

10

MEDIA, COMMUNICATIONS AND INFORMATION TECHNOLOGY



Media, Communications and Information Technology

Macao enjoys freedom of the press, freedom of speech and freedom of publishing. Despite being relatively small, it has a sophisticated and well-developed media industry.

The Government strives to enhance the transparency of its administration and facilitate communication and dialogue with the media. This enables government messages to be delivered to the public promptly and accurately, and provides a wide range of information via the media. Furthermore, the Government expects the media to act as a watchdog, continually prompting every government department to improve its work and provide better-quality services to the community.

Macao's laws protect the rights of journalists to gather and receive news and information, and to report it, ensuring their journalistic independence.

Mass Media

Electronic Media

Macao has one free-to-air TV station, two radio stations and one cable TV station, as well as three locally based satellite TV stations.

Teledifusao de Macau (Macau Broadcasting Company, TDM) began providing a public broadcasting service in February 1988. Digital broadcasting commenced in 2008. Currently, both analogue broadcasting and digital broadcasting are available. The 13 digital channels include the two round-the-clock channels (Chinese and Portuguese), sports, information, high definition (HD), TDM Entertainment, Macao Radio, CCTV-13, CCTV-1, CGTN, CGTN Documentary, Fujian TV Station Haixia Satellite Channel and Hunan TV World.

Radio Macau, a subsidiary of TDM, and the privately owned Radio Vila-Verde (Green Village) are Macao's two radio stations. Both broadcast 24 hours a day. The Radio Macau features two channels: one in Chinese, the other in Portuguese.

Macao Cable TV has been broadcasting since July 2000, and offers 97 channels (73 basic channels, 15 premium channels, five test channels, and two dedicated hotel channels); each is aired 24 hours per day.

MSTV Satellite TV Company Limited – originally known as the Cosmos Satellite Television Company, which was the first operator to be granted a licence to provide satellite television services in Macao – now offers the MSTV's News Channel, broadcasting 24 hours a day.

The Chinese channel of the MASTV Company began operations in June 2001. It broadcasts 24 hours a day.

On 2 December 2008, Macao Lotus Satellite TV Media Limited was granted a 15-year licence to provide satellite television services in Macao. It started its broadcasting service on 1 January 2009, on its Macao Lotus TV 24-hour channel.

Print Media

The history of Macao's newspaper industry can be traced back over 100 years. From 1839 to 1840, while enforcing the opium ban in Guangdong, Lin Zexu commissioned a selective translation of the English *Macao Monthly* and, for administrative purposes, published *Journal News of Macao* in Guangzhou. On 18 July 1893, Dr Sun Yat Sen and a Macanese named Francisco H. Fernandes worked together and founded *Echo Macanese*, which was published in Chinese and Portuguese. On 22 February 1897, Kang Youwei and Liang Qichao founded *The Reformer China*. After the 1911 Revolution in China, Macao's Chinese newspapers began to flourish. Several newspapers, such as *Ao Men Shi Bao* (Macao Times), *Hao Jing Wan Bao* (Oyster Mirror Evening Post), *Ao Men Tong Bao* (Macao Bulletin), and *Hao Jing Ri Bao* (Oyster Mirror Daily), were founded at this time.

Macao has 17 Chinese-language daily newspapers, which currently print a total of 200,000 copies each day. Macao also has several Chinese-language weeklies.

Portuguese daily newspapers have an even longer history than the Chinese dailies. In 1822, *Abelha da China*, the first-ever daily in China, was founded and published in Portuguese. Other early-founded Portuguese papers founded in Macao include *Gazeta de Macau* (Macao Gazette), *Imparcial* (The Impartial), and *Correio de Macau* (Macao Post). Macao currently has three Portuguese dailies. There are two Portuguese-language and two English-language weeklies.

There are two English-language daily newspapers in Macao.

Daily newspapers and magazines published in Hong Kong, mainland China and overseas are also available in Macao. In addition, Macao residents also enjoy access to radio and TV programmes made in Hong Kong and mainland China.

Media Stationed in Macao

Xinhua News Agency and Lusa-Portuguese News Agency have branches or representative offices in Macao. People's Daily and China News Service (CNS) have branches in Macao. Other media organisations with accredited correspondents in the territory include China National Radio (CNR); China Radio International (CRI); the State Administration of Radio, Film and Television; Wen Hui Bao (Shanghai); Hong Kong Economic Journal (HKEJ); EyePress News; Radio Television Hong Kong (RTHK); Wen Wei Po; Television Broadcasts Limited, Hong Kong (TVB); Hong Kong Cable Television; and Phoenix Television.

