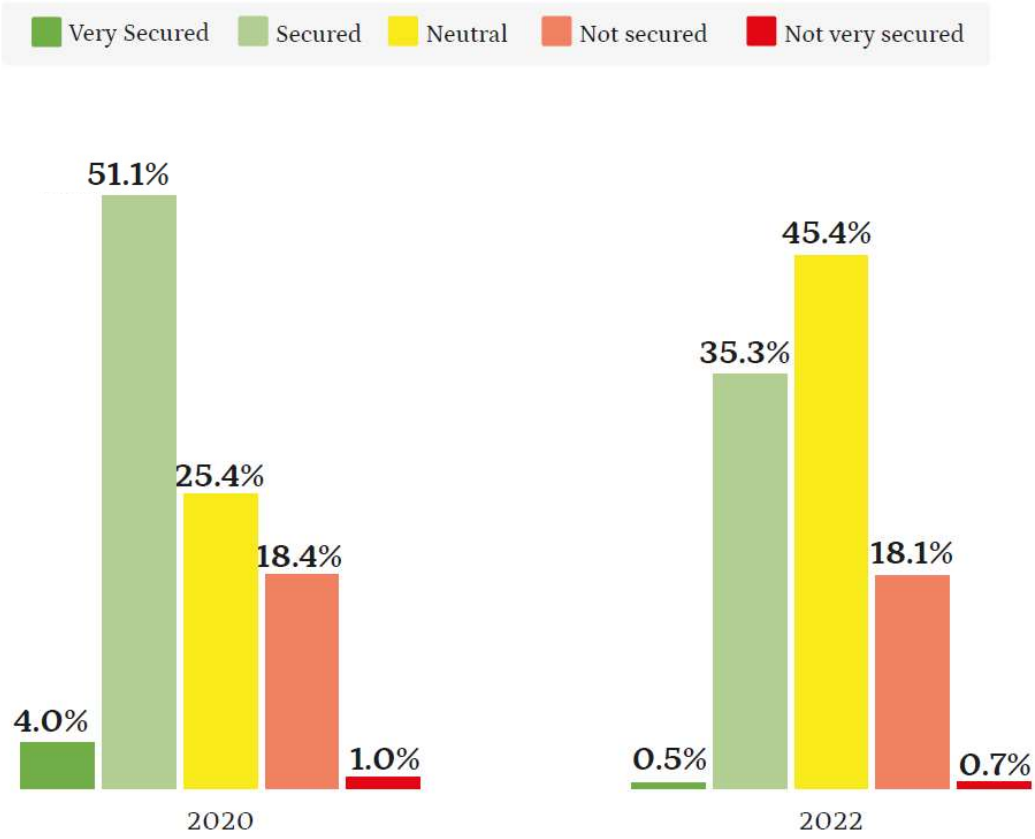


Figure 28 : Security perception when using the Internet

In IUS 2022, 35.8% of Internet users reported feeling secure being online, a 19.3% decrease from 2020 whereas 18.8% claimed did not feel secure while using the Internet, a 0.6% decrease compared to 2020. Concurrently, 45.4% respondents reported feeling neutral in their security perception of the Internet usage.

The decline in Internet users feeling unsafe when using the Internet could be largely attributed to users working and studying remotely, in line with IBM's Data Breach Report 2021.

Confidentiality of personal data

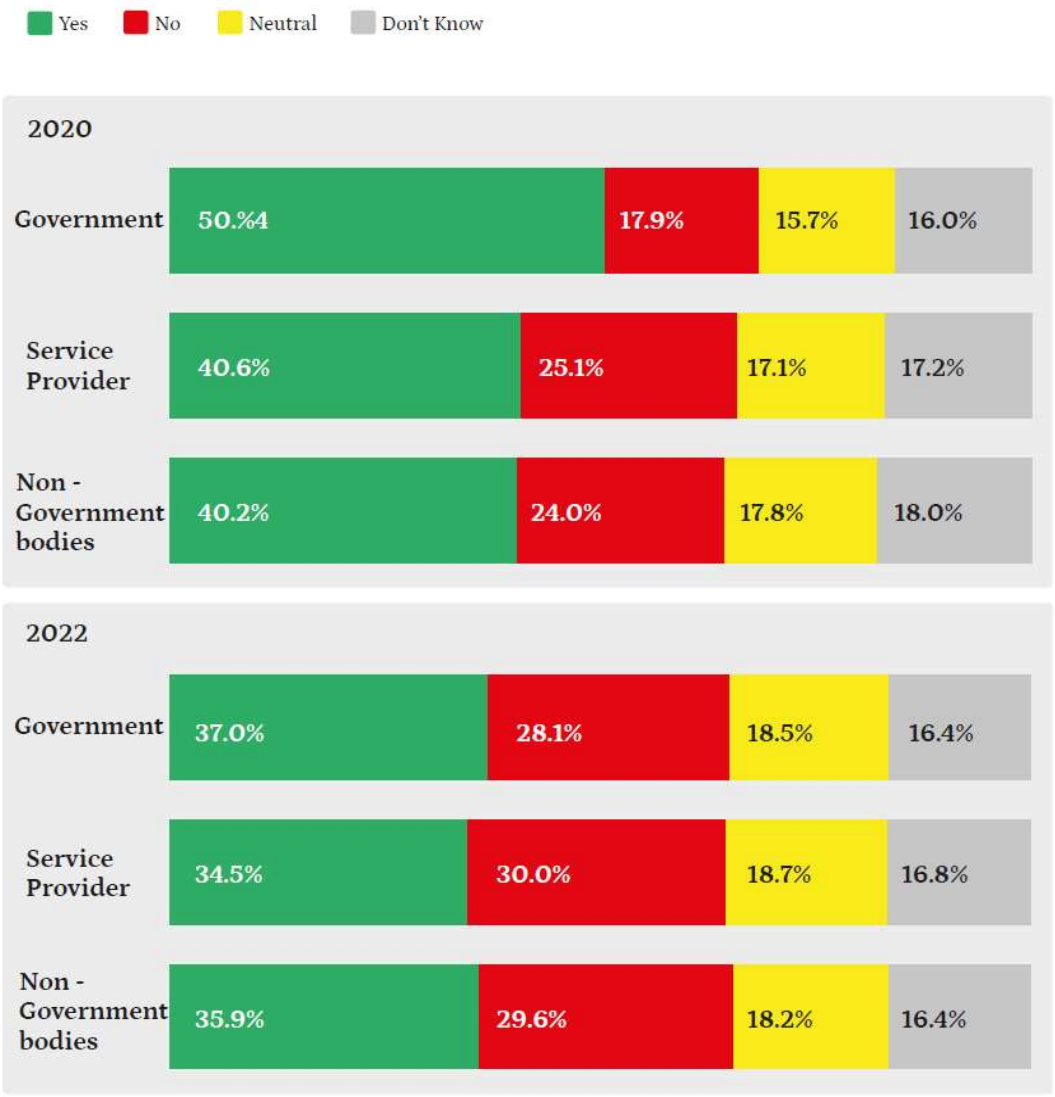


Figure 29 : Data kept confidential

Similar to 2020, Internet users felt government bodies generally protect the confidentiality of their personal information better than service providers and non-government organisations did. Although Internet users ranked the government as the most trustworthy in keeping their data confidential, it is worth highlighting that the percentage points were noticeably declining, from slightly more than half (50.4%) in 2020 to 37.0% in 2022.

Cybercrime experienced

IUS 2022 also gauged the sentiment among Internet users on cybercrimes experienced by Internet users. These include virus or malicious code, spam, fraud, cyberbully, hacking and intrusion and abuse of personal information.

Have you ever experienced any cybercrimes while using the Internet?

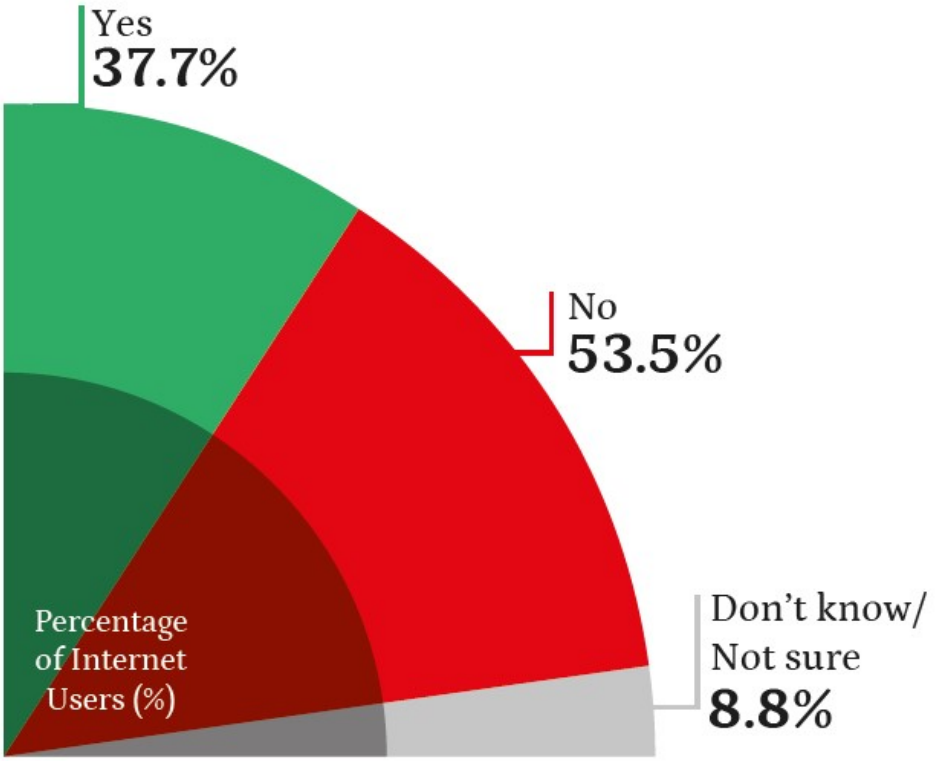


Figure 30 : Experienced any cybercrime while using the Internet

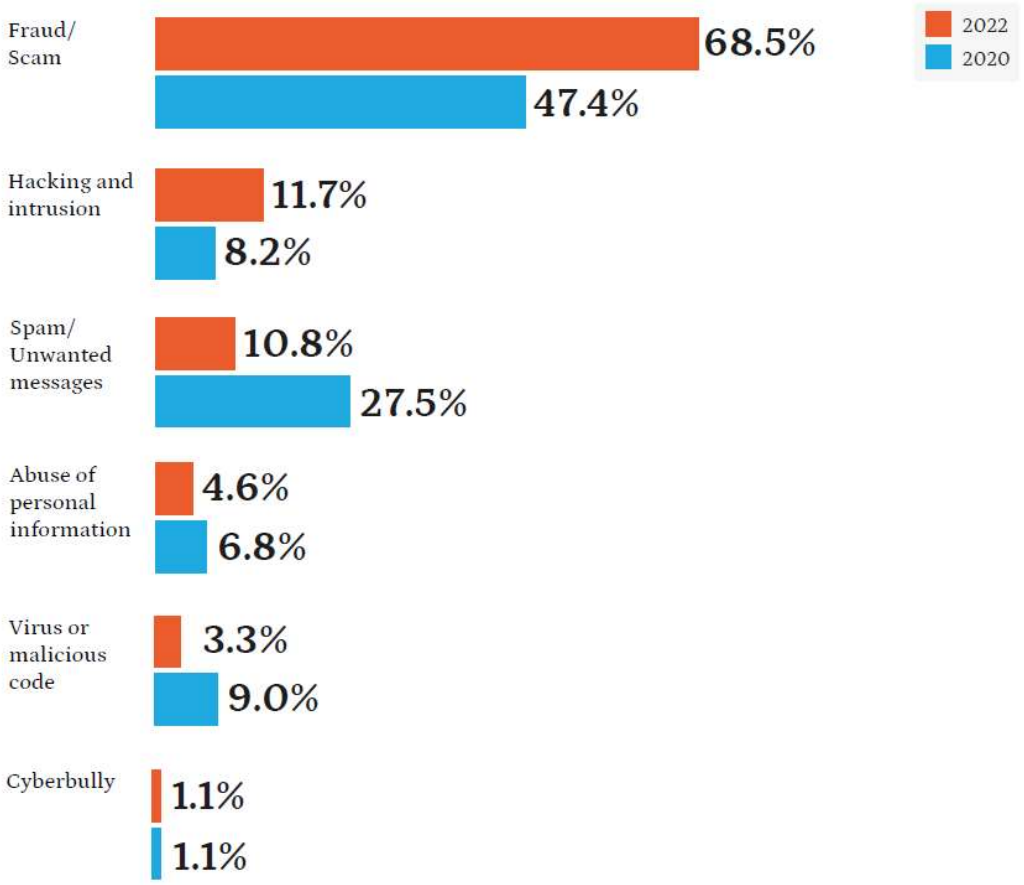


Figure 31 : Cybercrime experienced

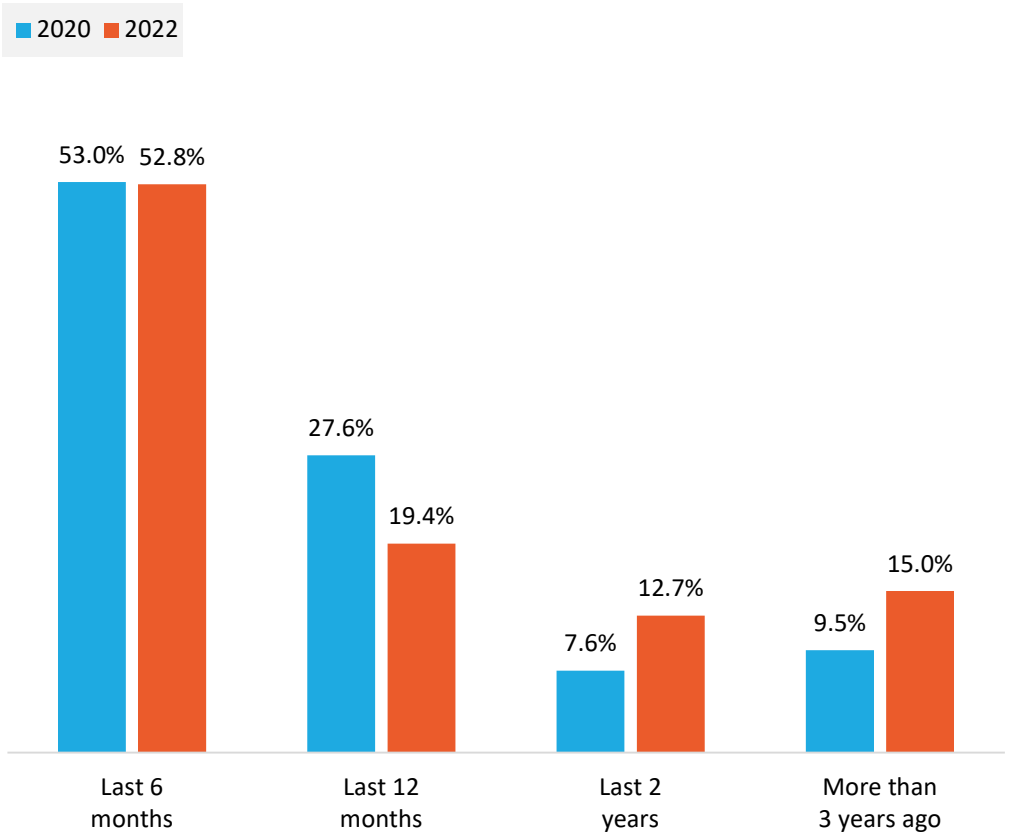


Figure 32 : Last time experienced cybercrime

Scam and fraud activities saw a steep increase from 47.4% in 2020 to 68.5% in 2022.

Among Internet users who had previously experienced cybercrime, 72.2% of the occurrences were reported taking place in the past year.

Department of Statistics Malaysia's (DOSM) latest November 2021 version of their Crime Statistics Publication reported that, while their overall crime index decreased by 21.4% over the past year, the number of new media content complaint cases in 2020 increased by 99.5%[9]. Hence, greater caution online should still be exercised accordingly.

IUS 2022 indicates that more men experienced cybercrime as compared to women. A significant difference between men and women was observed in two types of cybercrime i.e viruses or malicious code (63.3% vs 35.7%) and hacking and intrusion (62.3% vs 37.4%).

[9] Crime Statistics Publication 2021, DOSM
https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=455&bul_id=eHE0eGZWSmNROG1BbHR2TzFvZzZxQT09&menu_id=U3VPMldoYUxzVzFaYmNkWXZteGduZz09#

Have you ever experienced the following cybercrimes while using the Internet?

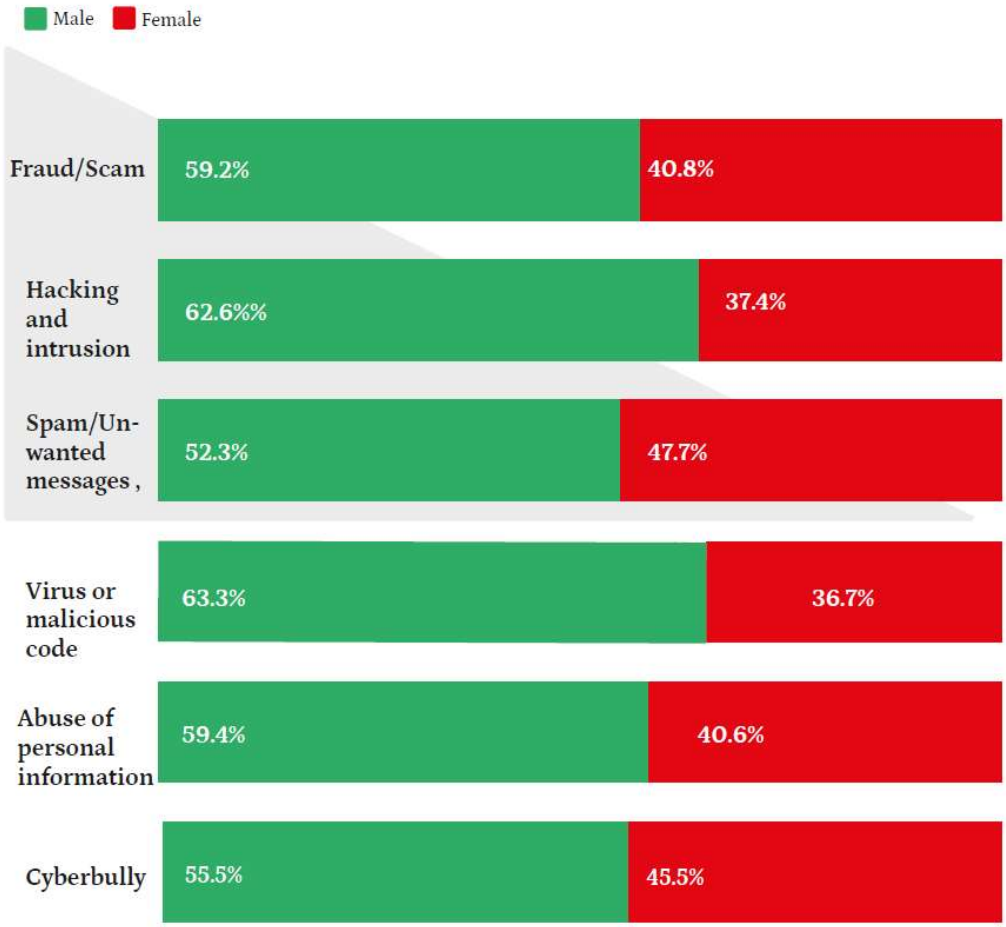


Figure 33 : Cybercrimes experienced by gender

Have you ever experienced the following cybercrimes while using the Internet?

