2019
Internet Usage Trends in Macao
(Abstract)

澳門互聯網研究學會
Macao Association for Internet Research

The data in this report are the accumulated research results from the "The Macao Internet Project" (MIP) conducted by Macao Association for Internet Research (MAIR) and eRS e-Research Lab. For citation, please follow the format below: Macao Association for Internet Research (2019). *Internet Usage Trends in Macao 2019*. Macao: MAIR.

Know more about MAIR and MIP:

www.macaointernetproject.net

Major Indicators

After consistently investigating the Internet usage and the technological environment for information and communication in Macao for 19 years, Macao Association for Internet Research completed "Internet Usage Trends in Macao 2019" to demonstrate the development and trends of Internet usage in Macao.

The survey of 2019 was conducted from 21st January - 20th February. 1,000 eligible Macao residents aged from 6 to 84 were successfully interviewed using CATI system. With the reference of demographic data from the government, the survey results have been weighed according to the gender and age.

The sampling error is ±3.16% at the confidence level of 95%. The response rate (AAPOR-RR3) is 35% and the cooperation rate (AAPOR-CR3) is 66%.

			Ratio in residents	Ratio in netizens	Ratio in households
The Internet use		Internet penetration rate	89%	-	-
		The mobile Internet rate	87%	98%	-
The Internet usage pattern	Computer ownership rate	Computer	-	-	86%
		Desktop	-	-	61%
		Laptop	-	-	65%
		Tablet	-	-	60%
	Internet connection devices (Top 3)	Mobile Phone	87%	98%	-
		Desktop	61%	69%	-
		Laptop	59%	66%	-
	Internet using places (Top 3)	Home	82%	92%	-
		Workplace	34%	38%	-
		Any place	32%	36%	-
	Internet connection methods (Top 2)	Broadband/Fiber Broadband	75%	84%	-
		Wireless	66%	74%	-
	Internet using places (hour/week)		26.6		

			Ratio in residents	Ratio in netizens
Internet Activity	Social Communication	WeChat	83%	93% (mobile netizens 95%)
		Facebook	64%	71%
		Snapchat	11%	12%
		Instagram	35%	39%
		Forum	33%	37%
		Live streaming	11%	13%
		Social groups	65%	73%
	News and Information	Watching movies/ videos	78%	87%
		YouTube	68%	77%
		Douyin	18%	20%
		Reading News	74%	84%
		Reposting news / comments / messages	41%	46%
	Commerce and Shopping	Online shopping (adults)	50%	63%
		Online payment (adults)	52%	65%
		Mobile payment (adults)	33%	38%
		Online financing/ banking	48%	54%
	Online Services	E-government (adults)	48%	54%
		Online booking	44%	49%
		Car-hailing	26%	29%
		Query for merchant or restaurant information on mobile APP	64%	72%

			Ratio in residents	Ratio in netizens
Internet privacy	Evaluation of Internet privacy in Macao	Evaluating the Internet privacy in Macao as"safe"	41%	46%
		Have been through Internet privacy violation	24%	27%
	Protection of Internet privacy	Using free Wi-Fi in public places	60%	68%
		Knowing that Cookie records the behavior of the users	44%	50%
		Choosing "go on" when Cookie prompt appears	38%	42%
	Protection of personal information when using APP	Reading privacy statement	39%	43%
		Giving up APP download if personal information is needed	69%	77%
		Worrying about phone data being stolen	67%	75%
		Worrying the third party access to personal data	76%	85%
	The information that is willing to provide (Top 3)	Phone number	34%	38%
		Mobile phone location/location information	28%	31%
		Identity information	21%	23%
	Willingness to use personal information exchange for services	Being willing to use personal information exchange for services	10%	12%

			Ratio in residents	Ratio in mobile netizens
Mobile phone ownership		Mobile phone ownership	93%	-
		Smartphone ownership	87%	-
Mobile phone use		Mobile phone usage	97%	-
		Mobile phone using duration(min/day)	200.9	
	APP use	Using mobile APP	81%	93% (mobile netizens)
	The most commonly used mobile phone APP (Top 3)	WeChat	67%	77% (mobile netizens)
		Facebook	33%	38% (mobile netizens)
		YouTube	25%	29% (mobile netizens)
Mobile phone dependence	Mobile phone dependence status	Admitting that mobile phone dependence has been formed	33%	36%
		Admitting that mobile phone dependence is a normal phenomenon	49%	53%
		The maximum duration without using mobile phone (minute)	600.2	
		Total points of mobile phone dependence	40.5	
	Degree of mobile phone dependence	Normal level	74%	76%
		Warning level	23%	24%
		Dangerous level	0%	0%