Press Associations

The press associations in Macao include the Macao Chinese Media Workers Association, the Macao Journalists Club, the Macao Journalists Association, the Macao Media Club, the Macao Sports Press Association, and the Macao Portuguese and English Press Association.

Government Information Bureau

The Government Information Bureau (GCS) is a bureau-level administrative entity under the

supervision of the Chief Executive. It assists government departments and the media by coordinating and conducting research regarding public communication, disseminating government information and arranging media interviews.

The GCS regularly publishes *Macao Magazine*, the *Macao Information* booklet and the *Macao Yearbook* in Chinese, Portuguese and English; and is gradually increasing the release of new information through new media and mobile networks.

The GCS is committed to expanding its services in social media and other new media, offering a variety of information to the media and the general public, including the Macao Gov News mobile app, an official Macao Gov Info WeChat account, a YouTube channel, a Facebook page, a Telegram channel, an Instagram account, MSAR Release Weibo and Wechat accounts, and a Toutiao account Macaugscn, which is published in Macao and the Greater Bay Area. *Macao Yearbook* and *Macao Magazine* are published in Chinese, English and Portuguese, and are available through websites and mobile applications allowing readers to browse information.

As at 31 December 2020, the GCS Facebook Page had 47,720 followers. A total of 6,597 posts was published in 2020.

The GCS re-registered its official Wechat account Macao Gov Info and obtained official account certification in April 2019. In 2020, the number of followers soared to 30,108. Macao Gov Info published a total of 1,385 posts in 2020. Compared with the figures in 2019, the total page views soared, reaching over two million.

During the epidemic, the general public had an increasing demand for information. The publication frequencies of the official Wechat account in mainland China, Weibo official account and Toutiao account of the GCS increased. There was notable growth in the numbers of subscriptions and views recorded.

Among them, number of subscriptions for the official Wechat account increased from around 17,000 to 60,000, with a growth rate at 251 percent. By the end of 2020, there were 79,036 subscriptions for the official Wechat account, and the official Toutiao account had a total of 6,544 subscribers.

The GCS continues its partnership with the People's Daily Online (Hong Kong), and has produced a series of "Macao-scope" videos. The videos were published on the People's Daily Online website and its subsidiary platform. Each episode attracted nearly 20 million hits.

In 2020, the official Wechat account published 980 posts in total, attracting up to 26,338 views. The official Weibo account published around 1,100 posts in total, attracting up to 939,900 views. A total of 843 posts was published using the Toutiao account, attracting up to 97,886 views.

Disseminating Government Information

The GCS launched self-developed systems, such as the news information submission system (E-info Submit), news information management system (E-info Management) and news information dissemination system (GovInfo Hub), thus building a reliable, safe way for the receiving and release of official MSAR Government news. This also accelerates the news release process, and strengthens

the mechanism for exchanging information.

Also, the GCS introduced a mechanism for the receiving and release of civil defence and automatic information. Meanwhile, the weather alert notification service from the Meteorological and Geophysical Bureau commenced, to send messages to news reporters through instant messaging applications, and publish the messages on public websites, to help with enhancing the timeliness and effectiveness of the release of important news from the government.

In 2020, the GCS created and released – and assisted various departments in releasing – 15,450 news-related items (press releases, press invitations, six important notices, and speeches) in Chinese, Portuguese and English, 172 video clips together with 429 sets of photographs.

Registration of Periodicals

The Information Department of the GCS is responsible for registering newspapers, publishers and periodicals. Under the Media Registration Regulations, if a daily publication is registered but has not been published for 180 days, or if other registered periodicals have not been published for a period of one year or have been suspended for a period of one year, their registration will be cancelled. Registration of publications is free of charge.

Eleven new publications were registered with the GCS in 2020, including 11 publications appearing weekly, fortnightly quarterly and yearly. During the year, 17 publications cancelled registration.

The Government Portal

The Government portal (www.gov.mo) was officially launched in December 2004. It offers a comprehensive platform for information and e-services provided by all Government departments. The portal gives the public access to information from various public administrative departments, the Legislative Assembly, courts, the Public Prosecutions Office and tertiary education institutions.