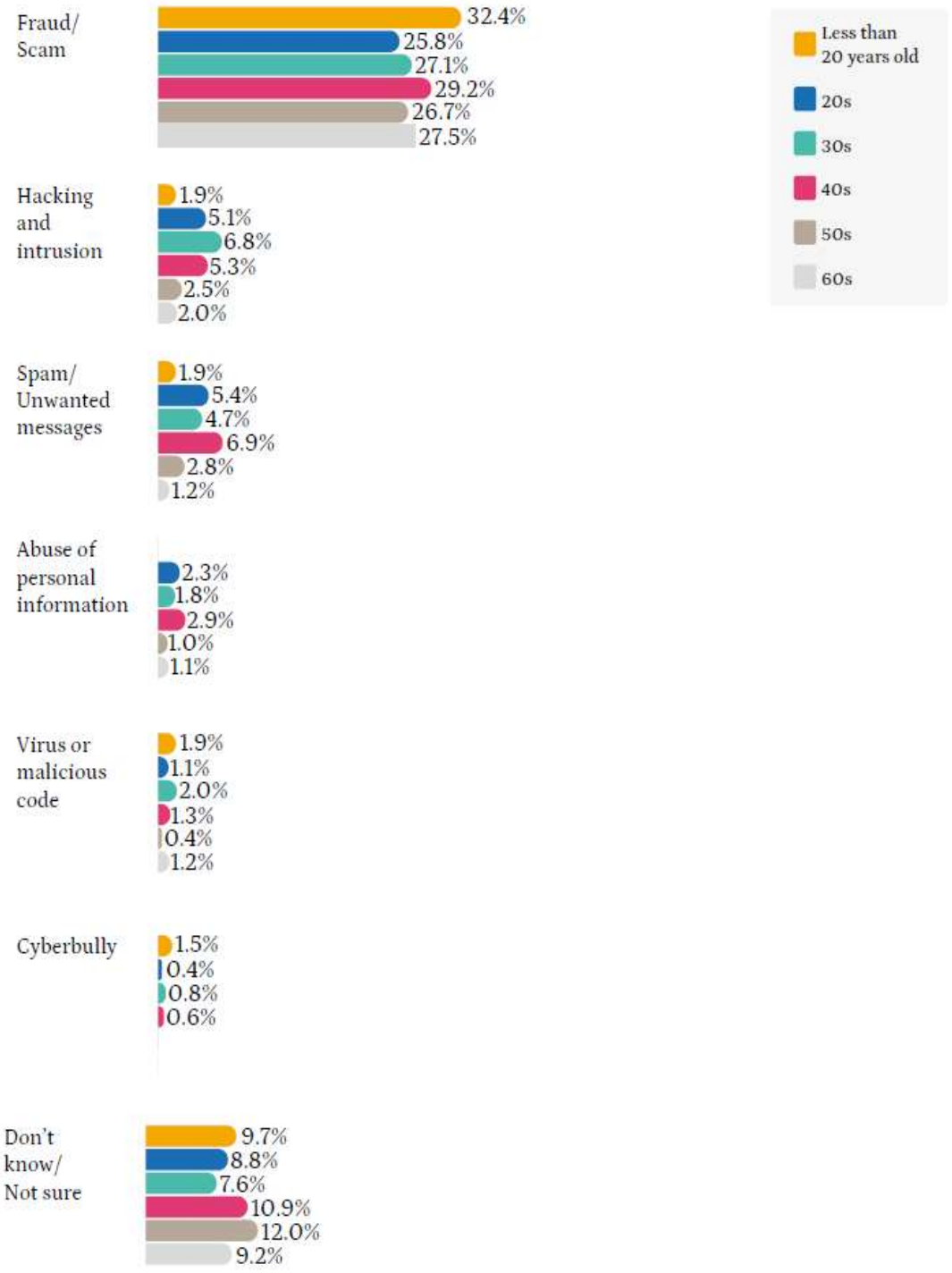


Figure 34 : Cybercrimes experienced by age group

Experienced of cyberbullying

From those who were allegedly cyberbullied, 49.9% of the actions reportedly revolved around trickery and 49.9% were related to masquerading.

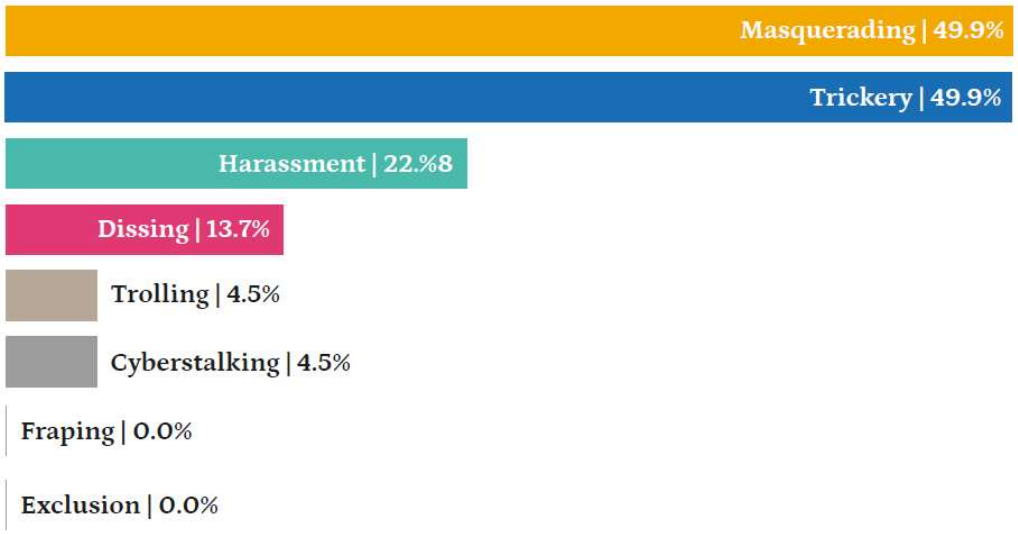


Figure 35 : Type of cyberbullying experienced

Table 2 : List of definition for type of cyberbullying[10]

Type/Form	Definition
Trickery	occurs when the cyberbully tricks an individual into providing embarrassing, private, or sensitive information and posts or sends the information for others to view
Masquerading	where the cyberbully pretends to be someone else and sends or posts threatening or harmful information about one person to other people.
Harassment	involves repeatedly sending offensive messages
Cyberstalking	moves harassment online, with the offender sending threatening messages to his or her victim
Fraping	where a person accesses the victim's social media account and impersonates them in an attempt to be funny or to ruin their reputation.
Trolling	is insulting an individual online to provoke them enough to get a response.
Dissing	share or post cruel information online to ruin one's reputation or friendships with others.
Exclusion	deliberately leaving individuals out of an online group, thereby automatically stigmatizing the excluded individuals.

[10] Source: Yehuda Peled, Cyberbullying and its influence on academic, social, and emotional development of undergraduate students, Heliyon, Page 4, Volume 5, Issue 3, 2019, e01393, ISSN 2405-8440, https://doi.org/10.1016/j.heliyon.2019.e01393

What types of cyberbullying have you experienced?

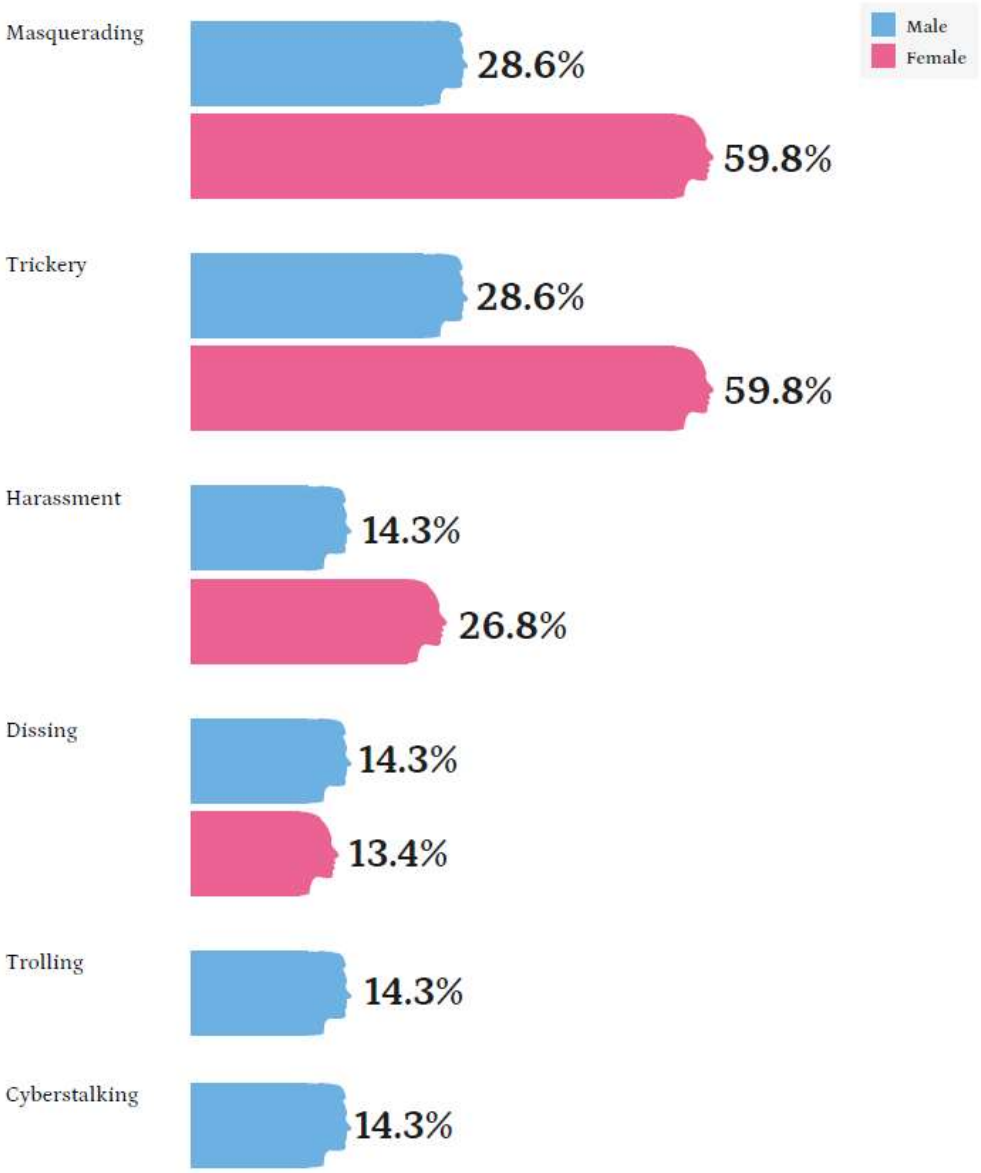


Figure 36 : Type of cyberbullying experienced, by gender

What types of cyberbullying have you experienced?

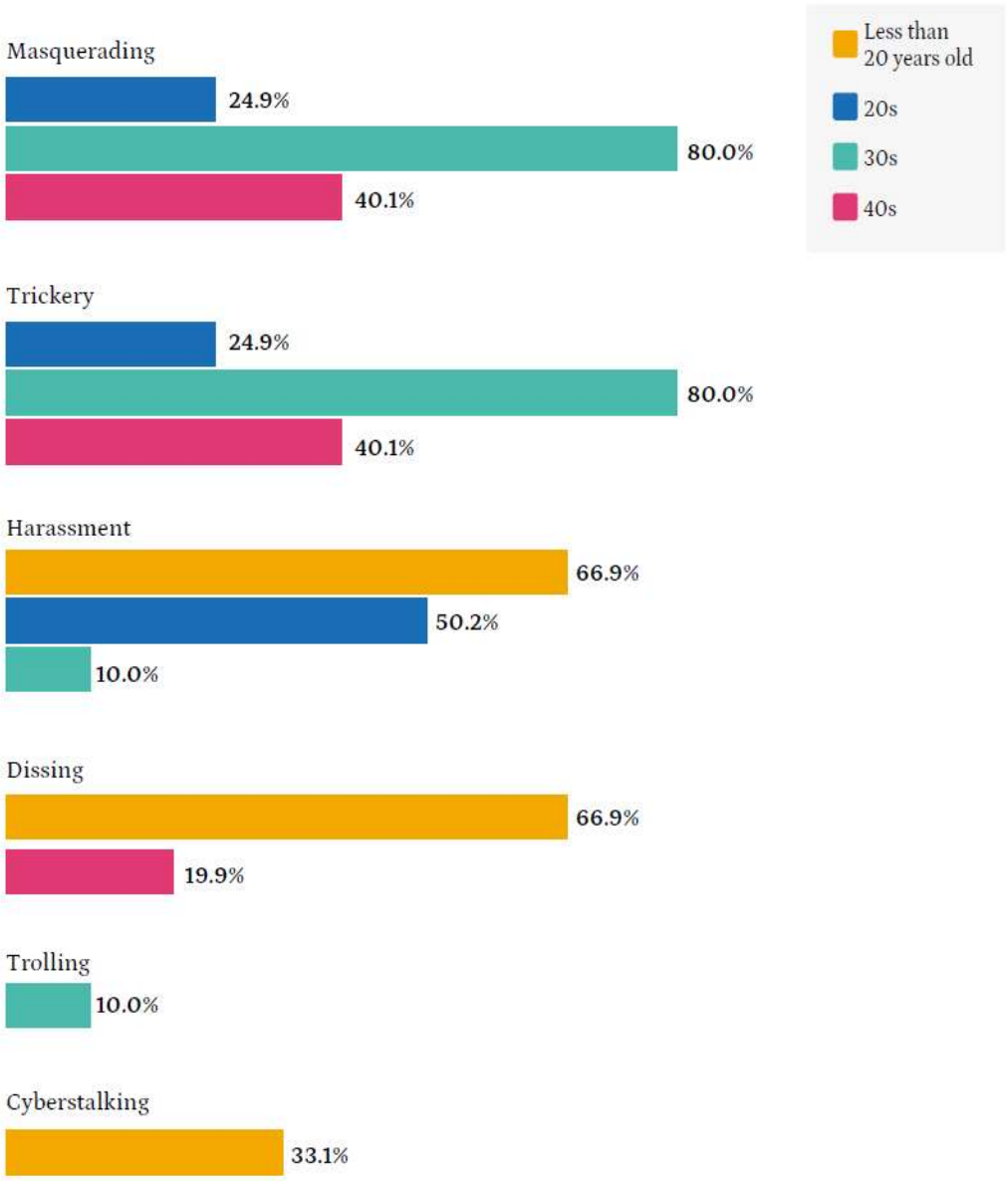


Figure 37 : Type of cyberbullying experienced, by age

Action taken following cybercrime experienced

Of those who experienced cybercrimes, 22.9% decided to discuss the incident and seek advice from someone they know (5.2% increase from 2020) and only 18.9% actually reported the crime, with a 4.0% increase from 2020. On the other hand, cybercrime victims who did not take action against the malicious activities reported to drop from 43.9% to 33.9%.

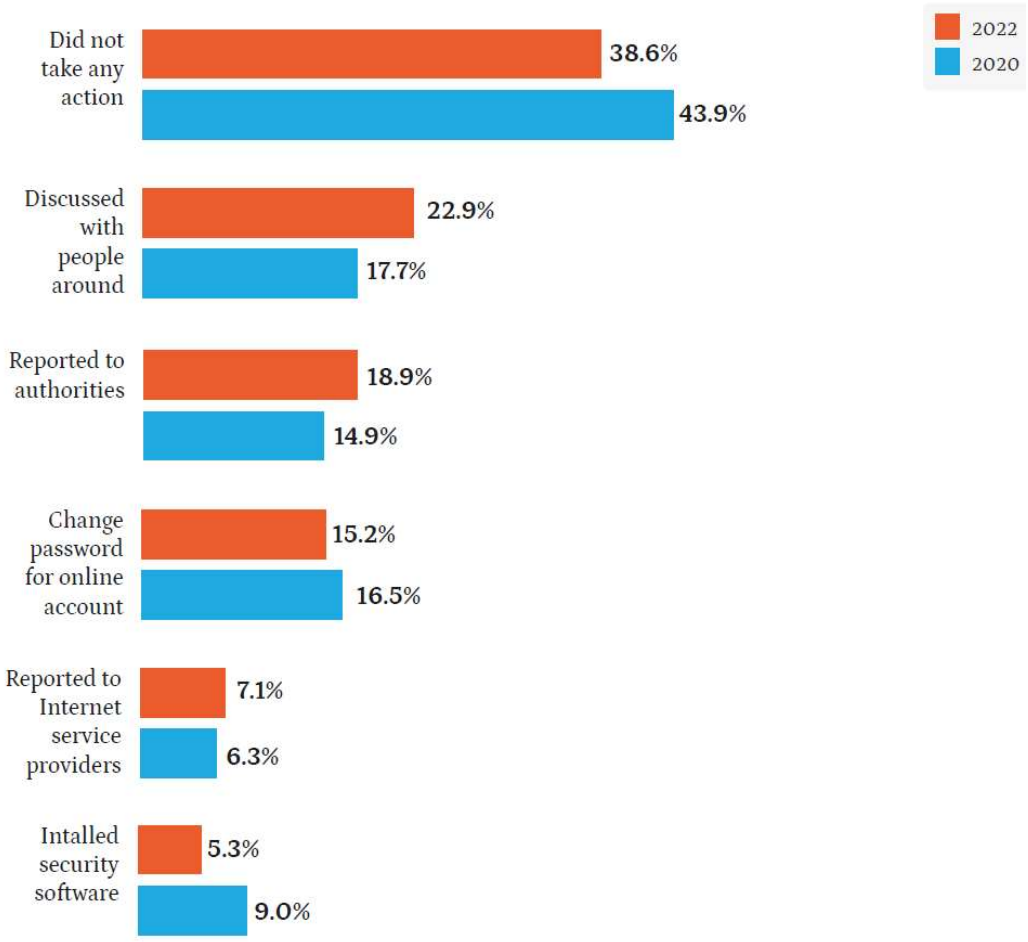


Figure 38 : Action taken following cybercrime experienced

Online Privacy

An overwhelming majority of Internet users take online privacy seriously. 94.8% of Internet users reported online privacy as either important or extremely important.

