

Future Prospects for Japanese Society

Considering that, as described in Chapter 1, ICT has become an infrastructure that supports every social/economic activity, Chapter 2 takes a look at the changes expected in Japanese society in the future, analyzes the anticipated role of ICT and summarizes the challenges that are coming to the surface with the advancement and diversification of ICT and its spread in society.

Section 1 Prospects for the Role of ICT in Future Japanese Society

In Section 1, we provide an overview of the social changes expected in Japan in the future and analyze how ICT will respond to individual changes and also how it will change society.

1. Prospects for Japanese society in the future

The prospects for Japanese society in the future include increasingly serious social/economic challenges, such as shrinkage of the working-age population, decline of local economies, intensifying disasters, aging of infrastructure, further expansion in data distribution and increase in traffic, and acceleration of global warming due to growing power consumption.

(1) Shrinkage of the working-age population

With a declining birthrate, the working-age population (aged 15 to 64) of Japan has been declining from its peak in 1995 and is expected to fall to 52.75 million by 2050 (29.2% decrease from 2021).¹ There are concerns that the shrinkage of the working-age population will aggravate various social/economic issues, including labor shortages and the shrinkage of the economic scale due to a decrease in domestic demands.

(2) Declining birthrate and aging of population in rural areas

The falling population in combination with population aging is more significant in rural areas. While the ratio of the population aged 65 and over is expected to become over 30% in metropolitan areas by 2045, it is predicted to exceed 40% in rural areas. In particular regard to rural areas, there are concerns over increasingly serious challenges, including a shortfall in human resources in local economy/industries and difficulties in maintaining communities.

(3) Frequent and intensified disasters

In recent years the frequency of heavy rain with a risk of storm disaster has sharply increased, while accompa-

nying landslide disasters are also on the increase.² Furthermore, according to a prediction by the Headquarters of Earthquake Research Promotion,³ the probability of a Nankai Trough earthquake (magnitude 8 to 9) within 30 years is 70 to 80%, and the probability of an earthquake of around magnitude 7 (accompanying the sinking of the plate along the Sagami Trough) is around 70% during the same period (as of January 1, 2022).⁴ There are concerns that natural disasters will continue to increase in frequency and intensity.

(4) Aging of infrastructure

Social infrastructure that was developed during an era of high growth in Japan is rapidly aging. According to an estimation on the aging of social infrastructure from 2018 to 2033 by the Ministry of Land, Infrastructure, Transport and Tourism, the ratio of facilities that date back to more than 50 years ago will increase at an accelerated pace: from about 25% to about 63% for highway bridges, and from about 32% to about 62% for river management facilities.⁵ There are concerns about increasing maintenance and renovation costs, as well as the occurrence of major accidents due to the aging of social infrastructure.

(5) Further growth in data distribution and traffic increase

Internet traffic in Japan doubled in two years from November 2019, just before the spread of COVID-19, and November 2021 (Figure 2-1-1-4). There is a prediction that global IP traffic will increase more than 30 times by 2030 and 4,000 times by 2050.⁶ It is expected that traffic will continue to also increase in Japan with the digitalization of socioeconomics.

¹ https://www8.cao.go.jp/kourei/whitepaper/w-2022/zenbun/pdf/1s1s_01.pdf

² <https://www.bousai.go.jp/taisaku/gekijinhukko/list.html>

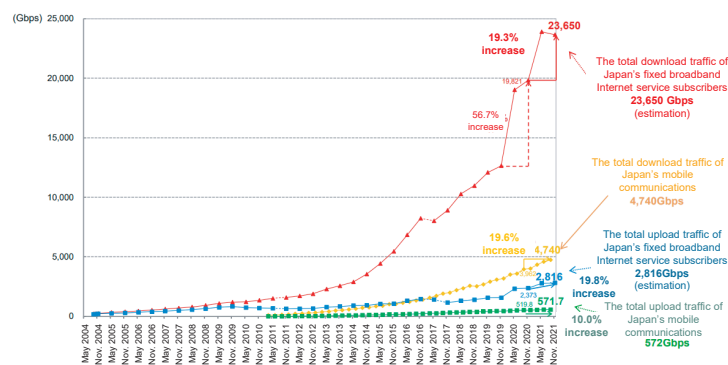
³ An organization that was established to communicate results of survey research on earthquakes and promote unified countermeasures by the government by using the lessons learned from the Great Hanshin Awaji Earthquake on January 17, 1995