The Internet Penetration Rate

- The Internet penetration rate and user scale in Macao continue to grow steadily.
- The Internet usage by middle-aged and elderly people aged over 40 has been the main driving force for the growth of Internet penetration rate.
- Entertainment is the main purpose for Internet using. The lack of relevant skills is the biggest obstacle that hinders non-users from surfing the Internet.

Internet Usage

- Households have a higher computer owning rate. The owning rates of desktop, laptop and tablet are similar.
- The owning rates of mobile phone and smartphone have remained stable at a high level in recent years. The ratio of netizens surfing online in public places anytime and anywhere has increased significantly in recent years, both showing the trend of mobile use of the Internet.
- Broadband/fiber broadband is still the main way of Internet-connection. The usage rate of wireless network has declined, slightly lower than that of broadband/fiber broadband.
- The main period of Internet use is at night. There is an obvious upward trend in day Internet usage rate, compared to ten years ago.

Online Activities

- Social Communication
  - The usage rate of WeChat keeps growing and the user stickiness of WeChat is also strong.
  - In addition to WeChat, the usage rate of Facebook among the residents is also high, followed by Instagram, and usage rate of Snapchat is relatively low. Young netizens have a relatively high usage rate of Instagram and Snapchat.
  - Netizens discussing with other people in social groups has become more and more common. Neitzens also use forums. The rate of live streaming is relatively low.
- News and Information
  - The ratio of netizens reading news and reposting news/comments/messages online has increased.
  - Netizens watching videos/movies online and using YouTube has become more common; the popularity of Douyin in netizens is in the initial stage.
- Commerce and Shopping
  - The rate of online shopping and online payment among adult netizens are 63% and 65% respectively. The prevailing way of online payment is still credit card/bank card.
  - The rate of mobile payment among adult netizens is higher than that of expressing a willingness to use mobile payment, thus there is still room for the development of mobile payment in Macao. At present, the security issue is a concern for adult netizens to decide whether to use mobile payment.
- Online Services
  - The rates of e-government affairs, online booking, car-hailing, and online financing/banking present an upward trend, indicating that offline services are gradually expanding online.

Internet Privacy

- The evaluation of Internet privacy in Macao
  - 46% of netizens evaluated the Internet privacy in Macao as "safe".
  - The ratio of netizens thinking that they have been through invasion of Internet privacy is similar to that of last year.
- The protection of Internet privacy
  - Netizens maintain a cautious attitude towards their online privacy for personal data. 77% of netizens had the experience of giving up the download of apps due to personal data was required. The ratio of those worrying that their mobile phone data and personal data will be stolen is high. The ratio of being willing to provide phone number, mobile phone location/location information, and personal identification data is relatively low.
  - Netizens sometimes do not realize that their online behavior has security concerns. Many netizens use free public Wi-Fi, some of them said they will use as long as it's free Wi-Fi. 50% of netizens know that some websites use cookies to record user behavior, and 43% of netizens will read the privacy statement when using Apps.

Mobile Phone Usage

- Phone usage time
  - Mobile phone users use mobile phones for an average of more than 3 hours a day.
- App usage
  - The most commonly used mobile apps by mobile netizens are WeChat, Facebook, and YouTube.
- Mobile phone-dependence
  - 36% of the mobile phone users agree that they have formed the mobile phone-dependence; 53% of the mobile phone users agree that mobile phone-dependence is a common phenomenon.
  - The mobile phone users' mobile phone dependence scale has an average total score of 40.5 (full mark is 100), which is at the normal level (20-49).
  - 76% of mobile phone users have a normal level of mobile phone-dependence, 24% are at the warning level (50-79), and the ratio of mobile phone users within the dangerous level (80-100) is close to zero.