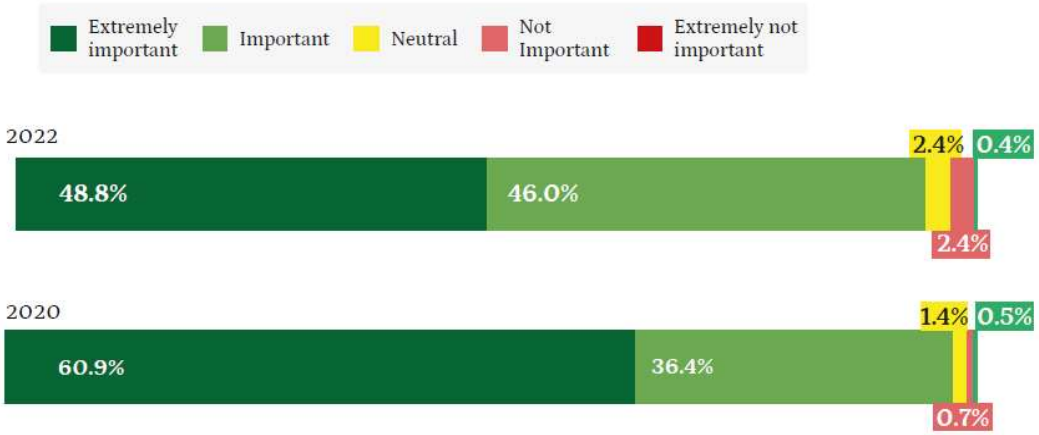


Figure 39 : Importance of online privacy

Sharing of personal information online

Out of all the Internet users, only 26.6% of Internet users shared their personal information online, a 4.0% decrease from 2020. The most common types of personal sharing online were real name (67.5%), phone number (61.5%) and email address (40.4%).

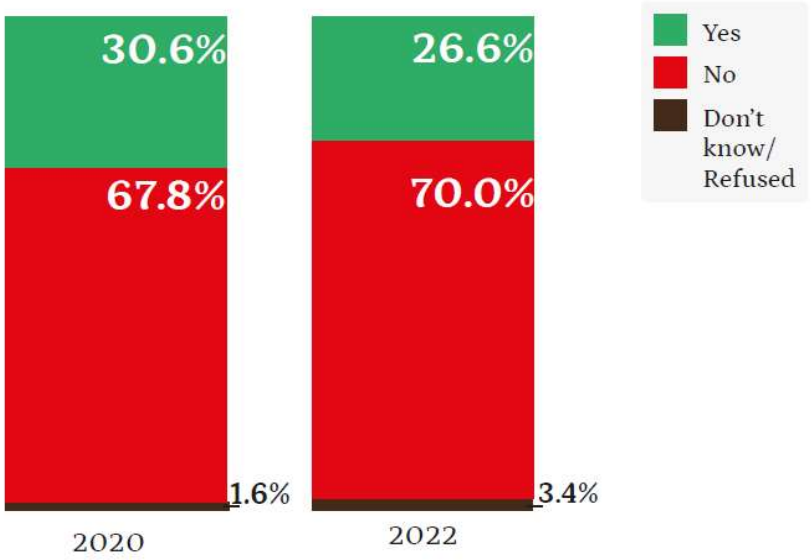


Figure 40 : Sharing of personal information online

Online behaviour among children and parental control

According to UNICEF's Growing Up In a Connected World 2019 report, at the global level, one child in three is an Internet users, and that one in three Internet users is a child under 18 years of age[11]. Hence, there is an increasing need to ensure that parents monitor their child's behaviour online. This leads us to ask what the Malaysian situation is regarding child Internet users.

In Malaysia, there has been a drastic increase in Internet usage among child users over the years. In IUS 2020, it was established that the number of children who use the Internet grew by 155% between 2016 to 2020[12]. In the survey, parents were asked if their children used the Internet or not. For this survey, children are defined of those who are seventeen years old and below.

In this year's edition of the IUS, Internet usage rates among child users seems to have marginally declined at 3.3%, comparing with IUS 2020.

The following analysis will seek to discuss popular trends regarding parental permission, children, and their Internet usage.

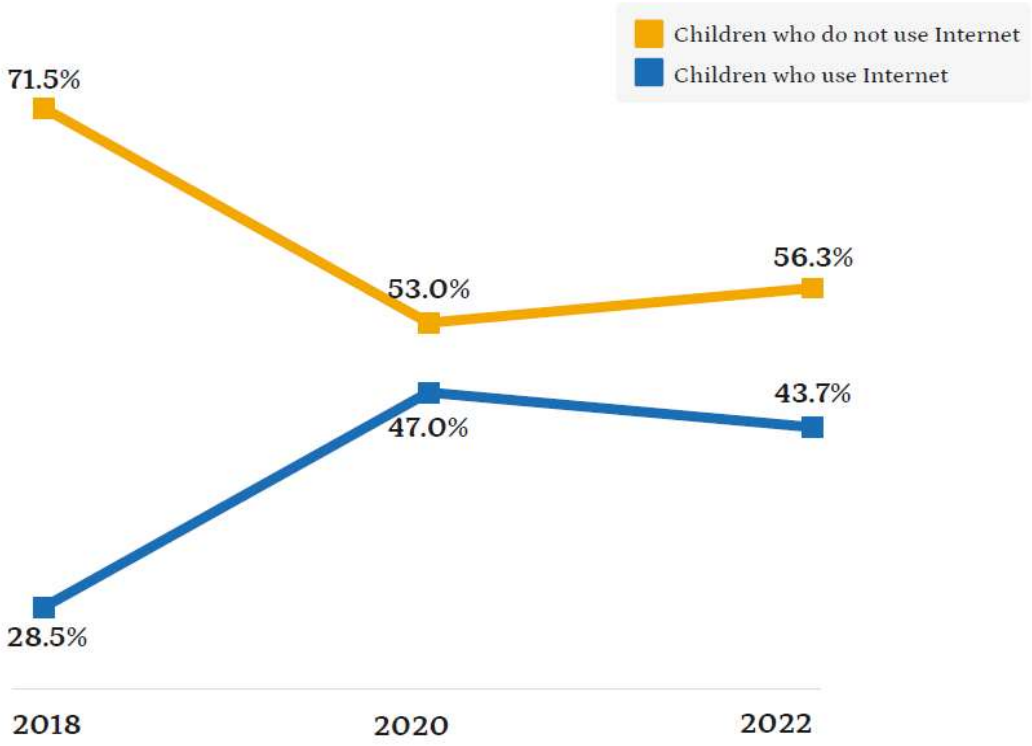


Figure 41 : Usage of Internet among children

[11] Growing Up In A Connected World: Summary Report, UNICEF Office of Research – Innocenti, 2019

[12] Parents were asked whether their children used the Internet or not. The comparison was made between the years 2016 and 2020 - IUS 2020, Page 95, Figure 32: Usage of Internet among children

Device own

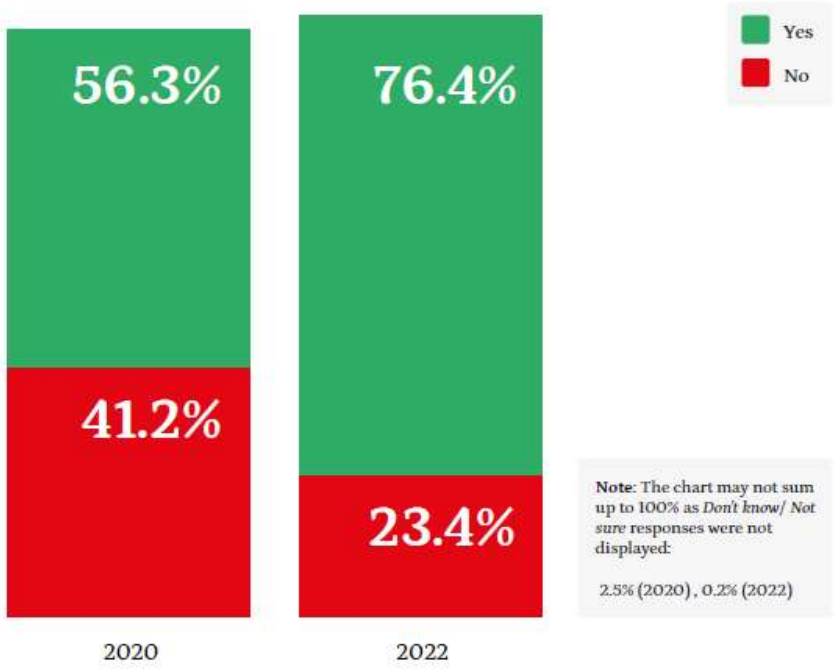


Figure 42 : Children have his/her own device to access Internet

The results in IUS 2022 denote that the percentage of children owning devices for the purpose of accessing the Internet increased by 20.1% (from 56.3% in IUS 2020 to 76.4% in IUS 2022).

Children online activities

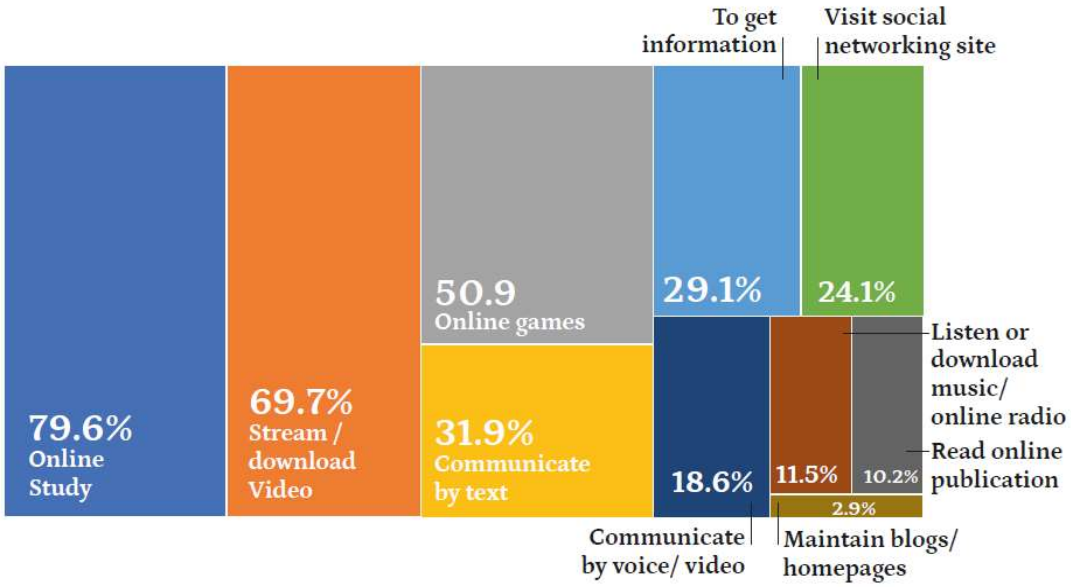


Figure 43 : Children online activities

When asked what are activities their children do when using the Internet, the 3 most prominent answers were attending class from home (79.6%), streaming/downloading online videos (69.7%) and online gaming (50.9%).

The most preferred option for online studying seems to confirm the adage that there has been increased reliance on Internet usage for classes due to lockdown.

Social media owns by children

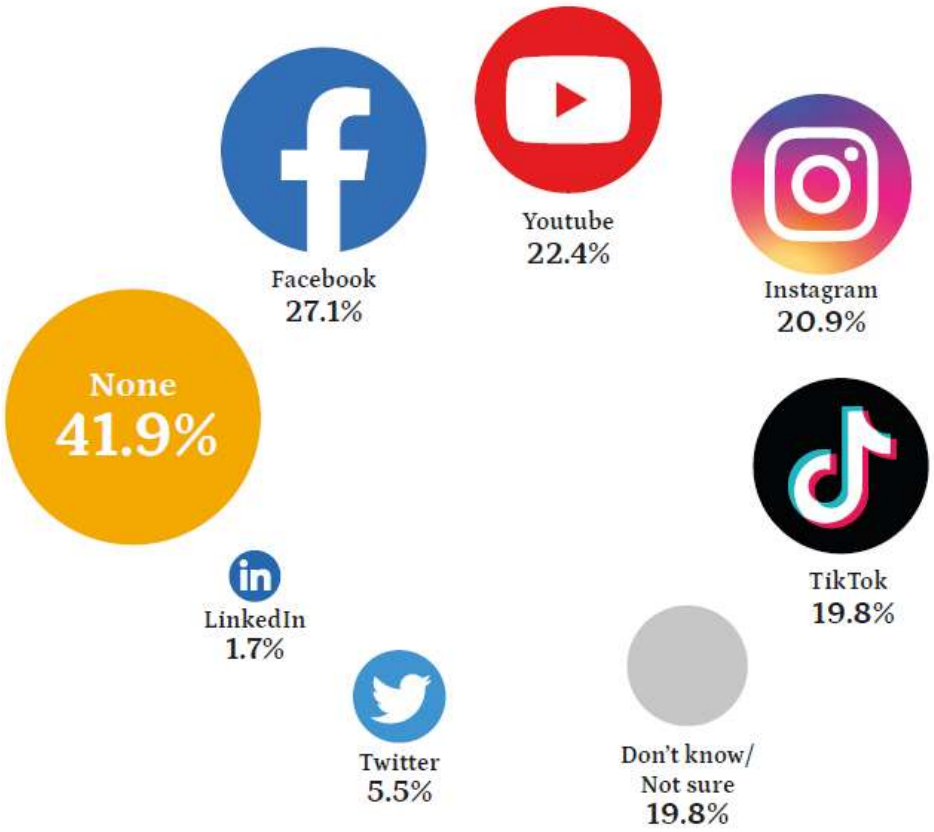


Figure 44 : Social media account owns by children

Finally, when asked what online social media platforms their children have an account on, almost 42.0% of parents claimed that their children do not own any social media account. Meanwhile, 27.1% of them claimed their children own Facebook account followed by YouTube (22.4%) and Instagram (20.9%).

Awareness and use of parental control

With increase in the number of children using the Internet, awareness of parental control however shows a slight increased, from 55.6% in 2020 to 57.3% in 2022.

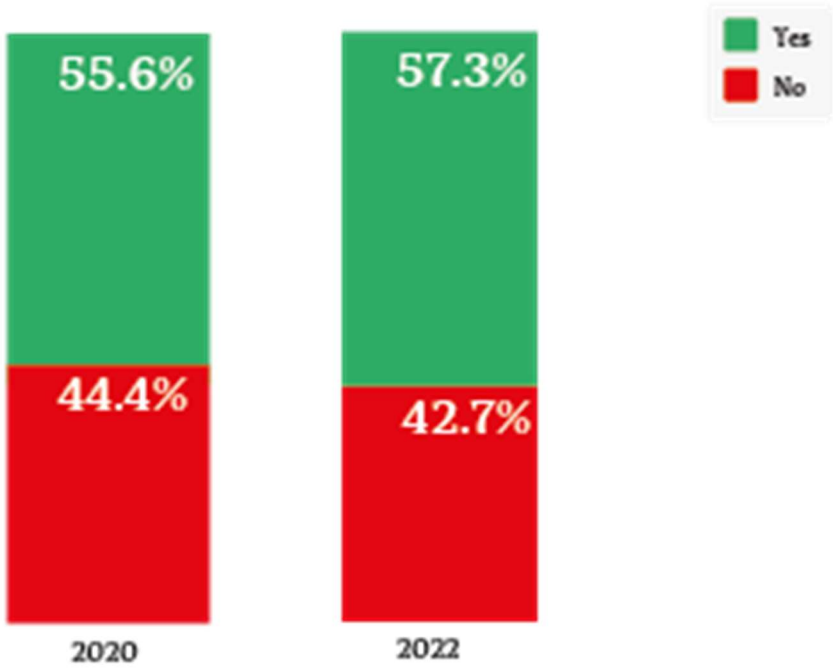


Figure 45 : Awareness of parental control services

Parental Control Changes Before/ During COVID-19

When asked what their experience with parental control features or software was like, there seems to be substantial improvement for all 3 options, namely: User friendliness saw an increase of 16.8% between 2020 to 2022, while the effectiveness of parental control in helping parents monitor their child saw an improvement of 17.3%. Finally, affordability saw 12.8% improvement since IUS 2020.

The increase in affordability begs the question as to why Internet users regarded parental control services to be cheaper. One potential reason for this increase is that parents tend to associate these services with free parental control features available on Google, Apple, Astro and other platforms. For example, Astro subscribers pay for the channel packages but parental control settings are a complimentary service - free and included in the package. Likewise, when parents buy a smartphone with Google or Apple parental control settings, they may assume that the service is affordable.

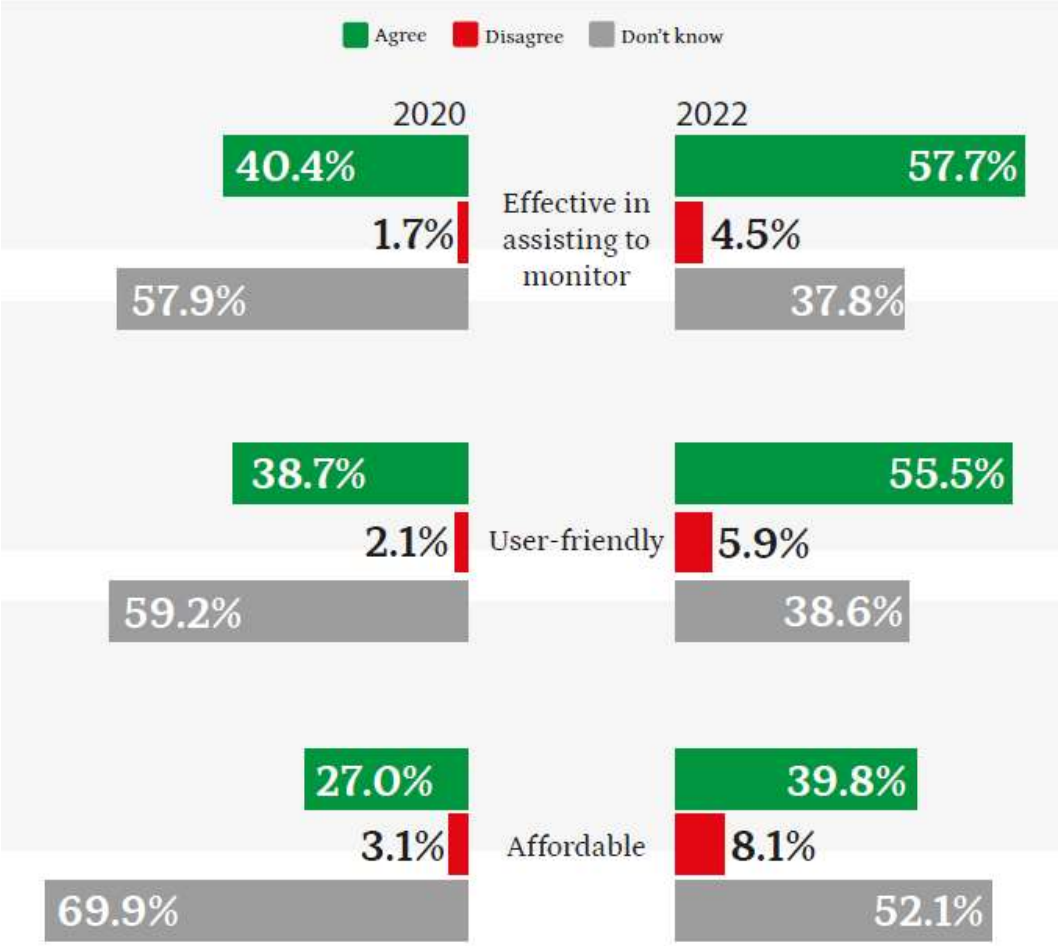


Figure 46 : Experience when using parental control service

Reason for not using parental control

In IUS 2022, the 3 most prominent reasons for not using parental controls were largely because of; parental trust in their child (36.1%), that they've never heard of parental controls (26.0%), and that parents would rather set their own rules and limits pertaining their child's Internet usage (20.0%).