⁴ https://www.jishin.go.jp/evaluation/long_term_evaluation/lte_summary/

⁵ <https://www.mlit.go.jp/hakusyo/mlit/r02/hakusho/r03/html/n1221000.html>

⁶ <https://www.jst.go.jp/lcs/proposals/fy2018-pp-15.html>

Figure 2-1-1-4 Changes in Internet traffic



(Source) MIC (2022), "Aggregation result of Internet traffic in Japan (in November 2021)"⁷

(6) Fast rising electric power consumption and acceleration of global warming

With the progress in ICT utilization and increase in traffic, power consumption by ICT-related equipment is also on the increase. For example, it has been estimated that the world's data centers consume 1 to 2% of global power consumption. There is an estimation that, assum-

ing that power consumption will increase in proportion to the increase in IP traffic in Japan, ICT-related equipment alone will consume nearly double the amount of current annual power consumption (Figure 2-1-1-5). There are concerns over an acceleration in global warming due to rapidly growing increases in power consumption.

Figure 2-1-1-5 Predictions for IT-related power consumption

Forecast of IT-related power consumption	2016	2030	2050
IP traffic (ZB/year)	4.7	170	20,200
Power consumption (Japan: TWh/year)	41	1,480	176,200
Power consumption (World: TWh/year)	1,170	42,300	5,030,000

(Source) Center for Low Carbon Society Strategy, Japan Science and Technology Agency (2019)

"Impact of Progress of Information Society on Energy Consumption (Vol. 1):
Current Status and Future Forecast of Data Center Energy Consumption and Technical Issues"⁸

2. Prospect for the roles to be fulfilled by ICT

In order to cope with various social and economic challenges, including the shrinkage of the working-age population, decline of local economies, and intensifying disasters which are expected to worsen in the future, it is necessary to reform society as a whole through activities toward improving labor productivity, expanding labor participation and regional vitalization. Next, we examine what role ICT can play in this process to contribute to social reform.

(1) Improving labor productivity and expanding labor participation through ICT

While labor shortages due to the shrinkage of the working-age population have been forecasted, improvements in labor productivity and expansion of new labor participation are expected from the utilization of ICT.

Examples include: the use of robots/AI to replace manual work to reduce the labor needed to generate the same products/added values, or to improve work efficiency through the speeding up of work and accuracy improvement, and analysis of big data to further im-

prove efficiency of production and distribution processes.

Furthermore, it is expected that the use of telework, satellite offices and cloud sourcing will enable people to work regardless of geographic limitation and empower those who have difficulty in working for various reasons, such as childcare, family care or disabilities to choose from diverse and flexible working styles, which would contribute to an improvement in the labor force participation rate.

(2) Regional revitalization through ICT

While local economies are expected to shrink, use of ICT could expand the trading area of local enterprises, and enable working styles and use of services not limited by geographic conditions, which would contribute to regional revitalization.

For example, spread of ICT expanded markets without limits on time and location nationwide and around the world. Thanks to lower matching costs, different kinds of manufacturing at even a small scale can find

⁷ https://www.soumu.go.jp/joho_tsusin/eidsystem/market01_05_03.html

⁸ <https://www.jst.go.jp/lcs/proposals/fy2018-pp-15.html>

markets without scale restrictions, and small local enterprises can provide goods and services that meet various needs in every region.

The development of ICT enables telework and other working styles not limited by location, and people living in rural and urban areas can enjoy the same services (e.g., online shopping, telemedicine, remote education). These new working styles and lifestyles are expected to enable young people living in their hometowns to work for companies in metropolitan areas, and people in metropolitan areas to move to rural areas while maintaining their current jobs and to use various services there, which would contribute to increasing the resident populations of rural areas.

(3) Prompt and efficient information collection and communication using ICT

As disasters are increasingly fierce and frequent, use of ICT is expected to contribute to efficient and effective disaster prevention and mitigation through prompt, efficient and detailed collection of disaster-related data as well as the prompt and accurate provision of information for evacuation etc.

For example, the integrated handling of information from a variety of sensors and high-definition videos that make use of the ultra-high speed and large capacity of 5G would improve prediction accuracy for river flooding and enable the prompt issuing of evacuation orders. When there is a disaster, high definition videos from cameras installed on-site or mounted on drones can be transmitted via ultra-high-speed and low-delay 5G for accurate understanding of the disaster or the accident situation to improve evacuation efficiency. Regarding the provision of information for residents, AI analysis of positional information that is based on the built-in GPS of smartphones, and information on applications and information sent by victims, etc., is expected to enable the efficient distribution of information needed by victims, which would contribute to prompt and accurate evacuations.