Conclusion

3.1 Middle-aged and elderly people become the main force of Internet users

Through the past years of development of Macao Internet, the Internet penetration rate of Macao residents has continued to rise steadily in 2019. The Internet penetration rate has risen from 33% in 2001 to 89% in 2019, which is above the global average of 55% and the Asian average of 52%, and is even above the European average of 87%. When compared to Japan(94%) and South Korea(92%), which are ahead of the Asian Internet penetration rate, the gaps are even smaller.

The total number of netizens in Macao has reached 0.55 million. All of the younger adults are netizens. The Internet penetration rate among middle-aged and elderly Macao residents has risen significantly in recent years. The netizens aged 41 to 50(82% in 2017) have risen 14 percentage points to 96%, the netizens aged 51 to 60(63% in 2017) have risen 23 percentage points to 86%, the netizens aged over 60(28% in 2017) have risen 23 percentage points to 51%. It shows that the groups aged over 40 have become the main growth point in Internet usage.

Internet usage in Macao in recent years has shown a strong mobile trend. The mobile Internet rate of 87% is close to the general Internet penetration rate(89%). Almost all netizens online via mobile phones, which are related to the popularity of smartphones. From the perspective of the popularity of mobile devices, 93% of residents own mobile phones and 87% own smartphones. Under the background of high equipment ownership rate, the mobile phone has become the most primary device of Internet access. The Internet rate of mobile has exceeded other devices since 2013, showing the device of Internet access has shifted from desktops to mobile phones. Compared with 2009, in addition to the fixed indoor locations(home, school, work place, etc.), 36% of netizens also use the Internet anytime and anywhere, and the rate has been on the rise in recent years. Regarding the usage period, there is an overall upward trend in both day and night internet usage rate compared to that of ten years ago, especially the former. With the growing trend concerning mobile internet usage, the time limit for netizens to access to the Internet has also been weakened, and the usage pattern of netizens has changed.

The insight to society: Actively helping the elderly groups learn to surf the Internet

All of the younger adults are netizens, and the elderly groups have become the main target of the Internet's popularization and development. The survey shows that about 60% of the elders aged over 60 do not surf the internet. In the face of new science and technology, the elder people learning speed may not be as good as young people. This is necessary to pay attention and to consider adding special funding projects for training courses of mobile phones, computers and other kinds of equipment use, and provide free electronic equipment for the elders in cultural or educational places, so that the elders can enjoy the achievement of Internet and information technology development.

The insight to the government: Improving the quality of free Wi-Fi service

In addition, in the era of mobile Internet, the scenes of residents and tourists accessing to the Internet gradually increase, which is a sign of demand for further development of the smart city. Therefore, the government should further enhance the quality of the free Wi-Fi service. On one hand, free Wi-Fi service points can be set up in more public places and tourist attractions. On the other hand, the government should pay attention to the connection speed of free Wi-Fi to optimize the service.

3.2 WeChat becomes the most widely used social platform

With the popularity of the Internet and smartphones, information communication has become more and more convenient. Social communication has become one of the important online activities of netizens. Among all social platforms, WeChat has the highest usage rate. The residents' usage rate of WeChat is 83%, which has increased by nearly 40 percentage points compared with 2013. Mobile netizens' usage rate of WeChat is up to 95%, almost all mobile netizens use WeChat. 87% of mobile netizens use WeChat every day. WeChat users use WeChat for more than one hour every day. It shows that WeChat has become a popular social platform for Macao residents, and WeChat has high popularity and high stickiness in Macao.

Compared with WeChat, Facebook also has high popularity among other social platforms. 64% of residents(71% of netizens) use Facebook, only second to WeChat. In addition, 39% of netizens use Instagram and 12% of netizens use Snapchat. Both are lower than the former two. Among different groups of people, the groups aged 18 to 34 and student netizens have higher rates in using Instagram(67%, 59%) and Snapchat(16%, 16%), showing the acceptance of Instagram and Snapchat by young and student netizens is relatively high. The people aged 55 or above has much higher rate in the use of WeChat(89%) than social applications such as Facebook(39%), Instagram(5%) and Snapchat(6%), showing the elderly netizens' choice in social applications is more inclined to WeChat.