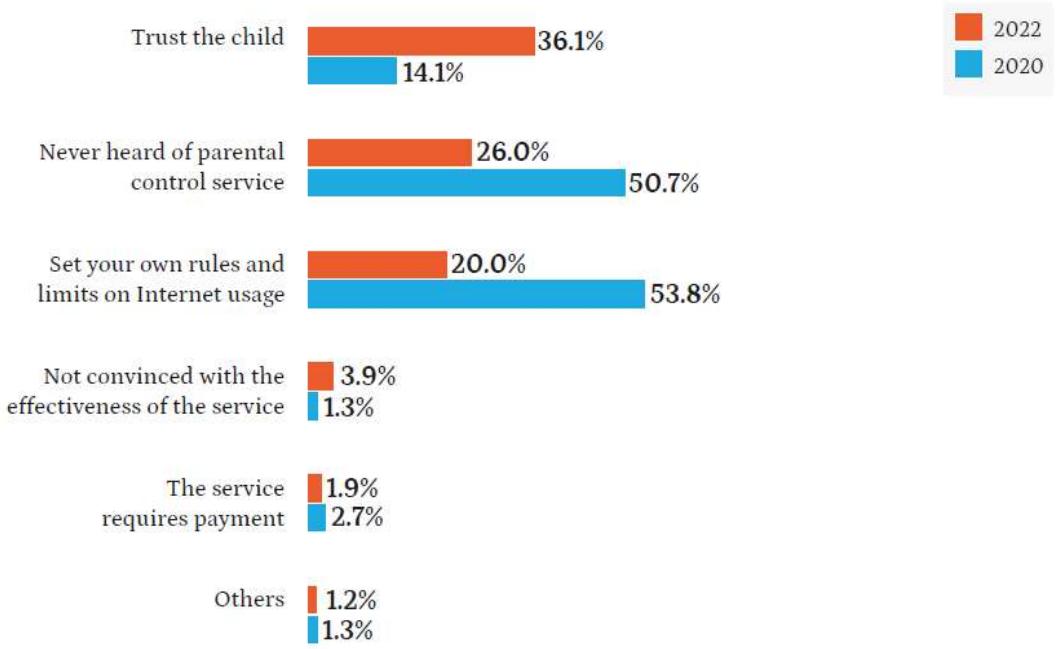


Figure 47 : Reasons for not using parental control

What is interesting to note is that for the latter 2 reasons, there seems to have been a substantial decrease in preference since 2020.

For example, for those that have never heard of parental controls, the percentage has significantly and consistently dropped from 50.7% in 2020 to 26.0% in 2022. This drop denotes increased awareness of parents regarding parental controls.

Secondly, for parents that would rather set their own rules and limits pertaining to their child's Internet usage, the percentage has also significantly dropped from 53.8% in 2020 to 20.0% in 2022. This consistent drop denotes that parents are either more amenable to rely on alternatives to ensure their online safety (e.g., parental controls) or that they trust their child to self-regulate their online behaviour. This seems to be the case due to it being the most preferred action in IUS 2022, which was 36.1%.

Action taken by parents to ensure child online safety

When given a series of online safety actions that parents identified with, IUS 2022 results raise a similar cause for concern in IUS 2020. This being that, on average, fewer parents could name specific steps they took to ensure their child's online safety year on year.

Besides that, the ranking among specific actions taken by parents seems consistent with the previous IUS. The top 4 actions identified remained the same, as well as the percentage rankings for those actions. We can see that the top 3 most popular actions taken was to set rules and limit Internet usage (68.0%), having discussions with their child regarding online safety (50.8%) and closely monitoring their child when they are online (48.0%).

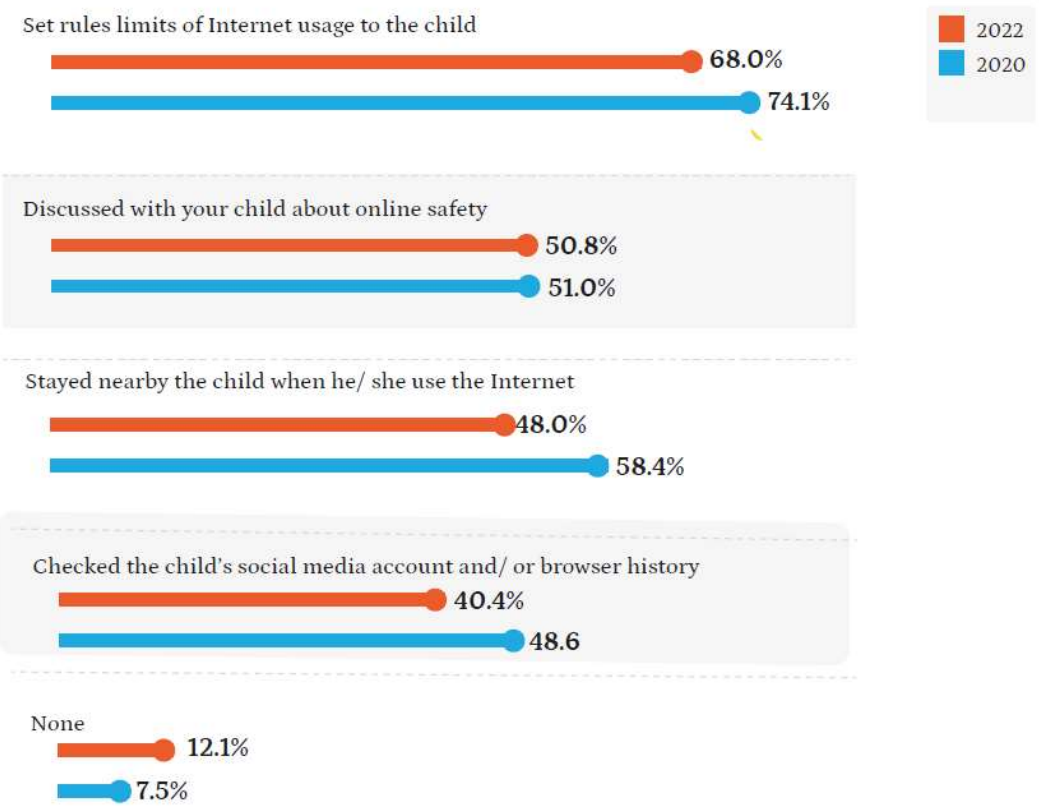


Figure 48 : Actions taken by parents to ensure child online safety

Level of control during COVID-19 lockdown

From the previous section, for parents that opted to set rules and limit Internet usage for their child, they were given a follow up question regarding their level of control over their child's Internet use both before and during COVID-19 lockdown.

There was no substantial difference in the percentage of control levels before or during COVID-19 lockdown, across all control levels (very strict, strict, moderate, neutral, not strict at all).

In general, parents were likely to be either strict, moderate or neutral in controlling their children accessing the Internet .

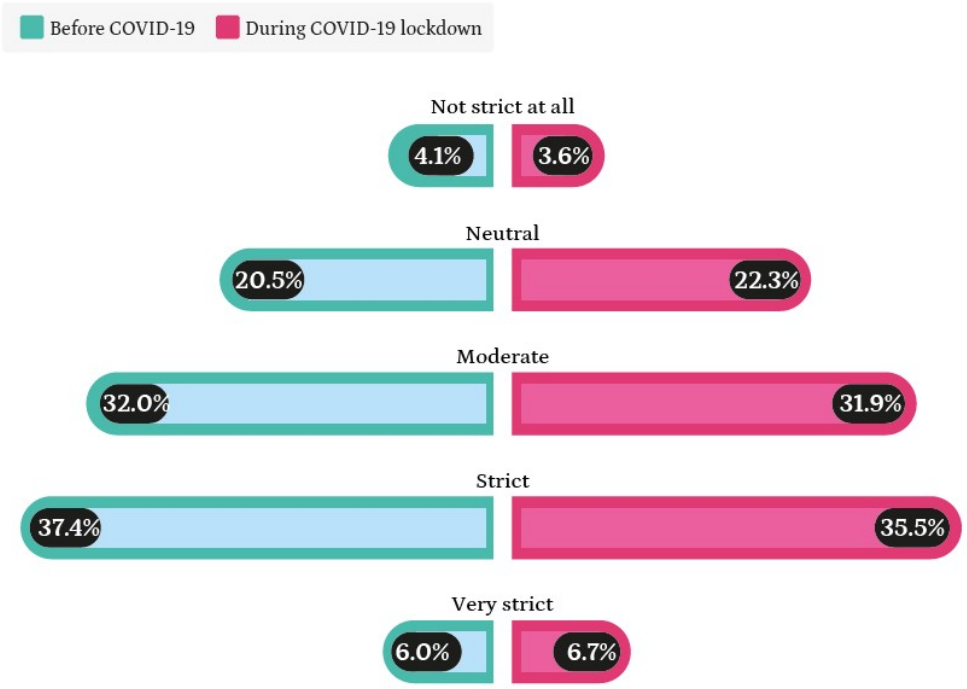


Figure 49 : Level of control for children while accessing the Internet

28.4% more people

spent 5 hours and more working from home during the pandemic than before the pandemic

24.1% more people

spent 5 hours and more studying from home during the pandemic than before the pandemic

COVID-19 impact on Internet usage

In many ways, the lockdown during COVID-19 exacerbated society's reliance on the Internet. Several sources of research support this. For example, as people embraced social distancing, they turned to online shopping more than ever before with 67% of consumers reporting they shop differently now due to COVID-19 (LaBerge)[13].19 Pertaining social media use, Blossom et al. revealed a greater increase in social media use and streaming services. The results showed that compulsive Internet use and increased social media use was strongly associated with worries of COVID-19 and symptoms of depression[14].

In this section, we explore COVID-19's impact on how Internet users have used the Internet before and during the pandemic, as well as their perception on Internet related issues.

We note that unlike previous versions of the IUS, this is the first that attempts to explore COVID-19 related impacts.

Has the Internet be important for you during the coronavirus outbreak?

Figure 50 : Level of important of Internet during COVID-19

When asked on the importance of the respondent's Internet usage during the coronavirus outbreak, 62.5% of respondents ranked the Internet's importance as "Important." This was followed by 29.9% of respondents choosing the "Very Important" option.

[13] Source: https://nielseniq.com/global/en/insights/commentary/2021/consumer-behavior-in-the-covid-recovery/

[14] The impact of COVID-19 lockdown on Internet use and escapism in adolescents - Blossom et. al, September 2020, Revista de Psicología Clínica con Niños y Adolescentes, Vol. 7, No. 3, pp 59-65.

Engagement with Internet activities before and during COVID-19

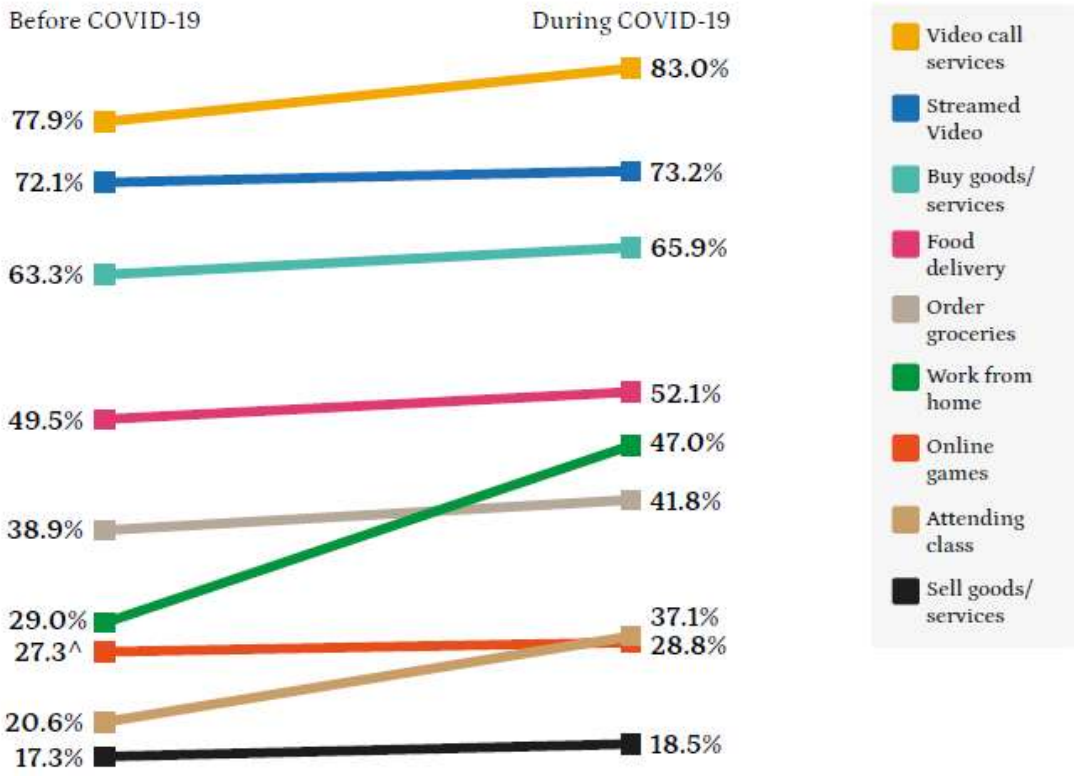


Figure 51: Percentage Internet users who engage with activities before and during COVID-19

When asked whether respondents engaged with several Internet activities before or during the the COVID-19 pandemic, there were generally 2 activities that had large percentage changes. The activities being "Used the Internet to work from home" and "Used the Internet to study from home (attending class)."

There was an increase of 18.0% in users who use the Internet to work from home during the COVID-19 pandemic. Besides that, there was an increase of 16.5% in respondents who used the Internet to study from home.

The other activities had relatively similar participation levels before and during the COVID-19 pandemic.

Hours spent on activities before/during COVID-19

From the previous section, respondents were asked a follow up question if they responded yes to participating in the above Internet activities. The follow up questions sought to uncover the number of hours spent on Internet activities before and during the COVID-19 pandemic.

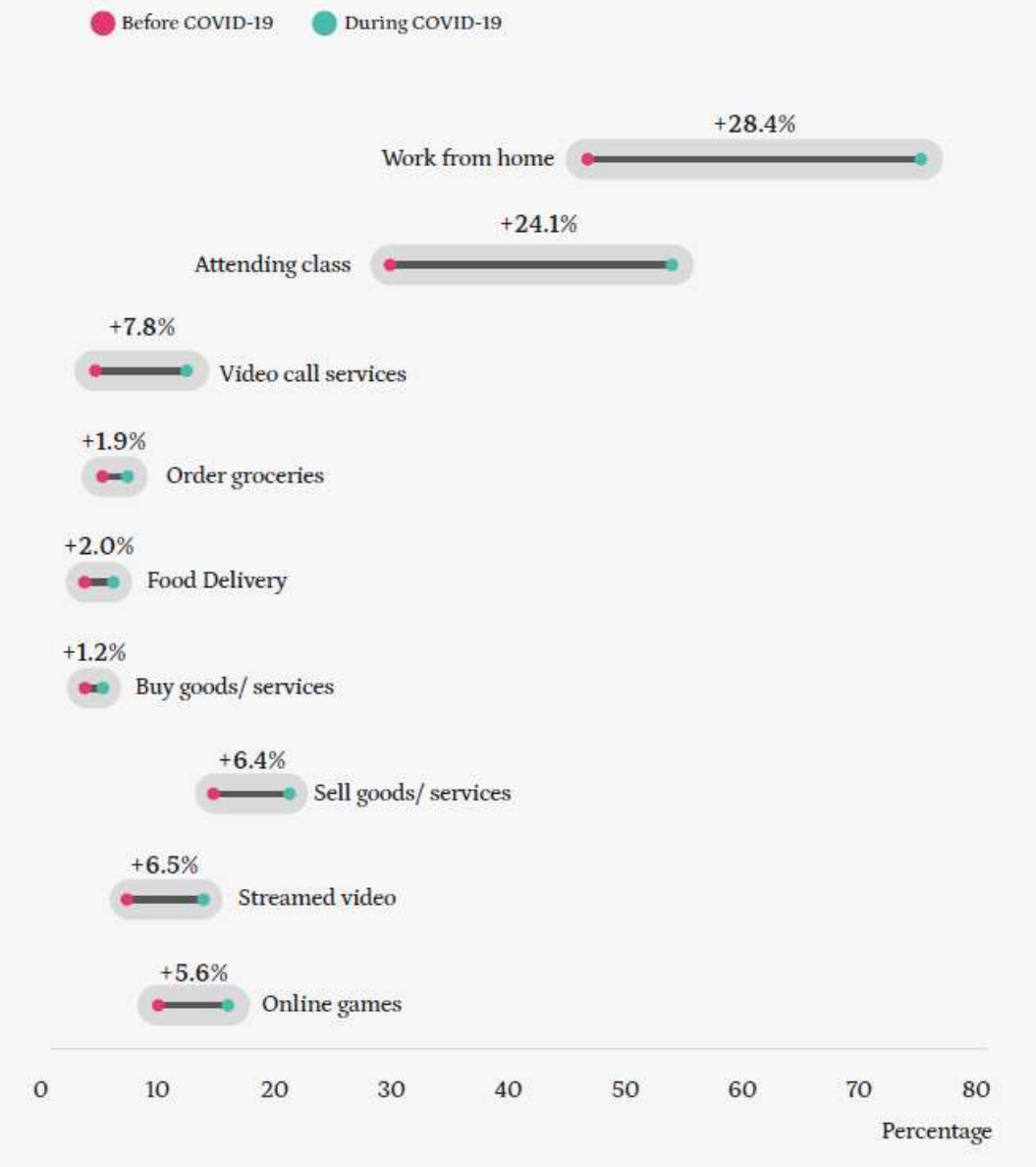


Figure 52: Comparison of Internet users (%) who spent 5 hours and more on Internet activities before and during COVID-19

When asked about their work from home tendencies, 45.8% of respondents worked 5 hours and more from home before the pandemic. This number spiked to 74.4% of respondents during the COVID-19 pandemic.