(4) Maintenance and management of social infrastructure by using ICT

Amid concerns about the rapid aging of social infrastructure, use of ICT is expected to enable more efficient and sophisticated infrastructure maintenance, renovation and management, and contribute to the long

life of social capital and reduction/leveling of total cost of social capital, including maintenance and renovation in the long run.

For example, the transmission of 4K/8K and other high-definition videos will improve the precision of monitoring, while analyzing videos with increased information volume using AI technologies will enable more prompt and detailed detection of abnormalities in electric cables, roads, building outer walls, railway lines, etc. Furthermore, ultra-high-speed and low-delay transmission through 5G from cameras installed on sites, mounted on drones and inspection vehicles will enable real-time monitoring and management.

(5) Contribution to Green Society

At a time when global warming is expected to get worse, the power consumption of ICT equipment is also expected to increase. Power saving through the development and introduction of new technologies is expected to contribute to the realization of a green society (Greening ICT). It is also expected that the use of ICT in society, including homes and enterprises, will promote the realization of a Green Society through operational efficiencies and reductions in the movement of people and merchandise (Greening by ICT).

Efforts for the Greening ICT include: the development of software with small environmental load in upper layers, development of all-photonics networks for low power consumption in the network layer, and reduction in power consumption through the virtualization of mobile phone base stations. It is expected that the greening of ICT itself through the development and introduction of these new technologies will contribute to the realization of a green society.

For the Greening by ICT, the manufacturing industry is advancing smart factory initiatives where ICT is used for saving labor and optimizing production lines to improve energy efficiency per unit of production. In homes, use of HEMS (Home Energy Management System), which uses ICT to optimize power use by understanding the power consumption and operating conditions of electric equipment for a fixed period, will contribute to energy saving and environmental load reduction. In addition, expanding the use of digital services, including video and music streaming and e-books, is expected to lead to a reduction in CO2 emissions through reduced human movement and physical distribution.

Section 2 Responses to Already Apparent Challenges

As described above, at a time when ICT is playing an increasingly significant role in social and economic activities, some challenges associated with the rapid penetration of ICT are already emerging, which Japan and other countries are responding to. Of these challenges, (i) risks involved in changes in the international environment, (ii) data governance, and (iii) illegal and harmful information, will be discussed in Section 2 and existing activities to respond to those challenges will be reviewed.

1. Response to risks involved in changes in the international environment

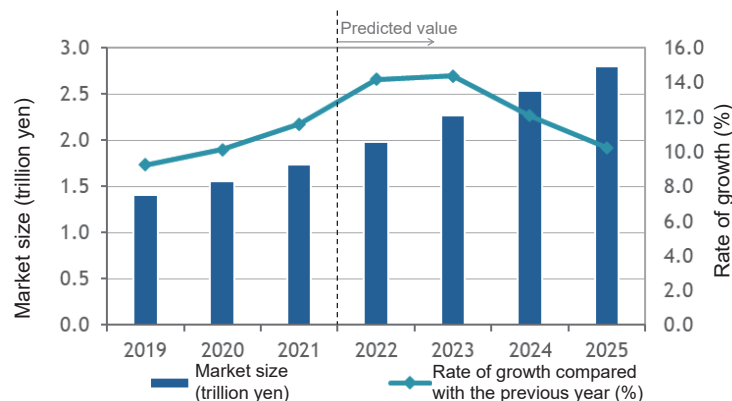
As discussed in Chapter 1, Section 5, amid increasingly complicated international situations in recent years, inherent risks have come to be recognized, such as the vulnerability of basic infrastructure and supply chains that form the foundation of people's lives and economic activities. In the meantime, ICT, like energy, has become the most basic infrastructure elements that support all sorts of social and economic activities, including the activities of other industries, along with the progress in digitalization in society as a whole. Therefore, it is an important task to strengthen ICT infrastructure and supply chains for ICT-related equipment and components, to secure the stable supply of ICT services and to enhance communications networks.