The high usage rate of social platforms is closely related to the active level of opinions expressed by netizens. After choosing a social platform, netizens will discuss a wide range of topics on the Internet and public opinions online will follow. The data show that 73% of netizens will discuss with others in social groups, and 37% of netizens use forums. Therefore, internet social platforms become important channels for public opinion expression, and the intensity and representativeness of public opinion online are improving.

The insight to the society: Making full use of WeChat platform advantages

The WeChat usage rate of residents has risen again, and WeChat has become the most popular social platform for netizens to rely on and reaching their audiences. In addition to a considerable user scale, communications, reading, and payment services are integrated into the WeChat platform to cater to the needs of users for the efficiency, immediacy and simplicity of social platforms. At present, WeChat is not only a tool but also a lifestyle. Therefore, we can consider using WeChat as a channel for information dissemination in government, business and school affairs. The information goes directly to the public and achieves the purpose of dissemination and communication.

The insight to the government: Need to pay attention to and actively explore public opinion online

With the development of the Internet, including the growing number of users and the expansion of website functions, the threshold for netizens to express their opinions on public affairs and to participate in political discussion is further reduced, and the public opinion online becomes more active. Netizens can assemble themselves into an opinion group with the power of speech and action. Therefore, the government needs to pay attention to public opinion online, explore the public opinion online by scientific methods, and using it as an important reference to achieve scientific decision-making.

3.3 Offline services further expand online

The Internet can provide an increasing number of services, and the transformation of offline services to online services is becoming an important trend. At present, netizens can handle various types of industry services such as finance, hotel, catering, retail, transportation, logistics, medical care, government affairs or other personal services online. Among the various services, 54% of netizens use online financing/banking services, with an increase of 33 percentage points over 2006(21%); the ratio of netizens using online booking services has increased by 34 percentage points from 2016(15%) to 49%; the ratio of car-hailing service has increased by 24 percentage points from 2016(5%) to 29%. It can be seen that the ratio of the use of various services by netizens on the Internet has improved to varying degrees, and further demands have been placed on the opening of online services of various institutions.

In terms of online shopping, about half of the adult netizens have shopped online from 2015 to 2018. In 2019, 63% of the adult netizens have shopped online, with a ratio of more than 60%, up from last year(52%). It shows the increased popularity of online shopping in Macao. The ratio of online shopping among adult netizens of different ages, education levels and identities shows big differences. Online shopping groups show that younger and higher education demographics do more online shopping. Through the in-depth analysis of online shopping categories, the ratio of adult netizens buying textiles/clothing/shirts and socks, skin care/daily necessities, household products/crafts, food and electronic products is relatively high. It can be seen that the current sales channels of various industries are gradually expanding online, transforming from the previous single offline store sales to online + offline channels combination which makes shopping more convenient.

In addition, the ratio of adult netizens using e-government increased by 11 percentage points from 43% in 2017 to 54%. The netizens who have used e-government scored 64.9 average points on e-government satisfaction level, which is more than the middle level of 50 points. It can be seen that adult netizens are relatively satisfied with the e-government of Macao, but there is still room for further improvement.

The insight to the society: The fully implementation of smart city is conducted with realistic needs

The construction of smart city is closely related to the development of information technology represented by the Internet. The Internet penetration rate in Macao has been steadily increasing, gradually covering different groups of the society. At the same time, the construction of information network infrastructure in Macao is constantly developing. Universal Internet penetration and multi-mode Internet access have become a trend. The Internet plays an irreplaceable role in connecting people, equipment and information to provide a broad application base for the development of smart city in Macao.

Mobile Internet access increases the Internet application scenarios, and makes online and offline more connected. The smart city application has the possibility of being fully implemented. More residents have generated demands for smart city application, and actively obtain smart city applications by connecting to the Internet. Therefore, the improvement of mobile Internet usage rate creates a great opportunity for the further development of smart city. The development of the smart city in Macao will be more rapid and perfect.

The insight to the government: The need for "E-government" to focus on the mobile terminal

At present, mobile Internet is popular, and the mobile terminal is the most accessible channel for residents. In recent years, netizens have gradually accepted and have used various types of online services. Among them, the usage rate of e-government is steadily rising. While understanding the needs of residents, government departments also need to improve the scope and quality of e-government services and encourage residents who have not used e-services. At the same time, the government needs to pay attention to the development of e-government on mobile terminals. It may consider using WeChat for it is the most accessible to residents, and may use WeChat as a tool for the integration of "information communication + e-government", so that government information can be directly transmitted to the public through WeChat.