Available in both traditional and simplified Chinese, Portuguese and English versions, the Government portal provides general information and updates about Macao to local residents, tourists and the business community, and introduces various public services and their contact details.

The portal's objectives are to announce government policies in a timely manner, enhance communication between the Government and the public, maintain administrative transparency, and collect public opinion.

Government Printing Bureau

The Government Printing Bureau implements the Government's publishing policy. It is responsible for the publication of the *Macao Special Administrative Region Gazette* (the Macao SAR Gazette) and its supplements; the laws and regulations of Macao (in both separate and omnibus formats); the general budget of Macao and related budgets of government departments and public bodies; Macao's accounting records; government policy addresses; legally defined official forms; and any

official printed matter that uses the emblem of Macao. It also undertakes the layout, proofreading and printing of printed matter that requires special security measures or close supervision.

The Macao SAR Gazette

Sections One and Two of the *Macao SAR Gazette* are published at 9:00 am every Monday and Wednesday, respectively; unless either of these days is a public holiday, in which case the pertinent section is published on the next working day. Announcements of urgent or ad-hoc matters that occur outside this schedule may be issued in a supplement or special section.

Publication of all the following items in Section One of the *Macao SAR Gazette* is mandated by law, and they only come into legal effect thereby: laws, by-laws, Legislative Assembly resolutions, administrative orders and orders approved by the Chief Executive, orders approved by principal government officials, international treaties signed in the name of “Macao, China”, Legislative Assembly election results, the appointment of members of the Legislative Assembly, the appointment and termination of appointment of Executive Council members, the appointment and termination of appointment of presidents and judges at all levels of the courts and of public prosecutors, as well as other announcements of appointments and terminations of appointments under the law and documents whose announcement is required by law.

The following announcements must also be made in Section One of the *Macao SAR Gazette*:

1. Amendments to the Basic Law of the MSAR, proposals to amend the Basic Law, and interpretations of the Basic Law by the authorised entity;
2. National laws that apply to the MSAR, and interpretations of those laws by the Standing Committee of the National People’s Congress (NPC);
3. Documents adopted by the NPC and its Standing Committee regarding the MSAR;
4. Regulatory documents adopted by the NPC’s Preparatory Committee for the Macao Special Administrative Region, regarding the establishment and operation of the MSAR;
5. Documents authorised by the NPC and its Standing Committee and the central government; and orders, instructions and documents issued by the central government in accordance with the Basic Law of the MSAR;
6. Documents regarding the appointment and termination of the Chief Executive, principal government officials and the Public Prosecutor-General by the central government; and
7. The Chief Executive’s annual policy address.

The following announcements must be made in Section Two of the *Macao SAR Gazette*:

1. International treaties applicable to the MSAR;
2. Agreements on judicial mutual assistance, and mutual exemption of visa requirements by the MSAR and other countries or regions with the assistance and authorisation of the central government;
3. Judicial mutual assistance agreements signed with judicial authorities in other areas or

regions in mainland China;

4. Statements and announcements made by the Legislative Assembly;
5. Statements and announcements made by the Government; and
6. Other documents that are to be announced in this section by law.

Since 2000, the Government Printing Bureau has posted the complete contents of Sections One and Two of the *Macao SAR Gazette* on its website (www.io.gov.mo) for public access and information. To strengthen the accuracy and integrity of the electronic version of the *Macao SAR Gazette*, the Government Printing Bureau launched an electronic authentication version of the *Macao SAR Gazette* in November 2015.

By December 2020, the Government Printing Bureau had established an online database containing the full text of 28,900 laws and regulations. This includes all the laws and regulations published since the establishment of the MSAR, as well as laws, decree-laws and other regulations gazetted between 1976 and 19 December 1999.

In 2020, the bureau's official website recorded an average of more than 413,000 hits per month.

Laws of the Macao Special Administrative Region

Prior to the establishment of the MSAR, the Government Printing Bureau published *Macao Laws*. Since the establishment of the MSAR, it has published *The Macao Special Administrative Region Laws*, a semi-annual reference document that provides easy access to major laws, by-laws, resolutions of the Legislative Assembly and administrative orders published in the *Macao SAR Gazette*.

External Services

The Government Printing Bureau offers external services including subscription of the *Macao SAR Gazette*; sales of government publications and other printed matter. In addition to the *Macao SAR Gazette*, the Government Printing Bureau sells printed books published by the bureau, books published by other governmental departments, government printed materials and CD-ROM of laws. The bureau also publishes announcements and notices of private institutions in the *Macao SAR Gazette*, and provides printing services to private organisations and individuals.