Meanwhile, when asked about respondent's study from home tendencies, 29.0% respondents claimed studied 5 hours and more before the pandemic. This number spiked to 53.1% during the COVID-19 pandemic.

Pertaining to e-commerce related activities, the trend of Internet users estimated time spent online also changed. For example, IUS 2022 noted an increase of 1.9% Internet users spent 5 hours and more buying groceries, 2.0% buying food, 1.2% buying goods and 6.4% for selling goods. Thus, this indicates that people were likely spending more time doing e-Commerce activities during COVID-19 in comparison to before.

Challenges with Internet usage during COVID-19

During COVID-19, the most likely Internet problem faced by respondents had to do with Internet speed (55.9%), followed by coverage, reliability (connection) and quality at 52.3%, 48.3%, and 46.0% respectively.

Figure 53: Problem faced when using Internet during COVID-19 pandemic

Do you face the following problems when using Internet during COVID-19 pandemic? (YES)

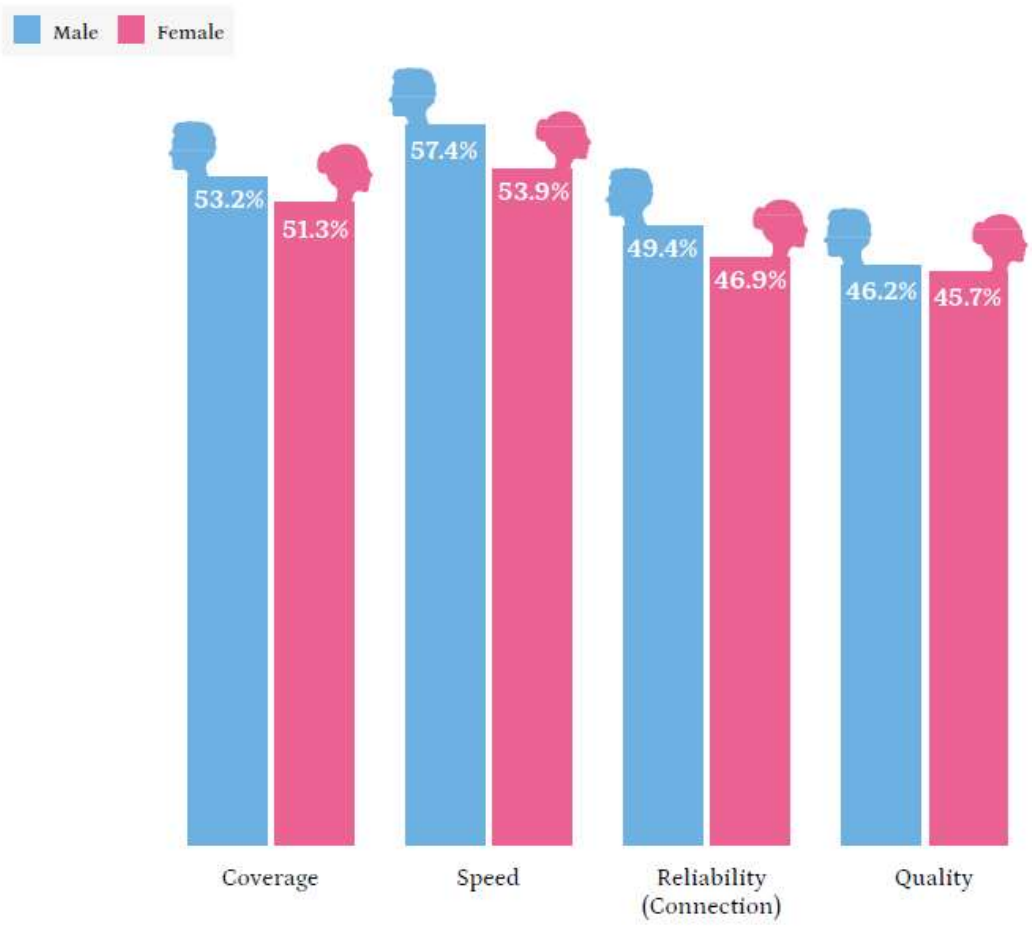


Figure 54: Problem faced when using Internet during COVID-19 pandemic, by gender

Do you face the following problems when using Internet during COVID-19 pandemic? (YES)

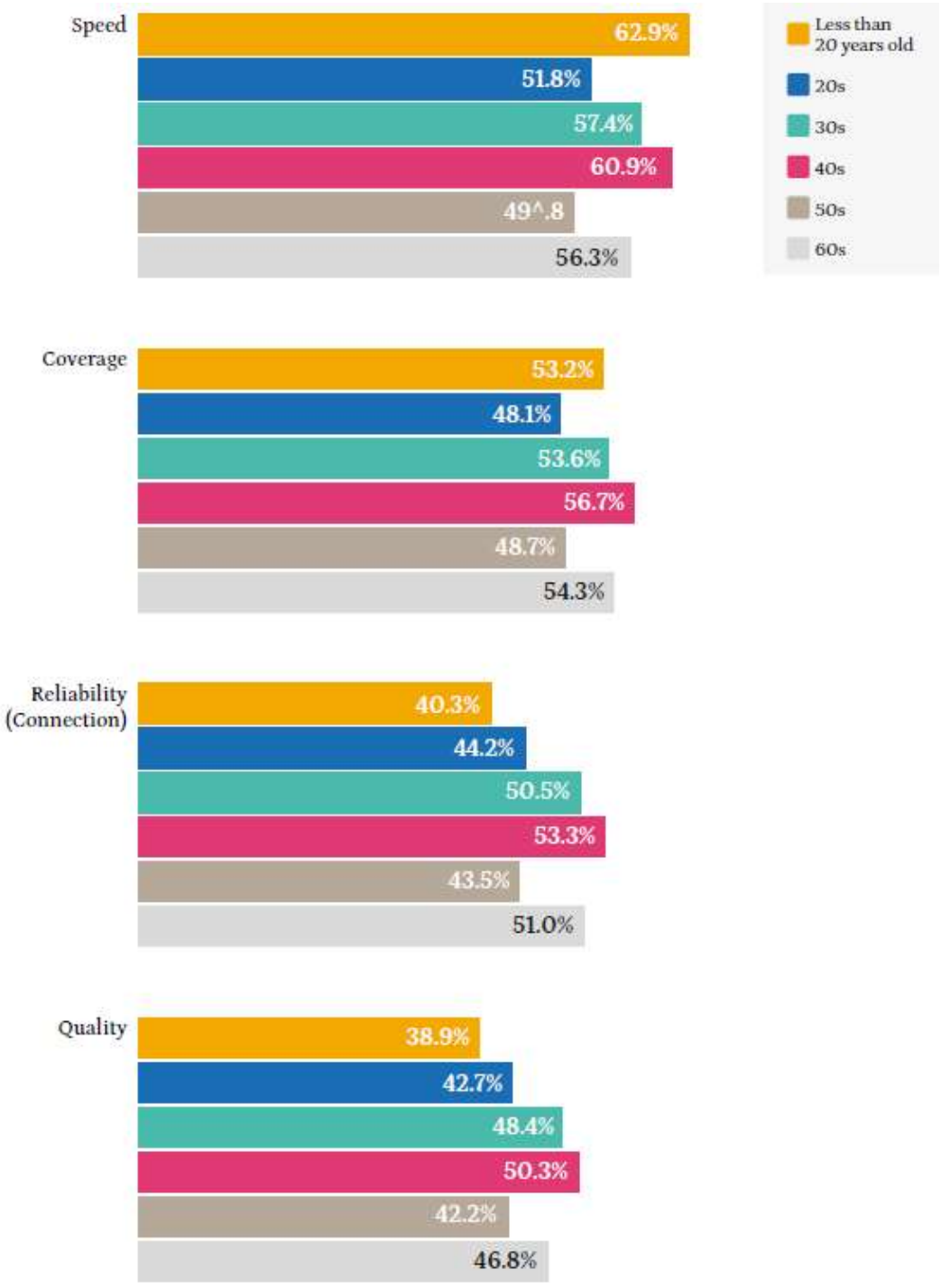


Figure 55: Problem faced when using Internet during COVID-19 pandemic, by age group

Do you face the following problems when using Internet during COVID-19 pandemic? (YES)

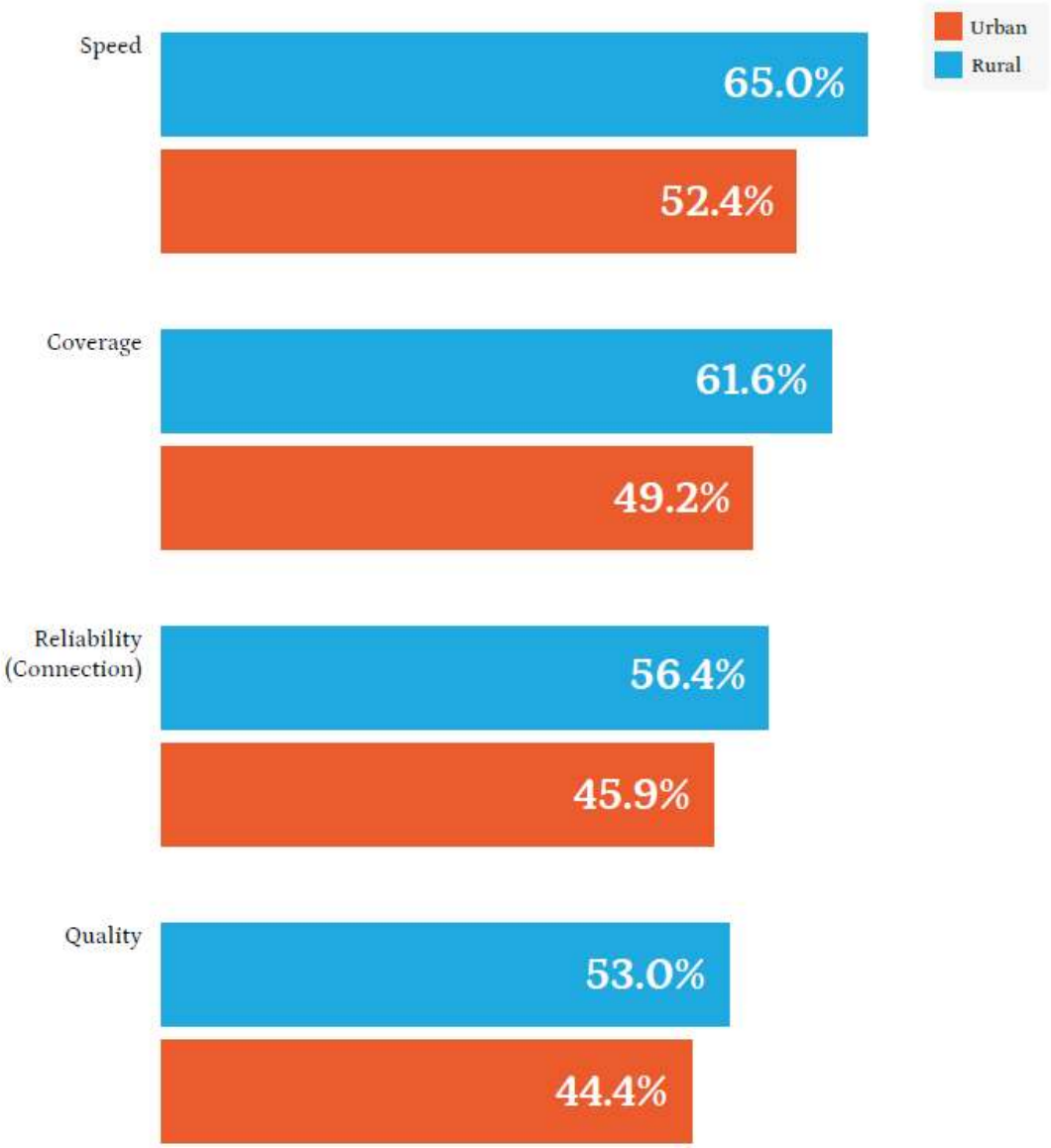


Figure 56: Problem faced when using Internet during COVID-19 pandemic, by strata

When broken down into strata, the most common Internet problem experienced by rural area inhabitants was speed (65.0%) followed closely by coverage (61.6%). Managing speed and coverage issues within rural area is crucial to ensure universal and meaningful connectivity which could harness the potential benefit of the Internet in this area. Further, reliable Internet connectivity will foster economic growth in rural area by facilitating e-commerce, online businesses and access to global market.

MCMC through JENDELA project, takes seriously in addressing and improving issues relating to Internet service quality and quality of experiences within rural areas. MCMC through strategic partnership with service providers are investing in broadband infrastructure and implementing supportive policies to maximize the positive impact of the Internet on rural communities.

Impact of Internet usage on emotion

When asked how the Internet impacted their emotion during COVID-19, respondents generally responded with 4 reactions. 50.2% reported feeling neutral about the Internet usage, 19.2% felt happy, 8.2% expressed joy and 7.8% felt tired when using the Internet.

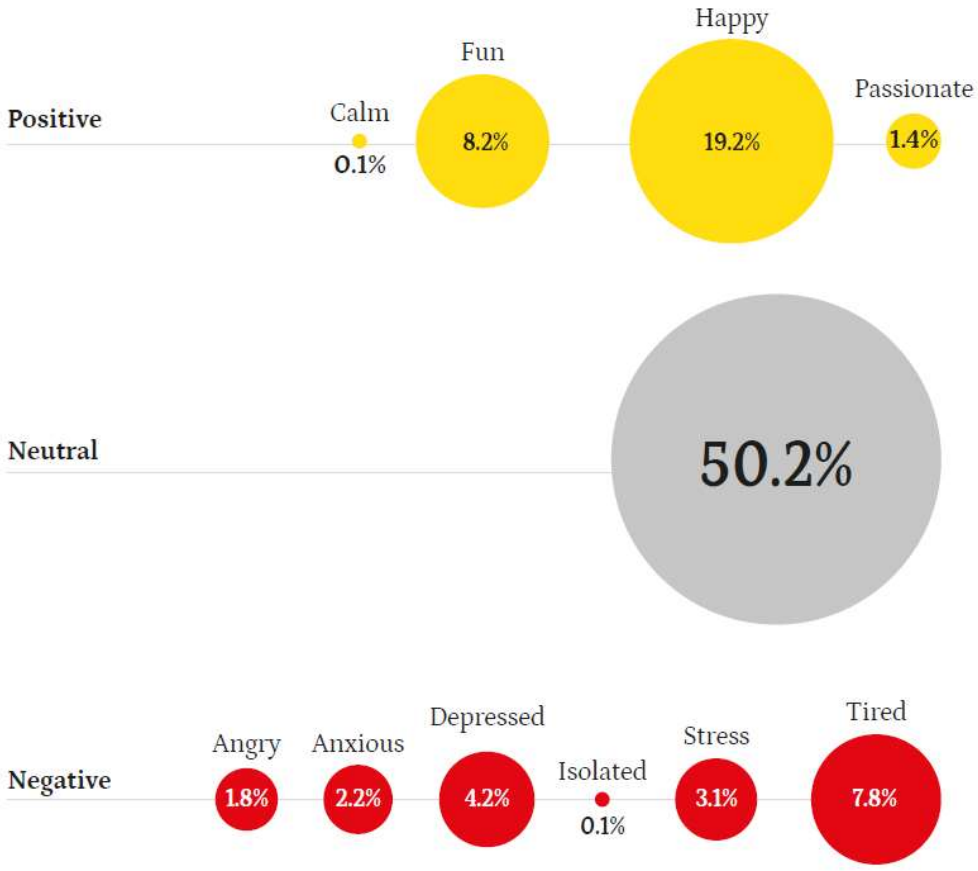


Figure 57: Emotional impact of Internet usage during COVID-19 pandemic

What is the biggest emotional impact of Internet usage to you during pandemic COVID-19?

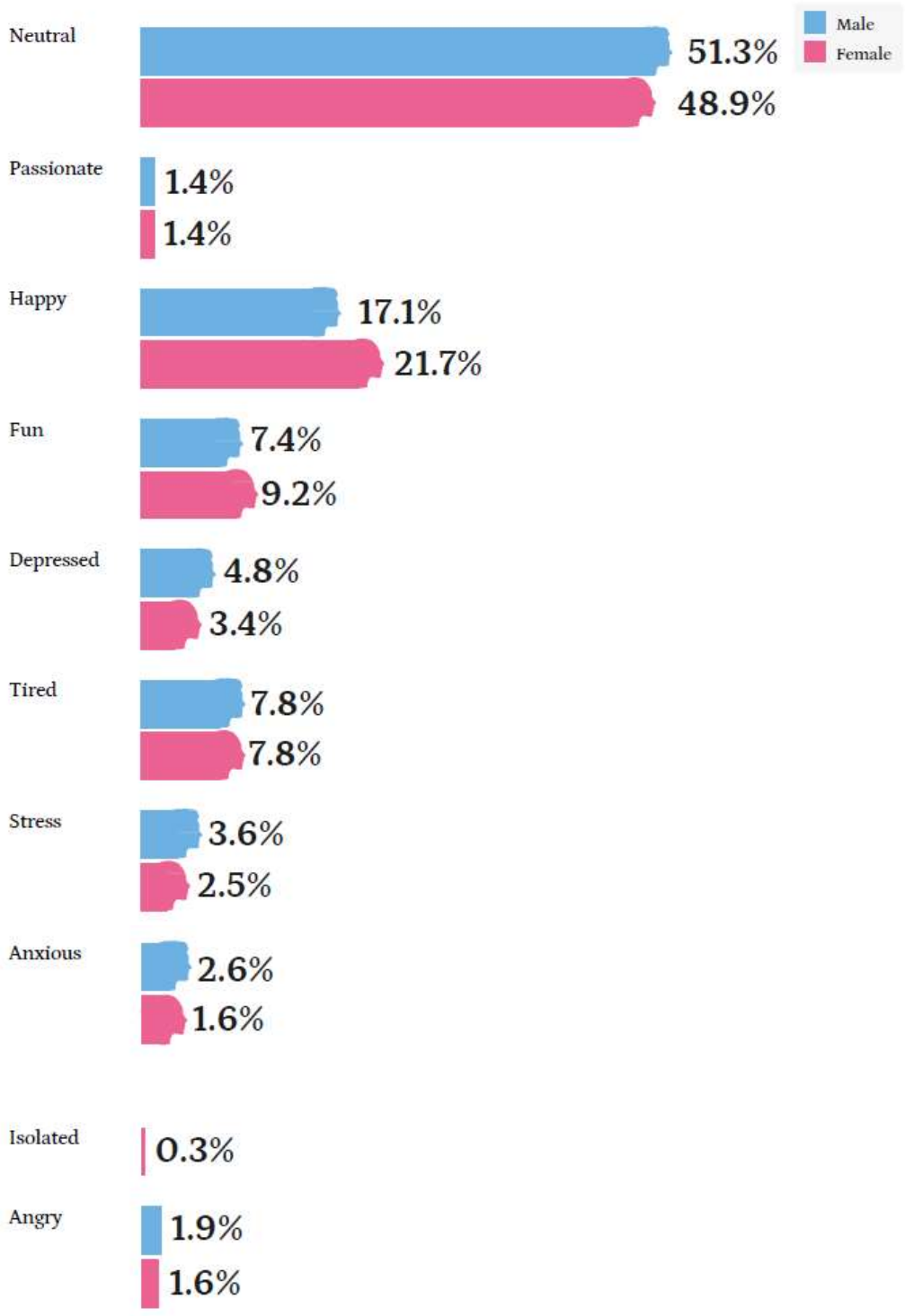


Figure 58: Emotional impact of Internet usage during COVID-19 pandemic, by gender

What is the biggest emotional impact of Internet usage to you during pandemic COVID-19?