3.4 Mobile payment ratio rises rapidly

Macao has always been committed to promoting the development of mobile payment for providing residents and visitors with a more convenient and secure payment experience, and promoting the development of e-commerce. The data show that the ratio of mobile payment by adult netizens in Macao increased from 19% in 2018 to 38% in 2019. The usage rate has doubled compared with last year, but the user scale is still relatively small, and the penetration rate still needs to be improved.

In this study, there is a gap between the ratio of adult netizens using mobile phone payments and the ratio of willingness to use mobile payment. 65% of adult netizens expressed their willingness to use mobile payment in Macao, which is quite different from the current usage rate(38%). It can be seen that mobile payment has great potential for development in Macao.

The security issue is one of the biggest obstacles that keeps Macao residents from using mobile payment. 75% of adult netizens thought relevant security policy in Macao needs improvement. Among the adult netizens who do not use mobile payment, most people said that they do not use mobile payment because they are "worried about network security"(22%). In addition to the security issue, the fixed habits of using cash, barriers to cross-border settlement, and bank card binding policies are also hindering the development of mobile payment in Macao.

The insight to the government and enterprises:
Enhancing promotion work and improving safety and security policies

Promoting mobile payment can facilitate the daily life of residents, and at the same time help to economize manpower for merchants. On one hand, related units need to enhance the promotion of mobile payment, build bridges between major payment platforms and offline physical stores to expand the coverage of mobile payment, increase residents' awareness of mobile payment through publicity and education. On the other hand, more efforts should be made in improving security policy of mobile payment to guarantee the safety of personal data and assets as well as to dispel people's scruples about mobile payment. Then the development of mobile payment can support the development of e-commerce in Macao.

3.5 Netizens are worried about the network privacy

The popularity of the Internet is constantly increasing. The data generated by netizens' online behaviors, such as search content, browsing preferences, and even travel habits, may be collected, processed, and transferred by some service providers in an automated manner. The resulting network privacy issues need to attract attention from all walks of life. The results show that 46% of the users evaluated the Internet privacy in Macao as "safe" while 39% regarded it as "unsafe". The ratio of the former has increased compared with 2018(39%). But the ratio of netizens worrying about the security of Macao's network privacy is still relatively high. In addition, 27% of the netizens think that they have been through violation of Internet privacy, similar to 2018(29%).

The development of mobile Internet has made the functions of mobile phones more and more abundant. Some mobile Apps need to collect personal information of users, such as address book, phone number, social media account, photos, location information, etc. The results show that 77% of netizens have given up the download of Apps because it needs to input personal data; 75% of netizens are worried that mobile phone data will be stolen; 85% of netizens are worried that their personal data will be obtained by the third parties, and the ratio is relatively high. In addition, when downloading Apps by mobile phones, 43% of the netizens said they would read the privacy statement, the ratio is relatively low. Netizens can exchange for more services by providing personal information to service providers when they surf online. However, this may also result in the risk of disclosure of personal data. 84% of netizens expressed their reluctance to use personal information in exchange for online services. When using Apps or online services, netizens are not willing to provide all kinds of personal information, including phone number(38%), mobile phone location/location information(31%), personal identification data (23%), mobile phone address book/call records(12%), ID card information(4%), and bank account/credit card information(4%). It can be seen that Macao netizens are more cautious in providing personal data when downloading and using Apps, but there are also many netizens who do not read the content of the App's privacy statement, which may lead to unnecessary disclosure of personal data.

Some online behaviors have security concerns, but due to cognition deficiency or information asymmetry, netizens may not be aware of the existence of risks.

According to the study, 68% of netizens use free Wi-Fi in public places, 36% of which only connect to Wi-Fi with passwords or trusted merchants, and 32% said that they will connect as long as it is free Wi-Fi. The connection of unknown Wi-Fi hotspots or unencrypted Wi-Fi may result in personal data being stolen from unscrupulous people. It is obvious that some netizens lack the security awareness in the use of free public Wi-Fi.