Information Technology

Science and Technology Committee

The Science and Technology Committee is a consultative body that advises the Government on the formulation of policies to promote technological development and modernisation.

Chaired by the Chief Executive, the Science and Technology Committee was formed with committee members including the Secretary for Transport and Public Works, the Secretary for

Economy and Finance and the Secretary for Social Affairs and Culture (or their representative), the Chairman of the Executive Committee of Macao Foundation (or a designated full-time committee member as representative), the Chairman of the Executive Committee of the Science and Technology Development Fund (or a designated full-time committee member as representative), the Rector of the University of Macau, the Rector of the Macao Polytechnic Institute, the Rector of the Macao University of Science and Technology, the President of the Board of Directors of the Macao Productivity and Technology Transfer Center (CPTTM), and the Director of the United Nations University International Institute for Software Technology, plus 18 other members who have excelled in the fields of science, technology and innovation, and who are appointed by the Chief Executive.

The Chief Executive has also appointed a total of 10 internationally renowned experts and scholars as advisors to the council. They are Tsung Dao Lee, Zhu Lilan, Lu Yongxiang, Hui Yongzheng, Zhu Gaofeng, Lu Zhonghe, Li Lianhe, Song Yonghua, Jack Ma and Chan Ching Chuen.

The Science and Technology Development Fund (FDCT) was established under By-law No. 14/2004 of the Macao SAR and is supervised by the Chief Executive. (Administrative regulation No. 1/2021 was effective from February 2021, with partial amendments to the above-mentioned administrative regulation. These include bringing the Science and Technology Development Fund under the purview of the Secretary for Economy and Finance.)

In line with Macao's policies on science and technology, the fund provides subsidies for various kinds of projects which help to boost Macao's capability for technological research and innovation, and its competitiveness.

Macao New Technologies Incubator Centre

Co-founded by the Government and the private sector, the Macao New Technologies Incubator Centre (Manetic) was established in 2001, marking Macao's first step towards the development of innovative hi-tech industries.

Manetic is an incubator centre for new technology. Its major objective is to help turn business or product ideas into commercial ventures as quickly as possible. Manetic's targets include: to strengthen technological development in Macao and improve career opportunities for the next generation; to effectively utilise Macao's professional resources through cooperation with multinational companies; and to tap international resources through developing Macao as the technological development centre in the Greater China region.

Macao Post and Telecommunications Bureau

Since its foundation on 1 March 1884, the Macao Post Office has operated as a provider of postal services, complying with international conventions. On the same day, the first Macao stamp, titled "Crown", entered into circulation. In fact, Macao Post's history dates back a century earlier, to 1798, when sea mail services officially began.

Many new services have been introduced since the establishment of Macao Post and

Telecommunications Bureau. Alongside traditional postal services and Macao Postal Savings, established in 1917, the Macao Post took over the operation of telephone and wireless telegraph services in 1927. In response to social development, some of these services were transferred to other entities or public departments. In 1981, the Companhia de Telecomunicacoes de Macau (CTM) took over the operation of telecommunications. In 2000, the Post Office's role as the supervisory body for telecommunications services was transferred to the DSRT.

On 19 December 2016, the MSAR Government issued By-law No. 29/2016 Amendment to Regulation of Organisation of Postal Services, to rename Macao Post as the Macao Post and Telecommunications Bureau (CTT) and merge it with DSRT, with effect from 1 January 2017.

As a bureau-level administrative entity with legal personality, the CTT enjoys autonomy over administration, finances and property, and performs the function of a credit institution. It aims to provide postal public services, and regulate, monitor, promote and coordinate any activity related to the telecommunications industry in Macao. It is under the supervision of the Secretary for Transport and Public Works.

Postal Services

As a result of the COVID-19 pandemic in 2020, local mail traffic was ten percent lower than in 2019.

Regarding international mail, several operating airline carriers suspended their flights due to the epidemic, impacting postal transportation for outbound mail. Compared to 2019, the outbound international surface mail and international airmail in 2020 recorded a nine percent and a 34 percent drop, respectively. Inbound international surface mail and international airmail also decreased, by six percent and 38 percent, respectively.