In recent years, there have been cases in which malware or other illegal software programs have penetrated networks through supply chains related to the procurement of equipment or systems for communication that are part of the information and communications infrastructure or related to system maintenance or operation, and there have also been cases in which supply chain security has been undermined through vulnerable orga-

nizations. There have also been cases in which the development of ICT networks has been delayed as a result of a global semiconductor shortage caused by the impact of the COVID-19 pandemic.⁹

In line with future growth in data demand due to the spread of the practical application of digital technology in rural areas, for example, the importance of data centers which store and process data is expected to grow further. Given that prospect, excessive dependence on data centers located in other countries would entail the risk of data leakage and access disruption. Around 60% of all data centers in Japan are located in the Tokyo metropolitan area (Tokyo, and Saitama, Chiba and Kanagawa Prefectures), and the predominant concentration of data centers there is expected to continue in the future. Considering the possibility that damage caused by a major earthquake or other disaster in the Tokyo metropolitan area may have a huge impact on the communications environment on a nationwide scale, it is essential to geographically disperse data centers in order to strengthen the resilience of Japanese communications networks against disasters.

Figure 2-2-1-1 Changes and forecasts for the size (sales) of the data center service market in Japan



(Source) IDC Japan¹⁰

Moreover, as approximately 99% of international communications traffic goes through submarine cables, their importance is growing, associated with the probability of a further increase in international traffic is expected. However, Japan's submarine cable network is

underdeveloped (a missing link) in areas off the Sea of Japan coast because domestic submarine cables have been laid mainly off the Pacific coast. In addition, cable landing stations, which represent the ends of submarine cables, are concentrated in the Boso Peninsula (Figure

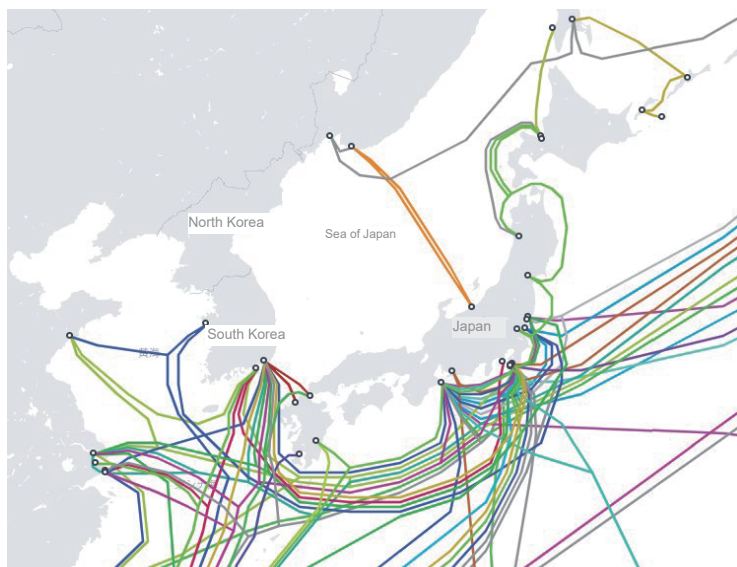
⁹ Rakuten Mobile previously planned to move forward, by around five years to the summer of 2021 or earlier, the achievement of the goal of raising the population coverage rate to 96% by the end of March 2026 under a base station development plan submitted to and approved by the Ministry of Internal Affairs and Communications. However, the goal was achieved only in February 2022 due to delays in the development of 4G base stations caused by a semiconductor shortage.

¹⁰ <https://www.idc.com/getdoc.jsp?containerId=prJPJ48272821>

2-2-1-2). Risk, such as the disconnection of submarine cables, has materialized, as was the case when a volcanic eruption in Tonga caused disruptions to international communications due to submarine cable breakage, or when the Great East Japan Earthquake caused multiple

submarine cables to be severed. Therefore, it is necessary to assume various risks, including natural disasters, human error, and sabotage, and to take steps to secure flows of communications traffic via submarine cables.

Figure 2-2-1-2 Map of submarine cables laid around Japan



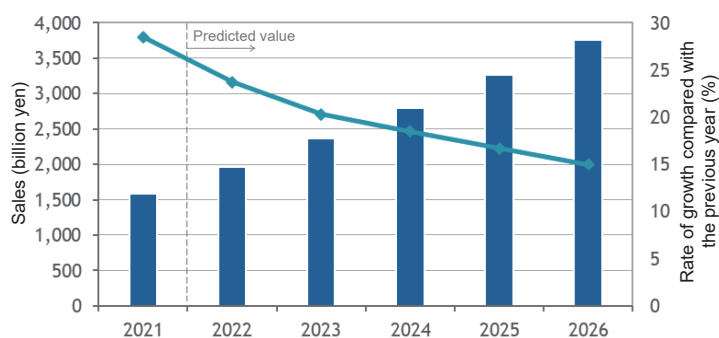
(Source) TeleGeography, "Submarine Cable Map"¹¹