In addition, when netizens browse websites, some websites create a cookie file for the visitor's visit behavior and store the browsing information of the viewer, so as to provide a more convenient network user experience. When the cookie is enabled, the website can keep the user in the login state, remember the user's website preferences and provide users with contents relevant to their locations. The research results show that nearly 50% of netizens do not know that websites use cookies to record user behavior or do not know what cookies are, showing that some netizens have insufficient recognition of cookies. Cookie recording user behavior can bring users a personalized and accurate experience, but at the same time, it also brings the risk of personal privacy leakage. Therefore, the popularity of the concept of cookies allows the majority of netizens to further understand it. It will promote the safe use of the Internet.

The insight to residents: Strengthening the awareness of privacy protection

In the era of continuous development of the Internet and increased penetration of personal Internet connections, the value of personal online activity data has increased, which may also lead to data theft and even data abuse. At present, netizens are more concerned about the security of personal data. They are also cautious about the service providers' access to personal information such as their own phone numbers and identity information. However, during the actual use of the Internet, the attention to privacy security issues when using free public Wi-Fi and downloading Apps needs to be improved. Netizens need to strengthen their awareness of privacy protection, read the terms of service carefully when using online services, carefully review the information they share, and avoid using unsafe public Wi-Fi hotspots.

3.6 Need to establish the correct concept of mobile phone use

With the rapid development of mobile Internet and the increasing functionality of smartphones, mobile phones are playing an increasingly important role in the lives of residents. However, the use of mobile phones for too long, the lack of control over the use of mobile phones, and the difficulty of distracting attention from mobile phones to other places will cause over-dependence on mobile phones, affecting residents' physical/mental health and good living habits, such as bad time management, indulging in mobile games, social phobias, etc.

The results show that 53% of the mobile phone users agreed that mobile phone dependence is a normal phenomenon; 36% of the mobile phone users agreed that they have become mobile phone-dependent. According to the comprehensive calculation of the mobile phone dependence scale(normal level: 20-49, warning level: 50-79, dangerous level: 80-100) compiled as per the reference of this study, the average total score of mobile phone users is 40.5, within the normal level of 20-49. From the point of view of score distribution, 76% of mobile phone users scored within the normal level, 24% of mobile phone users scored within the warning level of 50-79, and the ratio of mobile phone users within the dangerous level of 80-100 is close to zero. Mobile phone users with different demographic characteristics have an average score of 50 or less, which is at a normal level. Mobile phone users(46.1) aged 18-34 and students(44.7) have relatively high scores, which is closer to the warning level. It can be seen that the mobile phone users in Macao are generally at a normal level of mobile phone-dependence, but there is still a certain percentage of users whose mobile phone-dependence is close to or at a warning level. Among them, the score of mobile phone users of student groups is most worthy of attention. Educators and parents or guardians of students should review the current situation, conduct in-depth communication and correct guidance on the use of mobile phones.

The insight to residents: Establishing the correct concept of mobile phone use

At present, mobile phones are widely used. Residents can conduct social activities, shopping, payment, information browsing and other activities through mobile phones. Residents' dependence on mobile phones may increase. Therefore, it is necessary to establish a correct concept of mobile phone use to avoid over-dependence on mobile phones that affects daily life. An intuitive reflection of over-dependence on mobile phones is the loss of control in time management. Therefore, it is necessary to strengthen time management planning, enhance self-control ability, and manage related mobile phone applications to reduce unnecessary notifications of mobile phone Apps, so as to ensure the effectiveness of time planning. In addition, mobile phones are reshaping the current entertainment social communication form. It is also common for residents to use various entertainment social applications and websites on mobile phones. Over-dependence on mobile phones may also lead to excessive attention to online social communication and less interest in real life, which influence the formation of sound personality. Therefore, it is necessary to pay attention to social interaction in real life, and to cultivate hobbies extensively, to avoid excessive concentration of entertainment and social activities on various mobile phone applications. To complement the entertainment social function of the mobile phone with the entertainment social in real life helps to cultivate a positive attitude towards life.

澳門互聯網研究學會
Macao Association for Internet Research

www.macaointernetproject.net　　WeChat: macaointernetproject