The main destinations of outbound mail were mainland China, Hong Kong, Portugal, Taiwan, the United States, the United Kingdom, Singapore, Australia, Germany, the Philippines and Malaysia. The main sources of inbound mail were Hong Kong, mainland China, the United Kingdom, Taiwan, Portugal, the United States, Japan, Singapore, the Netherlands, Switzerland, Sweden, Canada and France.

Regarding registered mail, in 2020 the volume of local mail was 13 percent lower than in 2019. The volumes of outbound and inbound international airmail decreased by 18 percent and 58 percent, respectively. The volume of outbound and inbound international surface mail increased by one percent and 39 percent, respectively, as postal transportation in several countries and regions was sustained during the epidemic.

Direct Mail aims to deliver promotional leaflets to residents in various districts in an accurate and timely manner. It is implemented by a professional CTT delivery team that provides a professional, cost-effective, high performance promotion channel – enabling companies, organisations and government departments to promote their products and services. Facing competition from new media marketing promotional platforms and the influence of the COVID-19 epidemic, the volume of local direct mail promotions in 2020 was 41 percent lower than in 2019.

A sharp increase in the volume of inbound and outbound mail was generated through the general public posting and receiving items for protecting from the coronavirus. In 2020, the volume of

outbound Express Mail Service (EMS) items substantially increased, by approximately 96 percent. The volume of inbound EMS items also increased by seven percent. The main destinations of EMS items were the United States, Taiwan, Portugal, Hong Kong and mainland China. The main sources of EMS items were mainland China, Japan, Hong Kong, the Netherlands and Taiwan. At present, the EMS covers about 200 countries and regions.

In 2020, the volume of parcels also increased, likewise due to the demand for items to protect against coronavirus. The numbers of outbound and inbound parcels increased by around 35 percent and around 24 percent, respectively, compared to 2019. The main destinations of outbound parcels were Australia, the United Kingdom, mainland China, Taiwan and the United States. The main sources of inbound parcels were mainland China, Germany, the United States, Taiwan and Japan.

In the light of a significant rise in residents' demand for posting protective items, the CTT provided a limited service at some branch post offices from 1 February 2020, and resumed normal operations from 2 March. To align with the Government's "Ensure Mask Supply for Macao Residents Scheme", the CTT set up a special mailing counter at a face mask retail outlet in the Polytechnic University, to provide assistance with mailing face masks to Macao students studying abroad.

Secure Electronic Postal Services

The Secure Electronic Postal Services has developed a solid platform for electronic deliveries. Services launched include provision of Postal Registered Electronic Mail, Postal Electronic Mail, eDirect Mail, e-bill services and electronic version of Delivery Advice of EMS mail or parcels via SEPBox. It also cooperated with various organisations in promoting electronic delivery services, such as promoting the acceptance of e-bills via the Safe Electronic Post Box (SEPBox) with the Macao Water Supply Company Limited and the Companhia de Electricidade de Macau (CEM), as well as launching magazine advertisements to enhance public understanding of the Secure Electronic Postal Services.

In addition, the CTT launched the "e-Advice" Service, through which the electronic version of the Delivery Advice for EMS mail or parcels can be received. Currently, the Safe Electronic Post Box (SEPBox) service registration points covers organisations including the Directorate for Identification Services, the Science and Technology Development Fund (FDCT), the Public Administration, the Financial Services Bureau, the Macao Water Supply Company Limited, the Cultural Industries Fund, the Companhia de Electricidade de Macau (CEM) and the Social Security Fund, the Macao Post and Telecommunications Bureau (General Post Office), the Macao Postal Savings, Fai Chi Kei Post Office, Red Market Post Office, Mong Ha Post Office, Rua do Campo Post Office, Nova Taipa Post Office, Ocean Gardens Post Office, Coloane Post Office, Seac Pai Van Post Office, Carmo Post Office, Hac Sa Wan Post Office, University of Macau Post Office and eSignTrust Registration Authority.

In 2019, the Public Administration and Civil Service Bureau, the Municipal Affairs Bureau (IAM) and the Labour Affairs Bureau were added to the list of organisations assisting with registration for the SEPBox service. Apart from registering for the Common Access for Public Services ("Common Access"), which is a one-stop public services account, applicants can also apply for the CTT Safe Electronic Post Box (SEPBox) and eSignCloud service at the same time. Citizens can directly use

the SEPBox service through the Common Access mobile app.

In 2020, CTT participated in providing a service for updating contact information, launched by the Directorate for Identification Services. When citizens update the information, they can authorise the bureau to provide information to CTT and update the SEPBox concurrently.