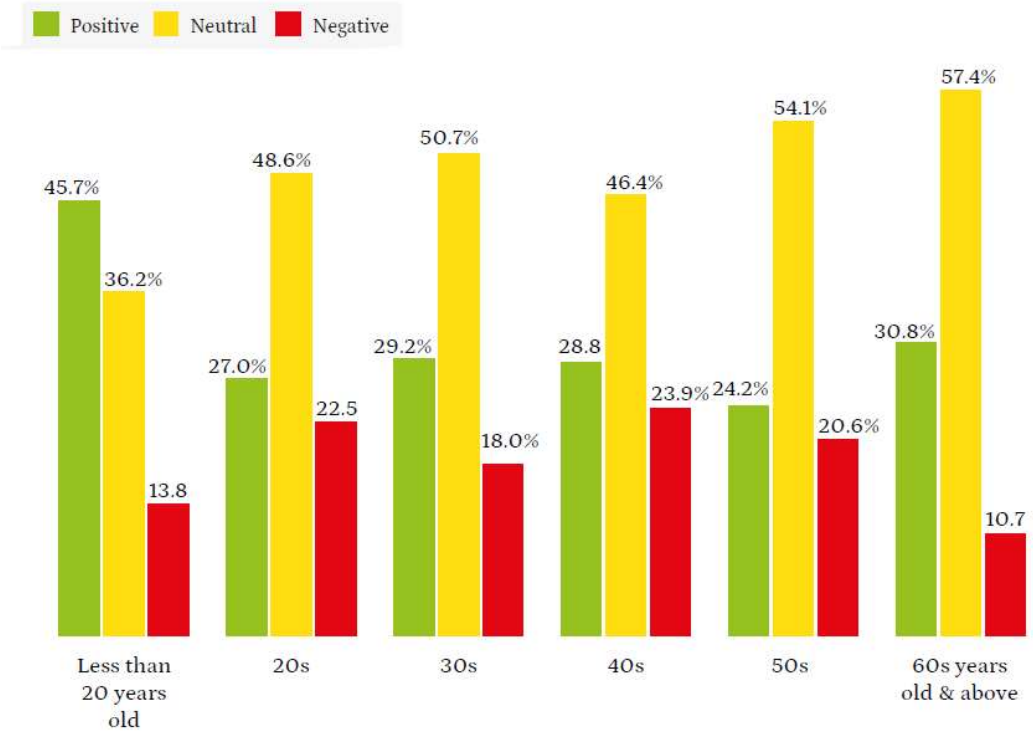


Figure 59: Emotional impact of Internet usage during COVID-19 pandemic, by age group

When broken into age categories, IUS 2022 witnessed that positive emotions were most prevalent amongst Internet users less than 20 years old, while the rest of the age groups opted for neutral emotions.

Predictive Analysis

IUS 2022 leverages the power of predictive analysis using machine learning to better understand the behaviour of Internet users.

We developed logistic regression[15] models to quantify the influence of different user traits or behaviours on an outcome of interest, such as whether an Internet user will share content online.

The models are the following:

1. Predict likelihood of sharing content online
2. Predict likelihood of feeling secure when using the Internet
3. Predict likelihood of having an experience in cyberbullying

Predict whether someone will share content online

Model Evaluation

An accurate model is important for us to gain insights about user behaviour. In order to better assess the performance of our model, we need to evaluate our model on a dataset that it has not seen before. Hence, we split our dataset at random into 80% and 20%. The 80% is used to train our model while the other 20% is used to test our model. The training process is done to determine the most significant variables that produce the best model accuracy. The selected model is then fitted and evaluated using the overall data sets available (prior to splitting). The results are shown in the classification table below.

[15] Logistic regression is a statistical technique used when the outcome is a dichotomy (only two possible outcomes, e.g. 1 or 0, Yes or No).

		Actual	
		Didn't share content online	Shared content online
Prediction	Didn't share content online	1,036	477
	Shared content online	198	289

The metrics associated with the classification table are:

Accuracy[16]	True positive rate[17]	True negative rate[18]
66%	38%	84%

With an accuracy of 66%, the model performs better than random chance (50%).

Variables

A total of 5 variables were fitted in this model. A detailed description of the variables can be found in the Appendix in the Variable Description table. The variables used in this model are those that most significantly affect the likelihood of someone sharing content online. The most critical variables are whether someone has experienced cybercrime, hotspot usage, whether they shop online, the duration of their daily Internet use and their employment status.

1	Experienced with cybercrime
2	Hotspot
3	Online shopping
4	Duration of daily use of Internet
5	Employment

Top 5 Findings

110%	Those who have experienced a cybercrime are 110% more likely share content online compared to those who have not.
123%	Those who use hotspots are 123% more likely to refuse to share content online than those who don't.
113%	Those who shop online are 113% more likely share content online compared to those who don't.
55%	Those who spend more than 4 hours online daily are on average, 55% more likely to share content online compared to those spending less than 4 hours daily online.
29%	Those who are self-employed are 29% more share content online compared to those who are employed.

[16] The model correctly predicts 66% of those who will and will not share content online.

[17] The model correctly predicts 38% of those who will not share content online.

[18] The model correctly predicts 84% of those who will share content online.

Example

Using this model, we can predict the chances of a person with the following profile to share content online.

Variable	Characteristics
Experienced with cybercrime	Yes
Hotspot	Yes
Duration of daily use of the Internet	More than 4 hours
Employment	Employed
Online shopping	Yes

For this case, the probability of this person sharing content online is 42%.

Predict whether someone feels secure when using the Internet

Model Evaluation

For this model, we divided the dataset at random into a 80:20 split from a total of 2947 records of data (2,358 : 589), where 80% of the dataset was used to train the model while the other 20% was used to evaluate it. The results can be shown in the following classification table.

		Actual	
		Feel insecure	Feel secure
Prediction	Feel insecure	529	283
	Feel secure	504	1,631

The metrics associated with the classification table are:

Accuracy[19]	True positive rate[20]	True negative rate[21]
73%	85%	51%

With an accuracy of 73%, the model performs better than random chance (50%).

Variables

A total of 6 variables were used in our model. A detailed description of the variables can be found in the Appendix. The figure below shows the top five most significant variables in predicting the probability of feeling secure when using the Internet. The most critical variable is whether someone thinks their data is kept confidential by organizations (i.e. government agencies, service providers, banks, etc), their experience with cybercrime, ethnicity, whether they share content online, and gender.

1	Data security by external organisations
2	Experienced with cybercrime
3	Gender
4	Ethnicity
5	Sharing content online

[19] The model correctly predicts 73% of those who feel and don't feel secure when using the Internet

[20] The model correctly predicts 85% of those who feel secure when using the Internet

[21] The model correctly predicts 51% of those who don't feel secure when using the Internet

Top 5 Findings

15%	People who think their personal data is kept confidential by organizations are 0.15 times less likely to feel insecure online in comparison to those who don't.
123%	Those that have experienced a cybercrime are approximately 2.23 times more likely to feel insecure online compared to those who have not experienced a cybercrime.
57%	Males are 0.57 less likely to feel insecure online in comparison to females.
81%	The Chinese are approximately 1.81 times more likely to feel insecure online in comparison to Malays.
27%	Those that have shared content online are approximately 1.27 times more likely to feel insecure online in comparison to those that have not shared anything online.

Example

Using this model, we can predict the chance of a person with the following profile to feel secure when using the Internet.

Variable	Characteristics
Gender	Male
Ethnicity	Chinese
Employment	Employed
Experienced cybercrime	Yes
Think that personal data is kept confidential by organizations	No

For this profile, the probability of the person feeling secure when using the Internet is only 22%. In other words, he has a 78% probability of not feeling secure when being online.

Predict whether someone has experienced cyberbullying

Model Evaluation

This model was built using a dataset with a sample size of 4,558. The dataset was divided into a 70:30 ratio split where 70% of it (n = 3,191) was used to train the model, and the remaining 30% (n = 1,367) was used to evaluate the model. The final model is then fitted into the overall dataset yielding the results in the classification table below.

		Actual	
		0 (will not share content online)	1 (will share content online)
Prediction	Never experienced cyberbully	2,930	113
	Experienced cyberbully	1,207	308

The metrics associated with the classification table are:

Accuracy[22]	True positive rate[23]	True negative rate[24]
75%	73%	71%

With an accuracy of 75%, the model performs extremely better than random chance (50%).

Variables

A total of 22 variables were fitted in this model. A detailed description of the variables can be found in the Appendix in the Variable Description table. The variables used in this model are those that most significantly affect the likelihood of someone experiencing cyberbully. The most critical variables are whether someone has a YouTube account, whether they have a LinkedIn account, whether they share content online, whether they sell goods and services online, and the type of broadband they use.

1	YouTube
2	Feeling secure online
3	Type of broadband used
4	Ethnicity
5	Sell goods and services online

[22] The model correctly predicts 75% of those who have and have not experienced cyberbullying.

[23] The model correctly predicts 73% of those who have experienced cyberbullying.

[24] The model correctly predicts 71% of those who have not experienced cyberbullying.

Top 5 Findings

15%	Those who have a Youtube account are approximately 0.15 times less likely to have never experienced cyberbullying compared to those who don't have a YouTube account.
267%	Those who have a LinkedIn account are approximately 3.67 times more likely to have never experienced cyberbullying compared to those who don't have a LinkedIn account.
55%	Those who share content online are 0.55 times less likely to have never experienced cyberbullying compared to those who don't share.
146%	Those who sell goods and services online are 2.46 times more likely to have never experienced cyberbullying compared to those who don't.
113%	Those who don't use any broadband are 2.13 times more likely to have never experienced cyberbullying compared to those who use.

Example

We can predict the chance of a person with the following profile to have experienced cyberbullying.

Variable	Characteristics
Years of experience with Internet use	More than 10 years
Duration of daily use of Internet	Less than 4 hours
Type of broadband used	Fixed
Have Facebook account	Yes
Have Twitter account	No
Have LinkedIn account	No
Have Instagram account	No
Have Youtube account	Yes
Have WhatsApp account	Yes
Have Telegram account	No
Have WeChat account	No
Share content online	Yes
Sell goods and services online	No
Gender	Female
Ethnicity	Malay
Region	North

Using the model, this individual is 55% likely to have experienced cyberbullying.

Conclusion

The percentage of Internet users in 2022 grew by 4.0% as compared with 2020. This discovery is anticipated given that the Internet has been a lifeline to many since the COVID-19 outbreak began. This occurrence which coincides with a series of multiple national lockdowns and imposition of strict movement procedures has brought certain issues to light, deserving public attention. For instance, the profoundly altered way of working and studying played a role in identifying the urban-rural gap in employment and education.

The closure of schools, businesses and workplaces for an extended length of time ultimately offers a snapshot of the struggles that some people might be facing, albeit unevenly. School shutdowns have shifted teaching activities from traditional classroom learning to distance home-based online learning (e-learning). Internet unavailability, inadequate equipment and unconducive environments, especially in rural areas render the adoption of e-learning for students ineffective and entail its own problems for parents and teachers.

In order to increase access to the Internet, initiatives to make it more accessible is ongoing through JENDELA, a project to provide wider coverage and better quality of broadband experience.

The widespread use of the Internet has also contributed to the rapid proliferation of fake news and misinformation, which can cause public confusion. Despite that, Internet users are indeed aware of the concept of fake news and understand its implications.

Pre-emptive measures to curb fake news are imperative in today's digital age to safeguard the integrity of information and protect the public from misinformation. Usage and awareness of SEBENARNYA.MY as a fact-checking and verification platform should be promoted continuously.

Furthermore, IUS 2022 unveiled that the rate of cybercrimes experienced by Internet users in 2022 increased specifically in fraud/scam and hacking activities. The predictive analysis of this report can provide valuable insights to policymakers with regards to specific areas and demography that need to be given extra attention to better protect Internet users who are more defenceless and inclined to be the target of cybercrimes. This includes children who are more vulnerable to becoming victims, especially those who are not supervised by parents or whose parents do not exercise adequate control over them.

Appendices

Caution is required in the use of the estimates tabulated below.

While we have taken every care to minimise non-sampling errors, which cannot be quantified, the estimates presented are also subject to sampling error, which is a measure of the chance variation that occurs because a sample, and not the entire population, is canvassed. The sampling error of an estimate is usually expressed as a percentage of that estimate to give the relative sampling error (RSE) of that estimate. The estimates are weighted and the RSE takes into account the effect of weighting.

In general, estimates that are small are subject to high RSEs. As a guide, only estimates with RSEs of 25% or less are considered reliable for general use. Estimates with RSEs greater than 25% but less than or equal to 50% are denoted with one asterisk (*) in these tables and should be used with caution; while estimates with RSEs greater than 50% are denoted by two asterisks (**) and are considered too unreliable for general use.

For comparison, past data are appended together where available.

Percentages may not add up to 100 due to rounding.

Percentage of Internet users

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Users	76.9	1.0	87.4	0.5	88.7	0.7	92.7	0.6
Non-users	23.1	3.3	12.6	3.7	11.3	5.7	7.3	7.3

Years of experience with Internet use

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Less than 1 year	3.7	7.8	2.5	20.6	1.6	16.2
1 to less than 3 years	11.7	4.2	12.2	5.5	7.7	7.1
3 to less than 5 years	15.0	3.6	15.8	4.7	8.6	6.7
5 to less than 7 years	32.7	2.2	21.0	4.0	10.4	6.0
7 to less than 10 years	-	-	19.1	4.2	15.9	4.7
10 to less than 15 years	25.0	2.6	18.0	4.4	27.1	3.3
More than 15 years	11.9	4.1	10.2	6.1	26.1	3.4
Don't know/ No answer	-	-	1.2	18.5	2.6	12.6

Duration of daily use of Internet

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Less than 1 hour	9.6	4.7	1.3	17.0	3.9	10.2
1 to 4 hours	39.2	1.9	24.9	3.4	26.6	3.4
5 to 8 hours	23.9	2.7	28.6	3.1	25.0	3.5
9 to 12 hours	13.4	3.9	21.5	3.8	19.7	4.1
13 to 18 hours	5.7	6.2	9.0	6.3	7.1	7.4
More than 18 hours	8.1	5.1	11.5	5.5	11.7	5.6
Don't know/Refused/No answer	-	-	3.1	11.0	6.0	8.1

Place to access Internet

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Home	85.6	0.8	88.6	0.5	70.4	1.3	82.3	0.9
On-the-go	84.0	0.9	68.1	1.0	64.4	1.5	53.4	1.9
Workplace	58.7	1.7	56.4	1.3	30.1	3.0	38.8	2.6
Another person's home	54.8	1.9	38.7	1.9	1.3	17.0	4.6	9.3
Free Wi-Fi anywhere	55.9	1.8	36.3	2.0	6.0	7.9	4.4	9.5
Commercial Internet access facility	30.0	3.1	26.0	2.6	2.0	14.0	4.7	9.2
Community Internet access facility	19.6	4.1	18.2	3.2	4.2	9.5	4.4	9.5
Place of education	13.9	5.1	12.0	4.1	8.2	6.6	6.6	7.7

Multiple responses

Internet access from home

	2020 (%)	RSE	2022 (%)	RSE
Fixed broadband	21.4	4.5	36.6	1.9
Mobile broadband	56.2	2.1	46.8	1.9
Fixed broadband and mobile broadband	21.8	4.5	16.6	19.2

Usage of personal hotspot with Wi-Fi/ Bluetooth/ USB

	2020 (%)	RSE	2022 (%)	RSE
Yes	62.1	1.6	71.1	1.3
No	37.9	2.6	28.9	3.2

Device to access Internet

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Smartphone	89.4	0.7	93.1	0.4	98.7	0.2	94.4	0.5
Netbook/Notebook/Laptop	36.3	2.7	44.2	1.7	37.9	2.5	40.4	2.5
PC/Desktop	29.3	3.2	28.1	2.4	16.2	4.5	20.6	4.0
Tablet	18.0	4.4	20.4	3.0	6.4	7.6	14.4	5.0
Smart TV	6.7	7.6	12.3	4.1	5.9	7.9	21.7	3.9
Feature phone	9.4	6.3	8.6	5.0	1.3	17.2	3.7	10.3
TV streaming box	5.6	8.4	7.6	5.3	2.9	11.5	3.5	10.6
Game console	2.5	12.6	4.7	6.8	0.8	22.1	4.1	9.9
Smartwatch	-	-	2.4	9.8	0.6	24.8	5.9	8.1

Multiple responses

Online activities

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Communicate by text	96.3	0.4	96.5	0.3	98.1	0.3	98.3	0.3
Visit social networking platform	89.3	0.7	85.6	0.6	93.3	0.5	94.1	0.5
Watch or download video/online TV	70.0	1.3	77.6	0.8	87.3	0.8	89.6	0.7
Communicate by voice/video	32.0	3.0	60.6	1.2	81.1	1.0	94.1	0.5
To get information	86.9	0.8	85.5	0.6	74.3	1.2	92.4	0.6
Read online publication	-	-	56.3	1.3	68.2	2.4	44.3	2.3
Listen or download music/online radio	-	-	46.8	1.6	65.4	1.4	37.2	2.7
Online games	41.6	2.4	35.2	2.1	42.8	2.3	35.7	2.7
Maintain blogs/homepages	17.0	4.5	9.8	4.6	32.3	2.9	-	-