Philately

In 2020, the CTT issued stamps with 15 different themes, mainly focusing on people's livelihoods and global affairs. The year also saw the fourth launch of the Macau Zodiac stamp series.

The Year of the Rat was the first Zodiac sign appearing in the fourth Chinese Zodiac series launched by the CTT. Using the four seasons – “spring, summer autumn and winter” – as the design concept, the CTT also launched thematic packs and two new philatelic products – a stamp booklet and a stamps with tea bowl gift set, featuring two sets of purple sand tea bowls with the themes “spring-summer” and “autumn-winter”, representing the Year of the Rat, along with a stamp booklet.

During the epidemic, the CTT issued the “Fight Against the Epidemic Together” philatelic product. With everyone sharing the same boat, this showcased the spirit of combating the disease as the Government combined with the efforts of Macao citizens.

Philatelic products related to culture and arts included “Literature and its Characters – Luo Shen Fu”, “Chinese Classical Poetry – Tang Dynasty Poems”, “Jin Yong’s Novels” and “250th Anniversary of the Birth of Beethoven”; themes related to Macao included “Gastronomy and Sweets III – Traditional Popular Delicacies”, “Regional Medicinal Plants” and “70th Anniversary of the Macao Federation of Trade Unions”.

Caixa Economica Postal

Caixa Economica Postal (Postal Savings Office or CEP) is a credit institution operated by the CTT that serves as the CTT’s cashier. It also provides a wide range of bank related services, such as credit facilities, remittance services, electronic payments and exchange services for the public.

In terms of credit facilities, CEP chiefly provides civil servants and employees of public services and private companies who sign an employee credit service agreement with guaranteed short-term credit. In 2020, CEP approved loans worth nearly 180 million patacas.

CEP and Western Union also jointly provide an express money transfer service. Using its advanced IT, global computerised money transfer system and counter network, customers can transfer money safely to over 200 countries and regions around the globe within a few minutes. There are currently nine outlets for this service, at CEP, Airport Post Office, Ferry Terminal Post Office, Taipa Terminal Post Office, Almirante Lacerda Post Office, Ocean Garden Post Office, Coloane Post Office, Seac Pai Van Post Office and UM Post Office.

CEP’s electronic payment platform provides an online payment service for the public. The public can also apply for or settle payments of various government services via this platform in real time.

In 2020, approximately 460,000 payment transactions were settled.

To achieve the sharing of consumer credit data between various bank in Macao and lower credit risks, in 2018 the CEP obtained prior approval from the Chief Executive to build and operate the Central Credit Reference Agency (later renamed as the Credit Reference Platform). Construction of the platform is now being underway, and the service is expected to be provided from the second quarter of 2022.

Furthermore, CEP provides foreign currency exchange services for 16 currencies, including the Hong Kong Dollar, US Dollar, Renminbi, Euro and Japanese Yen.

eSignTrust

As the only authentication entity approved by the Government, eSignTrust has been issuing electronic signature certificates to citizens, corporations and government departments and providing them with online identity authentication services, strengthening the authentication quality of electronic documents. In accordance with Law No. 5/2005 Electronic Documents and Digital Signatures, an electronic document signed with electronic certification is legally binding. The electronic certificate is regarded as a legally binding electronic signature tool. Along with the commencement of the e-governor under Law No. 2/2020, it will further assist government departments and corporations to launch more e-services.

From 27 September 2020, eSignTrust “eSignCloud” service was fully implemented as equivalent to physical signatures for electronic government documents that are not used for approval process. In October, members of the Legislative Assembly used “eSignCloud” to sign documents on written questions and verbal questions submitted to the Legislative Assembly. The “eSignCloud” is also applicable for corporate purchases, signing contracts or managerial documents. As at December, the overall annual growth of valid “eSignCloud” electronic certificates reached 84 percent; the most substantial growth – a 255-percent increase – was recorded government accounts. The annual growth for individual users was 38 percent.

Given that the Government develops digital reception, electronic certifications and a digital passport photo service, the server system supported by eSignTrust is used for providing electronic authentication signatures. Application of the certificate for issuing qualified electronic signatures and licenses is also becoming popular.

In January 2020, the Municipal Affairs Bureau expanded the application of qualified electronic signatures to also cover license extensions for long term advertisements. In September, the Legal Affairs Bureau further expanded the application of qualified electronic signatures to cover eight kinds of certification, including property registration, business registration, birth registration and marriage registration. In December, the Transport Bureau used qualified electronic signatures to sign the “Cross-border Vehicle Information Certificate”.

Qualified electronic signatures are also widely used for electronic declarations, tax returns, trademark applications, physical governmental application services, e-banking services, and public and private healthcare facilities.

To simplify processes and increase convenience, “eSignCloud” personal users can use CTT

“eLocker” self-service machines to process renewal applications. In 2020, three service locations were added, in the General Post Office, the Nova Taipa Post Office and the Ocean Garden Post Office.

To facilitate the certificate application process for government department officers and employees on overseas postings, an online video conference function was added for verifying identities, to assist with remote registration of “eSignCloud” accounts.

In 2020, CTT continues approving internationally recognised WebTrust for Certification Authorities, and acquiring WebTrust Seal.

To align with the Government’s effort to ensure that Mutual Recognition of Electronic Signature Certificates can be utilised in administration arrangements related to promoting the Guangdong-Hong Kong-Macao Greater Bay Area information technology infrastructure, eSignTrust participated in the “Guangdong-Hong Kong-Macao Greater Bay Area Mutual Recognition of Electronic Signature Certificates task force” and completed drafting the “Administrative Measures governing the Guangdong-Hong Kong-Macao Mutual Recognition of Electronic Signature Certificates” and “Strategy for Guangdong-Hong Kong-Macao Mutual Recognition of Electronic Signature Certificates” consultation document, thus making progress with the work on mutual recognition of electronic signature certificates.

Telecommunications Services

Fixed-network and External Telecommunications Services

At the end of 2019, there were 115,796 fixed-network lines in Macao, along with 587 public pay phones offering local call services and IDD access from public locations throughout the Macao peninsula and the two islands. Callers in Macao can currently make IDD calls to 246 countries and regions.

Public Mobile and Wireless Communications Services

At the end of 2020, there were four operators of mobile communications services or in Macao. In November 2020, the Government approved an application from Kong Seng Paging Limited to discontinue its mobile network service operation, and revoke its permit for mobile network operations. Also, the Government amended the 4G licence of Companhia de Telecomunicacoes de Macau (CTM). In 16 December 2020, the company was given approval to stop using LTE-TDD technology to construct and operate a 4G network and service, and continue using LTE-FDD technology to operate the 4G network and service.

At the end of 2020, there were 1,621,217 mobile telecommunication users, with the per capita mobile penetration rate at 237 percent¹. Besides, after the commencement of the Cybersecurity Law No. 13/2019 on 22 December 2019, prepaid cards must be registered with a real name. Subsequently, the number of users dropped dramatically.

Mobile Communication Service Information

Year	No. of radio paging users	No. of mobile phone users	No. of rechargeable mobile phone cards
2003	3,453	198,696	165,335
2004	2,728	228,296	204,154
2005	2,513	259,336	273,422
2006	1,891	301,512	334,835
2007	2,782	356,117	438,206
2008	2,780	395,943	536,653
2009	3,097	420,098	617,282
2010	3,204	459,330	662,931
2011	3,101	525,209	827,985
2012	1,886	564,576	1,048,881
2013	1,278	597,012	1,125,233
2014	865	638,725	1,217,728
2015	722	677,018	1,219,079
2016	701	700,609	1,269,363
2017	546	743,261	1,505,863
2018	334	764,085	1,417,109
2019	58	802,220	1,991,254
2020	0	832,949	788,268

Internet and Broadband Services

At the end of 2020, there were 202,007 registered broadband subscribers, one percent more than in 2019. Among these subscribers, 179,725 were residential broadband services subscribers, representing approximately 90 percent of all households².

Moreover, the urban wireless broadband network project commenced in 2009, and began providing services to residents and tourists in September 2010. As at the end of 2020, there were 182 WiFi Go service spots, and over 150 million successful connections had been recorded.

In 2017, the CTT allowed licensed internet service providers (ISPs) to install outdoor Wi-Fi hotspots and provide services to the public. To enable Macao residents and tourists to more easily identify the free public Wi-Fi service in Macao, starting from December, the CTT encouraged Macao organisations and institutions to provide free Wi-Fi services in various locations, all with the network name “FreeWiFi.MO”, to expand coverage of free Wi-Fi services. At the end of 2020, there were 575 locations providing the service.