Multiple responses

Social networking account ownership

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Facebook	97.3	0.4	97.3	0.3	91.7	0.6	87.5	0.7
YouTube	45.3	2.4	48.3	1.7	80.6	1.0	76.3	1.3
Instagram	56.1	1.9	57.0	1.4	63.1	1.5	63.9	1.6
Twitter	26.6	3.6	23.8	2.9	37.1	2.6	40.9	2.7
LinkedIn	9.1	6.8	13.3	4.2	10.8	5.7	21.6	4.3
Tik Tok	-	-	-	-	-	-	49.7	2.1
Google+	28.3	3.4	31.1	2.4	24.1	3.5	-	-
Others	0.9	22.8	0.7	19.9	0.2*	40.1	6.1	8.0

Multiple responses

Communication apps account ownership

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
WhatsApp	98.1	0.2	98.7	0.2	97.7	0.3
Facebook Messenger	55.6	1.4	53.9	1.8	53.5	1.9
Telegram	25.0	2.7	40.0	2.4	56.4	1.8
WeChat	36.8	2.0	27.7	3.2	21.3	3.9
Skype	14.2	3.8	14.5	4.8	8.2	6.8
Line	10.2	4.6	8.2	6.6	8.6	6.7
KakaoTalk	2.1	10.5	6.3	7.6	5.8	8.2
Google Meet	-	-	-	-	0.2*	42.5
Zoom	-	-	-	-	21.6	3.9
Others	1.1	14.5	0.1**	55.9	0.2*	46.9

Multiple responses

Time spent on listening or downloading music/online radio

	2020 (%)	RSE	2022 (%)	RSE
Daily	34.9	2.7	37.2	2.7
Weekly	24.4	3.5	18.6	4.3
Monthly	7.5	7.0	8.2	6.8
Few times a year	4.2	9.5	3.6	10.6
Once a year	0.2*	40.8	0.6*	25.4
None	27.0	3.3	30.6	3.1
Don't know/Not sure	1.8	14.6	1.1	19.4

Time spent on watching or downloading video/online TV

	2020 (%)	RSE	2022 (%)	RSE
Daily	45.4	2.2	48.8	2.1
Weekly	25.6	3.4	23.1	3.7
Monthly	4.7	9.0	7.3	7.3
Few times a year	1.1	19.1	3.2	11.2
Once a year	0.2*	50.0	0.5*	30.3
None	21.4	3.8	15.9	4.7
Don't know/Not sure	1.7	15.3	1.2	18.6

Time spent on reading online publication

	2020 (%)	RSE	2022 (%)	RSE
Daily	42.0	2.3	44.3	2.3
Weekly	24.3	3.5	22.2	3.8
Monthly	5.2	8.5	6.9	7.5
Few times a year	1.4	16.5	2.4	13
Once a year	0.7	24.2	0.7	24.9
None	24.1	3.5	22.1	3.8
Don't know/Not sure	2.3	13.0	1.4	17.2

Time spent on listening to traditional radio (FM radio)

	2020 (%)	RSE	2022 (%)	RSE
Daily	27.1	3.3	36.3	2.7
Weekly	19.8	4.0	19.0	4.2
Monthly	8.8	6.4	6.7	7.6
Few times a year	3.3	10.7	4	10
Once a year	1.0	19.9	1.0	20.1
None	38.0	2.5	31.6	3.0
Don't know/Not sure	2.0	14.0	1.4	17

Time spent on watching traditional TV

	2020 (%)	RSE	2022 (%)	RSE
Daily	48.1	2.1	43.3	2.3
Weekly	21.3	3.8	21.9	3.9
Monthly	6.4	7.6	7.4	7.2
Few times a year	1.7	15.1	3.4	10.9
Once a year	0.8	22.1	0.9	21.7
None	19.8	4.0	21.6	3.9
Don't know/Not sure	1.8	14.6	1.5	16.7

Time spent on reading printed book/magazine/newspaper

	2020 (%)	RSE	2022 (%)	RSE
Daily	27.0	3.3	28.8	3.2
Weekly	16.7	4.4	17.8	4.4
Monthly	12.2	5.3	9.0	6.5
Few times a year	2.2	13.1	4.4	9.5
Once a year	1.2	18.1	1.2	18.4
None	38.3	2.5	37.1	2.7
Don't know/Not sure	2.5	12.3	1.5	16.3

Other online activities

	2020 (%)	RSE	2022 (%)	RSE
Online shopping/booking	45.0	3.6	66.6	1.4
Online banking	29.7	5.1	66.3	1.5
Work related	41.3	3.9	47.9	2.1
Government services	63.8	2.5	41.2	2.4
Cloud storage	64.2	2.5	29.3	3.2
Study	25.7	5.6	20.7	4.0
Online job application	12.0	8.9	20.2	4.1
Selling goods/services	37.1	4.3	13.8	5.1
Others	1.1*	31.2	0**	99.5
None of the above	-	-	21.4	3.9

Multiple responses

Online content sharing among Internet users

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Have shared content online	61.8	1.2	42.9	2.3	33.0	2.9
Did not share content online	38.2	1.9	53.3	1.9	58.3	1.7

Type of online content shared

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Educational content	71.3	1.2	36.4	4.0	29.5	5.5
Entertainment and humorous content	69.6	1.3	56.1	2.7	44.7	4.0
News	63.9	1.5	66.9	2.1	63.0	2.7
Public service announcement	62.6	1.5	60.9	2.4	50.3	4.5
Aid effort	55.9	1.7	37.7	3.9	38.5	5.4
Latest promotion and discount	43.0	2.2	23.3	5.5	26.8	6.6
Political related issue	32.1	2.8	17.2	6.6	31.1	2.3
Others	-	-	3.5	15.9	2.4	22.7
News	63.9	1.5	66.9	2.1	63.0	2.7

Multiple responses

Online content sharing platform

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Social media	73.8	1.2	86.5	1.2	67.2	2.5
Group messaging (group chat)	70.6	1.2	58.5	2.5	52.8	3.4
Private messaging	46.6	2.1	36.1	4.0	29.4	5.5
Email	15.8	4.5	5.1	13.1	1.7*	27.0
Blog/personal website	6.3	7.5	2.1	20.8	1.6*	27.7
Forum	3.4	10.4	1.0*	30.7	1.4*	30.0
Others	0.3*	37.7	-	-	0.4**	53.9

Multiple responses

Purpose of online content sharing platform

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Content is beneficial	87.2	0.7	71.8	1.9	70.8	2.3
Raise awareness about an issue	82.3	0.9	53.6	2.8	38.6	4.5
Entertain/for fun	64.1	1.4	36.6	4.0	22.8	6.5
Share interests and hobbies	57.7	1.7	18.8	6.3	15.7	8.2
Generate discussion	55.8	1.7	16.9	6.7	17.6	7.7
Get likes and followers	20.7	3.8	6.2	11.8	2.8	21
Promote product and service	20.2	3.8	4.4	14.2	6.1	13.9
Others	0.4*	31.6	0.2**	64.2	0.1**	141.4

Multiple responses

Actions taken before sharing content online

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Understand the content	90.8	0.6	72.4	1.9	76.6	2.0
Ensure the content is not obscene, menacing or offensive	85.8	0.8	54.9	2.7	56.9	3.1
Ensure the validity of the content	79.4	1.0	63.0	2.3	78.1	1.9
Verify whether the content is from reliable source or not	77.0	1.1	62.9	2.3	79.2	1.8
None of the above	4.4	9.0	7.0	11.0	5.9	14.2

Multiple responses

Frequency of sharing content online

	2020 (%)	RSE	2022 (%)	RSE
Daily	19.2	6.2	15.2	8.4
Weekly	49.1	3.1	43.1	4.1
Monthly	18.9	6.3	28.5	5.6
Few times a year	6.8	11.2	6.6	13.4
Once a year	0.0	-	0.3**	62.9
None	1.9*	21.8	5.8	14.3
Don't know/Refused/Not sure	4.2	14.5	0.5*	49.9

Quickness of sharing content online

	2020 (%)	RSE	2022 (%)	RSE
Immediately after reading the headlines	5.8	12.2	2.8	21.1
After I skimmed through the contents	13.6	7.6	90.2	1.2
After I read through the contents	78.9	1.6	4.0	17.3
Don't know/Not sure	1.8	22.3	2.3	23.1

Do you know what fake news is?

	2020 (%)	RSE	2022 (%)	RSE
Yes	91.3	0.9	94.3	0.9
No	4.9	13.3	3.2	19.6
Don't know/Not sure	3.7	15.3	2.1	24.3

Awareness of SEBENARNYA.MY portal

	2020 (%)	RSE	2022 (%)	RSE
Yes	20.3	6.0	28.0	5.7
No	77.4	1.6	65.8	2.6
Don't know/Not sure	2.3	19.6	6.1	14.0

Security perception when using the Internet

	2020 (%)	RSE	2022 (%)	RSE
Very secured	3.7	10.2	0.5*	28.3
Secured	46.8	2.1	32.7	2.9
Neutral	23.3	3.6	42.1	2.4
Not secured	16.9	4.4	16.8	4.5
Not very secured	0.9	21.0	0.6*	26.1
Don't know/Not sure	8.6	6.5	7.0	7.5

Perception on confidentiality of personal data kept by the following organizations - Government

	2020 (%)	RSE	2022 (%)	RSE
Yes	50.4	2.1	36.9	2.4
No	17.9	4.4	28.0	3.7
Neutral	15.7	4.8	18.5	4.8
Don't know/Not sure	16.0	4.8	16.6	4.2

Perception on confidentiality of personal data kept by the following organizations – Service providers

	2020 (%)	RSE	2022 (%)	RSE
Yes	40.6	2.5	34.5	2.5
No	25.1	3.6	30.0	3.6
Neutral	17.1	4.6	18.7	4.7
Don't know/Not sure	17.2	4.5	16.8	4.1

Perception on confidentiality of personal data kept by the following organizations – Non-government bodies

	2020 (%)	RSE	2022 (%)	RSE
Yes	40.2	2.5	35.8	2.4
No	24.0	3.7	29.5	3.6
Neutral	17.8	4.5	18.1	4.8
Don't know/Not sure	18.0	4.4	16.6	4.3

Cybercrime experienced

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Virus or malicious code	31.1	3.0	4.4	9.2	1.3	17.5
Spam	30.9	3.1	13.7	5.0	4.3	9.6
Fraud	17.7	4.4	23.6	3.6	27.4	3.3
Hacking and intrusion	8.8	6.6	4.1	9.6	4.7	9.2
Abuse of personal information	6.2	8.0	3.4	10.6	1.8	15.0
Cyberbully	4.2	9.8	0.6*	26.7	0.5*	30.0
None of the above	47.3	2.2	61.6	1.6	9.3	6.4
Don't know/Refused/No answer	-	-	5.2	8.51	56.8	1.8

Multiple responses

Types of cyber bullying experienced

	2022 (%)	RSE
Masquerading	49.9*	30.2
Trickery	49.9*	30.2
Harassment	22.8**	55.4
Dissing	13.7**	75.6
Trolling	4.5**	138.2
Cyberstalking	4.5**	138.2
Fraping	0.0	0.0
Exclusion	0.0	0.0

The last time when a cybercrime was experienced

	2020 (%)	RSE	2022 (%)	RSE
Last 6 months	53.1	3.2	51.6	3.4
Last 12 months	27.7	5.6	18.9	7.3
Last 2 years	7.6	12.0	12.4	9.3
More than 3 years ago	9.4	10.7	14.7	8.5
Don't know/Not sure	2.3	22.7	1.9*	25.1

Action taken following a cybercrime experienced

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Changed password for online account	64.6	2.1	16.5	7.8	13.6	8.8
Discussed with people around	63.2	2.1	17.8	7.4	22.9	6.4
Installed security software	46.8	3.0	9.0	10.9	4.1	16.9
Reported to Internet service providers	18.2	6.0	6.3	13.3	7.2	12.6
Reported to authorities	8.0	9.5	14.9	8.2	18.9	7.3
Others	3.2	15.6	4.1	16.5	1.8*	26.2
Did not take any action	13.8	7.0	44.0	3.9	33.9	4.9
Don't know/Not sure	-	-	1.8*	25.6	0.9	36
Ignore	-	-	-	-	10.4	10.3
Block	-	-	-	-	5.2	15

Multiple responses

Importance of online privacy

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Extremely important	59.1	1.7	60.9	2.8	47.3	3.7
Important	32.8	2.9	36.4	4.6	44.6	3.9
Neutral	-	-	1.4*	28.7	2.4	22.5
Not important	7.6	7.1	0.5*	48.4	2.4	22.4
Extremely not important	0.5*	28.8	-	-	0.3**	60.4
Don't know/Not sure	-	--	0.8*	37.6	2.3	22.9

Multiple responses

Sharing of personal information online

	2020 (%)	RSE	2022 (%)	RSE
Yes	30.6	8.6	26.6	5.8
No	67.8	3.9	70.0	2.3
Don't know/Not sure	1.8*	43.4	2.8	20.7

Type of personal information shared online

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Photo of themselves	69.8	1.3	76.7	3.4	35.4	9.2
Date of birth	58.5	1.7	65.1	4.6	32.8	9.7
Real name	55.0	1.8	80.2	3.1	67.5	4.7
Email address	50.7	2.0	58.5	5.2	40.4	8.3
Study/work place	41.3	2.4	47.3	6.6	12.8	17.7
Phone number	40.5	2.5	54.7	5.7	61.5	5.4
Home location	26.7	3.4	39.1	7.8	29.8	10.4
Others	2.2	13.6	3.9*	31.0	0.0	0.0
None of the above	7.8	7.0	0.8**	70.4	0.6**	90.2
Bank details	-	-	-	-	0.9**	70.2
Identity Card (IC)	-	-	-	-	0.0	0.0
Don't know/Not sure	-	-	-	-	0.2**	141.3

May I know if you are a parent?

	2020 (%)	RSE	2022 (%)	RSE
Yes	41.1	2.4	60.8	1.7
No	57.7	1.7	38.7	2.6

Number of children aged 17 and below that used Internet

	2020 (%)	RSE	2022 (%)	RSE
0	52.5	2.9	56.0	2.4
1	22.4	5.8	17.7	5.7
2	12.4	8.2	13.4	6.8
3	8.6	10.1	7.9	9.1
4	1.7*	39.0	2.0	18.5
5 and more	1.4*	43.1	2.7	15.9

Parents among Internet users with child/children aged 17 and below that have their own device to access Internet

	2020 (%)	RSE	2022 (%)	RSE
Yes	56.3	4.0	76.4	2.2
No	41.3	5.4	23.4	7.3
Don't know/Not sure	-	-	0.1**	141.4

How long have your children used the Internet?

	2022 (%)	RSE
Less than 1 year	8.3	13.4
1 to 3 years	56.2	3.6
3 to 5 years	19.8	8.1
5 to 7 years	7.7	14.0
7 to 10 years	3.5	21.1
10 to 15 years	1.6*	31.5
More than 15 years	0.0	0.0
Don't know/Not sure	2.9	23.4

How many hours a day do your children usually use the Internet?

	2022 (%)	RSE
Less than 1 hour	6.6	15.1
1 to 4 hours	49.4	4.1
5 to 8 hours	23.9	7.2
9 to 12 hours	4.7	18.2
13 to 18 hours	1.1*	38.9
More than 18 hours	1.7*	30.5
Don't know/Not sure	12.2	10.8

Multiple responses

Children social media sites

	2022 (%)	RSE
YouTube	22.4	7.5
Facebook	27.1	6.6
Instagram	20.9	7.8
Tik Tok	19.8	8.1
Twitter	5.5	16.7
LinkedIn	1.7*	30.9
Others	41.9	4.7
None of the above	9.3	12.6
Don't know/Not sure	7.4	14.2

Parents awareness on parental control

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Yes	51.0	4.7	62.4	2.3	55.6	4.2	57.3	3.8
No	49.0	4.8	37.6	3.8	46.6	5.3	42.7	5.0

Experience when using parental control – User friendly

	2020 (%)	RSE	2022 (%)	RSE
Agree	38.7	7.8	55.5	4.6
Disagree	1.9*	44.3	5.9	22.0
Don't know	59.2	5.1	37.1	7.9

Experience when using parental control – Effective in assisting you to monitor your child's use of the Internet

	2020 (%)	RSE	2022 (%)	RSE
Agree	40.4	7.5	57.7	1.6
Disagree	1.5*	49.6	4.5	24.2
Don't know	58.1	5.3	36.4	8.3

Experience when using parental control – Available at affordable price

	2020 (%)	RSE	2022 (%)	RSE
Agree	26.9	10.2	39.8	2.3
Disagree	3.1*	34.8	8.1	20.2
Don't know	70.0	4.1	50.2	5.9

Actions taken by parents to ensure child online safety

	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Set rules and limits of Internet usage to the child	75.5	1.7	72.7	3.8	68.0	2.8
Stayed nearby the child when he/she used the Internet	75.4	1.7	57.3	5.4	48.0	4.2
Discussed with your child about online safety	71.1	1.9	50.1	6.2	50.8	4.0
Checked the child's social media account and/or browser history	57.5	2.6	47.7	6.5	40.4	4.9
Used parental control service in child's device	12.2	8.0	-	-	0.0	0.0
None	7.4	10.5	7.3	22.1	12.1	10.8
Don't know/Not sure					1.8*	29.6

Reasons for not using parental control

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Trust the child	69.2	3.5	45.5	7.3	36.1	11.6
Set your own rules and limits on Internet usage	59.1	4.3	49.6	6.7	22.0	16.5
Never heard of parental control service	47.4	5.5	13.9	16.5	26.0	14.8
Not convinced with the effectiveness of the service	15.3	12.3	2.1*	45.4	3.9*	43.7
The service requires payment	-	-	-	-	1.9**	62.2
Others	9.5	16.1	14.0**	56.2	1.2**	80.9
Don't know/Not sure	6.3	20.2	0.7**	77.7	11.4	24.4

Importance of Internet during coronavirus outbreak

	2022 (%)	RSE
Very important	29.9	3.1
Important	62.5	1.6
Neutral	5.1	8.8
Not important	2.4	12.9
Not very important	0.1**	63.4

Used the Internet to work from home

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	29.0	3.2	47.0	2.3
No	71.0	1.3	53.0	1.8