Since the Cybersecurity Law was promulgated, the CTT, as a designated cybersecurity monitoring entity, has the responsibility of monitoring the private operators of critical infrastructure in four categories: regulating audio-visual broadcasting, operating fixed or mobile telecommunication networks, and providing Internet connection services, wholly owned public corporations, and non-profit public legal bodies for managing activities limited to scientific and technological areas, and continues to supervise effective implementation of the real name registration and preservation of records of changes of network addresses.

Television Services

Since April 2014, the Macau Basic Television Channels Limited has been assisting Macao residents with the reception of basic television channels. Also, cable enhancement works were carried out across the territory, including the organisation and dismantlement of aerial cables along public roads. The contract for the company to provide the service assisting residents has been renewed for two years, from 1 April 2020. As at December 2020, underground cable networks covered over 88 percent of residential buildings, enabling residents to receive basic TV channel signals. The underground cable project is scheduled for completion in 2021.

Regarding terrestrial pay television services, with the policy objective to liberalise the market for television services, on 22 April 2014, the Government endorsed the renewal of the non-franchised contract for Macau Cable TV for five years, thereby creating the conditions for a fully liberalised market for pay television services.

In addition, the Government issued a new executive order in July 2014, exempting satellite television receivers with diameters of less than three meters from approval by the Government, provided that the receivers are used for receiving television channels for private viewing. This enables the public to conveniently access television programmes via satellite signals.

Convergence Regime for Telecommunications Networks and Services

Upon completion of the consultation on the legislative framework of “Convergence Regime for

Telecommunications Networks and Services” (later renamed as the Telecommunications Law) in 2019, and this framework gaining broad agreement and support from the telecommunications service operators, the Government actively proceeds with legislative work on the Telecommunications Law, and constantly reviews and refines the bills and provisions of the Telecommunications Law. The bill was introduced to the legislative process in the same year. In future, the Government will further facilitate telecommunications convergence in Macao, 5G, and the development of next generation networks.

Registration and Management of Internet Domain Names

The University of Macau’s previous appointment to manage and register the top-level domain “.mo” for the Macao SAR ended in 2010. Consequently, in March 2011, the Government launched the Macao Network Information Centre.

In 2014, the Macao Network Information Centre introduced services for Chinese and Portuguese domain names for the Internet country code “.mo” and supported electronic payment, optimisation of the application procedures and amendment of domain names, to provide more diverse, better quality domain name services. The DSRT introduced IPv6 and “.mo” domain name services in 2015 and 2018, respectively, further advancing the development of domain name services in Macao.

IPv6 Network Research Laboratory

To introduce IPv6 and its related setup techniques to the industry and personnel in the relevant fields, and to assure the industry of the application of IPv6, the former DSRT worked with the Macau Polytechnic Institute in setting up the IPv6 Network Research Laboratory. This aimed to demonstrate the application and connection of IPv6, and to conduct related research and development. The laboratory commenced operations on 16 April 2013. The CTT also continued working with Macau Polytechnic Institute in organising IPv6 promotional events.

Development of Terrestrial Digital Broadcasting

Following the global trend of terrestrial digital broadcasting, the number of terrestrial digital broadcasting channels provided by Teledifusao de Macau (Macao Broadcasting Company, TDM) increased to 13.

Radio Frequency Allocation and Coordination with Neighbouring Regions

After signing the Mainland China and Macao Frequency Coordination Agreement for Terrestrial, Mobile/Fixed Broadcasting (Audio and Television) in 2002, mainland China and Macao have been maintaining strong links in the development of wireless communication services.

In conjunction with mobile network operators in Zhuhai and Macao, the CTT and the radio authority of Zhuhai regularly tests for cross-boundary overspill of signals. Under the influence of the

COVID-19 epidemic in 2020, the CTT organised Macao-operated independent surveys, to oversee and continue improving the cross-boundary overspill signal, in accordance with the agreement.

Note 1: The calculation was based on figures from the 2020 population census in the fourth quarter of 2020 – 683,100, as announced by the Statistics and Census Service.

Note 2: According to the results of the 2020 population census announced by the Statistics and Census Service, there were 199,700 households at the end of 2020.



Popular science education



The Macao Science Center aims to promote popular science education for young people, support tourism development, and serve as a regional base of popular science education and conventions and exhibitions. In 2020, to celebrate its 11th anniversary, Macao Science Center held the “Fun Science Carnival”, launching several series of popular science activities, allowing the public to learn about science in a fun and vibrant way.