Time spent on the Internet to work from home

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	19.3	7.8	2.6	18.2
1 to 4 hours	30.6	5.7	20.8	5.8
5 to 8 hours	32.3	5.5	51.6	2.9
9 to 12 hours	10.0	11.4	18.0	6.3
13 to 18 hours	1.4*	32.1	2.3	19.4
More than 18 hours	2.1*	25.9	2.5	18.5
Don't know/Not sure	4.4	17.6	2.0	20.7

Used the Internet to study from home

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	79.4	1.0	71.2	1.3
No	20.6	4.0	28.8	3.2

Time spent on the Internet to study from home

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	20.6	8.8	6.1	15.0
1 to 4 hours	47.3	4.7	38.4*	4.8
5 to 8 hours	21.2	8.7	38.0	4.9
9 to 12 hours	5.6	18.5	11.5	10.5
13 to 18 hours	1.2*	40.6	1.7*	28.6
More than 18 hours	1.0*	43.8	1.9*	27.3
Don't know/Not sure	3.1*	25.0	2.4	24.4

Used video conferencing services to communicate with family or friends

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	77.9	1.1	83.0	0.9
No	22.1	3.8	17.0	4.5

Time spent on video conferencing services to communicate with family or friends

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	67.5	1.6	52.1	2.1
1 to 4 hours	26.1	3.9	38.1	2.9
5 to 8 hours	2.8	13.6	6.0	8.9
9 to 12 hours	0.6*	29.5	0.9	23.5
13 to 18 hours	0.1**	100	0.2*	49.8
More than 18 hours	0.3*	42.0	0.7*	27.5
Don't know/Not sure	2.6	14.1	2.1	15.5

Ordered groceries online, either for delivery or pick-up services

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	61.1	1.6	58.2	1.7
No	38.9	2.6	41.8	2.4

Time spent on ordering groceries online, either for delivery or pick-up services

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	72.3	2.0	60.5	2.5
1 to 4 hours	20.6	6.4	30.1	4.8
5 to 8 hours	2.7	19.8	3.4	16.9
9 to 12 hours	0.9*	35.2	1.1*	29.3
13 to 18 hours	0.2**	81.6	0.4*	46.9
More than 18 hours	0.6*	43.9	1.4*	26.9
Don't know/Not sure	2.9	19.1	3.1	17.8

Ordered food online, either for delivery or pick-up services

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	49.5	2.1	52.1	2.0
No	50.5	2.0	47.9	2.1

Time spent on ordering groceries online, either for delivery or pick-up services

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	76.4	1.6	63.6	2.1
1 to 4 hours	17.8	6.2	29.1	4.4
5 to 8 hours	1.9	20.7	2.9	16.4
9 to 12 hours	0.7*	35.2	0.9	29.3
13 to 18 hours	0.1	100	0.4	47.0
More than 18 hours	0.4*	44.0	0.9	30.5
Don't know/Not sure	2.7	17.4	2.3	18.4

Buy goods or services online

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	63.3	1.6	65.9	1.5
No	36.7	2.7	34.1	2.8

Time spent on buying goods or services online

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	70.2	1.7	58.9	2.1
1 to 4 hours	24.5	4.5	34.7	3.4
5 to 8 hours	1.6	19.9	2.2	16.7
9 to 12 hours	0.7*	31.6	0.9*	25.8
13 to 18 hours	0.2**	53.5	0.3*	47.0
More than 18 hours	0.4*	40.2	0.7*	29.2
Don't know/Not sure	2.4	16.4	2.2	16.8

Sell goods or services online

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	82.7	0.9	81.5	1.0
No	17.3	4.5	18.5	4.3

Time spent on selling goods or services online

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	50.0	4.9	38.3	6.0
1 to 4 hours	28.9	7.7	36.3	6.3
5 to 8 hours	8.0	16.6	10.9	13.6
9 to 12 hours	2.2*	33.1	4.2	22.5
13 to 18 hours	1.6*	39.0	1.8*	35.0
More than 18 hours	2.2*	32.7	3.5	24.8
Don't know/Not sure	7.2	17.6	4.9	20.9

Watched streamed video content

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	72.1	1.3	73.2	1.2
No	27.9	3.3	26.8	3.4

Time spent on watching streamed video content

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	45.9	2.6	29.0	3.7
1 to 4 hours	44.0	2.7	54.8	2.2
5 to 8 hours	4.9	10.6	10.1	7.1
9 to 12 hours	1.0	24.2	2.0	16.8
13 to 18 hours	0.3*	43.8	0.4*	36.4
More than 18 hours	0.4*	39.3	0.6*	31.3
Don't know/Not sure	3.6	12.5	3.2	13.2

Play online games

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Yes	72.7	1.2	71.8	1.3
No	27.3	3.3	28.2	3.3

Time spent on playing online games

	Before COVID-19		During COVID-19	
	2022 (%)	RSE	2022 (%)	RSE
Less than 1 hour	40.6	4.7	26.4	6.4
1 to 4 hours	45.3	4.3	53.8	3.6
5 to 8 hours	7.2	14.0	12.1	10.3
9 to 12 hours	1.3*	34.3	1.5*	31.5
13 to 18 hours	0.2**	99.9	0.4**	63.1
More than 18 hours	0.6**	51.6	0.9*	39.9
Don't know/Not sure	4.9	17.3	4.9	16.9

Do you face any of these problems when using the Internet during COVID 19 pandemic in a way that makes it hard to do the things you need to do online?

	Coverage		Speed		Reliability (Connection)		Quality	
	2022 (%)	RSE	2022 (%)	RSE	2022 (%)	RSE	2022 (%)	RSE
Yes	52.3	1.9	55.9	1.8	48.3	2.1	46.0	2.0
No	45.5	2.2	41.9	2.4	49.5	2.1	51.9	2.2
Don't know/Not sure	1.5	16.3	1.6	16.2	1.5	16.4	1.5	16.3

Biggest emotional impact of Internet usage during COVID-19

	2022 (%)	RSE
Neutral	50.2	2.0
Happy	19.2	4.2
Fun	8.2	6.8
Tired	7.8	7.0
Depressed	4.2	9.7
Stress	3.1	11.4
Anxious	2.2	13.7
Angry	1.8	15.2
Others	1.5	16.7
Passionate	1.4	17.2
Isolated	0.1**	53.4
Calm	0.1**	53.5
None of the above	0**	141.4

Multiple response

Nationality

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Malaysian	92.9	0.6	94.2	0.5	91.5	0.6	98.0	0.3
Non-Malaysian	7.1	7.4	5.8	10.1	8.5	6.5	2.0	14.4

Gender

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Female	42.6	2.4	41.0	1.8	45.7	2.2	45.0	2.3
Male	57.4	1.8	59.0	1.3	54.3	1.8	55.0	1.8

Age group

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
5-9	0.4*	32.7	0.5	21.3	0.4*	31.4	0.9	20.9
10-14	-	-	-	-	-	-	3.4	10.9
15-19	12.6	5.4	7.6	5.3	9.3	6.2	11.0	5.8
20-24	21.4	3.9	15.6	3.5	34.1	2.8	12.8	5.3
25-29	16.7	4.6	14.3	3.7	11.8	5.4	16.2	4.6
30-34	15.4	4.8	15.3	3.6	11.7	5.4	10.3	6.0
35-39	10.5	6.0	10.6	4.4	9.5	6.1	11.5	5.7
40-44	8.0	6.9	10.8	4.4	6.4	7.6	6.3	7.8
45-49	6.2	7.9	7.1	5.5	5.9	7.9	8.0	6.9
50-54	3.7	10.5	6.7	5.7	4.5	9.1	4.1	9.8
55-59	2.4	13.0	4.9	6.7	2.9	11.5	5.8	8.2
60-64	1.4	17.3	3.7	7.8	1.4	16.6	9.4	6.3
65 and above	1.2	18.7	2.8	9.0	2.0	13.8	4.8	9.0

State of residence

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Johor	11.3	5.7	11.5	5.5	9.6	6.3
Kedah	5.7	8.3	6.5	7.5	20.0	4.1
Kelantan	3.7	10.4	5.2	8.5	11.4	5.7
Melaka	3.2	11.2	2.8	11.7	15.7	4.7
Negeri Sembilan	4.1	9.9	3.3	10.7	9.7	6.2
Pahang	5.3	8.6	5.0	8.6	3.5	10.6
Perak	6.8	7.6	8.0	6.7	4.7	9.2
Perlis	0.6*	25.6	0.8	22.7	0.7	24.7
Pulau Pinang	4.8	9.1	5.6	8.2	6.0	8.1
Sabah	9.7	6.2	11.0	5.6	4.1	9.9
Sarawak	8.1	6.9	8.6	6.5	2.2	13.5
Selangor	23.8	3.7	21.5	3.8	0.8	22.3
Terengganu	3.2	11.2	4.1	9.6	2.5	12.7
W.P. Kuala Lumpur	9.1	6.5	5.6	8.1	8.4	6.8
W.P. Labuan	0.2*	43.1	0.4*	33.3	0.1**	57.5
W.P. Putrajaya	0.3*	35.4	0.3*	33.6	0.7	24.9

Urban-rural distribution

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Urban	67.2	1.4	70.0	1.0	75.6	1.1	59.8	1.7
Rural	32.8	2.9	30.0	2.3	24.4	3.5	39.0	2.6
Refused	-	-	-	-	-	-	0.8	23.1
Don't know/Not sure	-	-	-	-	-	-	0.4*	32.2

Household size

	2020 (%)	RSE	2022 (%)	RSE
0	-	-	0.3*	38.5
1	7.3	7.1	6.4	7.8
2	8.4	6.5	12.9	5.3
3	13.1	5.1	17.2	4.5
4	21.0	3.8	19.5	4.1
5	20.4	3.9	20.1	4.1
6	12.3	5.3	10.3	6.0
7	7.0	7.2	6.7	7.6
8	4.5	9.2	3.2	11.2
9	1.7	14.9	0.8	22.4
10 and above	4.3	9.3	2.5	12.6

Highest level of education

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Degree or higher (include Advanced Diploma)	19.8	4.1	26.1	2.6	23.4	3.6	30.5	3.1
Diploma	16.9	4.5	18.5	3.2	22.3	3.7	16.4	4.6
STPM/STAM/ Certificate/UEC-Senior Middle Three	9.3	6.4	7.0	5.5	6.3	7.7	4.9	9.0
SPM/SPVM	31.7	3.0	30.3	2.3	30.9	3.0	29.1	3.2
Sijil 4 Thanawi /SMA	0.2*	47.0	0.1*	50.0	0.7	22.9	0.3*	34.8
PT3/PMR/UEC-Junior Middle Three	7.6	7.1	5.7	6.2	3.7	10.1	3.5	10.8
Secondary school	9.5	6.3	6.1	6.0	6.4	7.6	6.7	7.6
Primary school	4.5	9.4	5.3	6.4	2.4	12.6	5.4	8.5
Others	-	-	-	-	0.6*	25.2	0.3*	36.2
None	0.5*	27.7	1.0	14.8	2.3	13.0	1.6	16.1

Employment

	2016 (%)	RSE	2018 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
Self employed	15.6	4.7	18.7	3.2	11.7	5.5	16.4	4.6
Employed	54.6	1.9	51.8	1.5	53.8	1.8	49.1	2.1
Unemployed	10.4	6.0	12.0	4.1	11.6	5.5	18.2	4.3
Full time student	17.1	4.5	12.1	4.1	20.5	3.9	7.8	7.0
Retired	2.2	13.6	5.5	6.3	2.3	12.9	8.1	6.9

Current full time students educational status

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
College/University	67.4	3.4	79.9	2.2	70.7	4.7
Secondary school	31.6	7.3	11.0	12.5	21.6	13.9
Primary school	0.9**	52.2	0.2**	63.1	7.5*	25.7

Average monthly income category

	2016 (%)	RSE	2020 (%)	RSE	2022 (%)	RSE
RM1,000 and below	15.9	5.8	34.1	2.8	29.7	3.1
RM1,001 - RM3,000	51.9	2.7	37.1	2.6	34.3	2.8
RM3,001 - RM5,000	19.7	5.2	11.5	5.5	17.9	4.4
Above RM5,000	12.5	6.7	7.4	7.0	11.6	5.6
Refused	-	-	10.0	5.9	6.4	7.8

Predictive Analysis

Variable Description

Variable	Description
Gender	Gender of Internet user. Values include: Male, Female
Ethnicity	Ethnicity of Internet user. Values include: Malay, Bumiputera Sabah/Sarawak, Chinese, Indian, Others/ Foreigner
Employment	Employment status of Internet user. Values include: Employed, Self employed, Unemployed, Retired, Full time student
Hotspot	Status of whether the Internet user has ever used personal hotspot.Values include: Yes, No
Duration of daily use of Internet	Duration of daily use of the Internet in hours. Values include: less than 4 hours, 5 to 8 hours, 9 to 12 hours, 13 to 18 hours,more than 18 hours
Online shopping	Whether an Internet user does online shopping.Values include: Yes and No
Experienced with cybercrime	Whether a user has previously experienced any form of cybercrimeValues include: Yes and No
Data security by external organisations	Whether a user perceives that their data is kept secured by any organisations (government, non-government & service providers) Values include: Yes, No, Neutral, Don't know/Not sure
Sharing content online	Whether a user has shared contents onlineValues include: Yes and No
Years of experience with Internet use	The number of years a user has been using the Internet Values include: 1 to 3 years, 3 to 5 years, 5 to 7 years, 7 to 10 years, 10 to 15years, More than 15 years and Don't know/Not sure
Home	Whether a user accesses Internet from homeValues include: Yes and No
Type of broadband used	The type of broadband an Internet user uses Values include: Fixed, Mobile, Both and Neither
Online government services	Whether an Internet user uses online government servicesValues include: Yes and No
Sell goods and services online	Whether an Internet user sells goods and services onlineValues include: Yes and No
Cloud storage	Whether an Internet user uses cloud storageValues include: Yes and No
Facebook	Whether an Internet user owns a Facebook accountValues include: Yes and No
Twitter	Whether an Internet user owns a Twitter accountValues include: Yes and No
LinkedIn	Whether an Internet user owns a LinkedIn accountValues include: Yes and No
Instagram	Whether an Internet user owns an Instagram accountValues include: Yes and No
Youtube	Whether an Internet user owns a Youtube accountValues include: Yes and No
TikTok	Whether an Internet user owns a TikTok account Values include: Yes and No
Feeling secure online	Whether an Internet user feels secure online Values include: Secure, Not secure and Don't know/Not sure

Variable	Description
Region	The region of an Internet user's state of residence. Values include: Central (Selangor, Kuala Lumpur, Putrajaya, Negeri Sembilan), North (Perlis, Kedah, Pulau Pinang, Perak), East Coast (Kelantan, Terengganu, Pahang), South (Melaka, Johor), East (Sarawak, Labuan, Sabah)

Model Coefficients

Predict likelihood of sharing content online

Independent variables	Coefficient	Odds Ratio
Intercept	-2.2926***	0.1010***
Experienced with cybercrime		
Yes(compared to No)	0.7429***	2.1021***
Hotspot		
Yes (compared to No)	0.7998***	2.2252***
Online shopping		
Yes (compared to No)	0.7545***	2.1265***
Duration of daily use of Internet		
More than 4 hours (compared to Less than 4 hours)	0.4412 ***	1.5545 ***
Employment		
Self employed (compared to Employed)	0.2508	1.2850
Unemployed (compared to Employed)	-0.0028	0.9972
Retired (compared to Employed)	0.0240	1.0243
Full time student (compared to Employed)	0.0771	1.0801

* Significant **Very significant ***Extremely significant

Predict likelihood of feeling secure online

Independent variables	Coefficient	Odds Ratio
Intercept	-0.0787	0.9243
Share content online		
Yes(compared to No)	0.2398**	1.2710**
Data security by external organisations		
Yes (compared to No)	-1.8928***	0.1507***
Neutral (compared to No)	-0.8991***	0.4069***
Don't know/Not sure (compared to No)	-1.2020***	0.3006***
Experienced with cybercrime		
Yes(compared to No)	0.8005***	2.2267***
Ethnicity		
Chinese (compared to Malay)	0.5925***	1.8085***
Indian (compared to Malay)	-0.1286	0.8793
Bumiputera Sabah / Sarawak (compared to Malay)	0.3924 **	1.4806
Other	-0.8908*	0.4103*
Gender		
Male (compared to Female)	-0.5694***	0.5659**
Employment		
Employed (compare to Unemployed)	0.2625	1.3001
Self-employed (compare to Unemployed)	0.0751	1.0780
Full-time student (compare to Unemployed)	0.3647	1.4401
Retired (compare to Unemployed)	0.2634	1.3013

* Significant **Very significant ***Extremely significant

Predict likelihood of experiencing cyberbullying

Independent variables	Coefficient	Odds Ratio
Intercept	3.7668 ***	43.2396 ***
Years of experience with Internet use		
5 to 10 years (Less than 5 years)	0.1857	1.2041
More than 10 years (Less than 5 years)	0.0887	1.0928
Duration of daily use of Internet		
4 to 8 hours (compared to Less than 4 hours)	0.2138 *	1.2384 *
More than 8 hours (compared to Less than 4 hours)	0.7671 ***	2.1536 ***
Type of broadband		
Mobile (compared to Fixed)	0.2104 *	1.2341 *
Both (compared to Fixed)	0.2098	1.2334
Neither (compared to Fixed)	0.7564 * *	2.1306 *
Sells goods and services online		
Yes (compared to No)	0.9006***	0.3649***
Facebook		
Yes (compared to No)	0.0701	1.0726
Twitter		
Yes (compared to No)	0.5471***	1.7282***
LinkedIn		
Yes (compared to No)	1.3012***	3.6735***
Instagram		
Yes (compared to No)	-0.2415 *	0.7854 *
Youtube		
Yes (compared to No)	-1.9128***	0.1477***
WhatsApp		
Yes (compared to No)	-1.7602 ***	0.1720 ***
Telegram		
Yes (compared to No)	-0.0407	0.9601
WeChat		
Yes (compared to No)	0.4396 **	1.5521 **
Share content online		
Yes (compared to No)	-0.6056 ***	0.5457 ***
Ethnicity		
Chinese (compared to Malay)	0.3786 **	1.4603 **
Indian (compared to Malay)	1.6256 ***	5.0815 ***
Bumiputera Sabah/Sarawak (compared to Malay)	1.0353 ***	2.8159 ***
Other (compared to Malay)	0.5098	1.6649

Independent variables	Coefficient	Odds Ratio
Region		
East (compared to Central)	0.0254	1.0257
East coast (compared to Central)	-0.0343	0.9663
North (compared to Central)	0.4598***	1.5838***
South (compared to Central)	-0.4735***	0.6228***
Region		
East (compared to Central)	-0.1399	0.8694

* Significant **Very significant ***Extremely significant

Tables and Figures