According to the results of observations¹² by the Network Incident Analysis Center for Tactical Emergency Response (NICTER), which is operated by the National Institute of Information and Communications Technology (NICT), the annual total number of packets observed per IP address, which represents the level of cyberattack-related internet activity, declined from the previous year (by around 6%) to approximately 1.75 million in 2021, marking a turnaround from the uptrend that had continued since 2012. However, compared with 2019, that number still represents an increase of around 40% over a two-year period, reflecting a continued flood of cyberattack-related packets. Furthermore, when it comes to data security,

Japan has fallen into a vicious spiral of failure: the country depends heavily on foreign sources for its supply of cybersecurity products, services and information, resulting in a lack of access to real-world data essential for research and development, which has impeded the development of original Japanese cybersecurity technology, and this situation is in turn undermining the ability to collect and analyze cyberattack information in Japan.¹³

Although the development of cloud services has been remarkable in Japan as well (Figure 2-2-1-3), U.S. and other foreign vendors have come to dominate the cloud service market in Japan, raising concerns in some quarters about an excessive dependence on foreign sources.

Figure 2-2-1-3 Changes and forecasts for the market size (sales) of public cloud service in Japan



(Source) IDC Japan¹⁴

¹¹ <https://www.submarinecablemap.com/>

¹² NICT (2022) "NICTER Observation Report 2021," <https://www.nict.go.jp/press/2022/02/10-1.html>

¹³ Ministry of Internal Affairs and Communications, Cybersecurity Task Force (2021), "ICT Cybersecurity Comprehensive Measures 2021" https://www.soumu.go.jp/menu_news/s-news/02cyber01_04000001_00192.html

¹⁴ <https://www.idc.com/getdoc.jsp?containerId=prJP48986422>

In May 2022, the Economic Security Promotion Act (formally known as the Act on Promotion of Economic Security through Integrated Implementation of Economic Measures), which has four pillars—securing stable supply of critical goods, ensuring stable provision of basic infrastructure services, supporting the development of key advanced technologies, and non-disclosure of patent applications—was enacted, to be enforced in phases.

The Ministry of Internal Affairs and Communications has developed a new technology strategy intended to accelerate research and development, through intensive investment by the government in order to acquire strategic indispensability and strengthen Japan's international position with respect to the development of advanced technologies in which the country has an advantage and

can lead the world, such as all-photonics network technology¹⁵, NTN (non-terrestrial network), and secure virtualized and integrated network technology.¹⁶

Moreover, in order to secure the strategic autonomy of and acquire strategic indispensability for the information and communications industry, which has a growing role as a strategic infrastructure industry, the ministry has developed a comprehensive strategy which lays down the development and introduction roadmap of new technologies that could become game-changers, the processes of customer- and market-oriented business expansion, the direction of initiatives related to practical application of solutions based on the integration of “monozukuri” (traditional manufacturing) expertise and digital infrastructure, and eight priority fields.¹⁷

2. Current state of data governance

As mentioned in the previous chapter, the economic value of data has been dramatically rising in recent years. Data is considered to be “a key source of knowledge/wisdom, value and competitive strength, and a powerful card for the solution of social issues of Japan as an advanced country with new problems.”¹⁸ Meanwhile, concerns are mounting globally over the concentration of user data, including personal preferences and behavior history, among the global platformers and how this data is analyzed and used by them as described in Chapter 1, Section 5. For example, in Japan, some media reported the case where the personal information of users held by a domestic business was accessible by a foreign corporation which had been entrusted with operations,¹⁹ and it has been pointed out that there are growing risks due to the inappropriate handling of information by business operators sitting on a large mass of information amid the progress of globalization, including the overseas consignment of development, and the use of diverse vender products and overseas data centers.

In this context, **data governance** initiatives toward the effective and proper use of data are progressing in Japan and other countries. Under the **European Strategy for Data** released in February 2020, the **EU** is developing unified rules on access to the enormous quantity of data generated by individuals and enterprises, with the aim of constructing a single data market and promoting technological innovations so that it can hold a leading position in the digital economy.²⁰ The **Data Governance Act**, which was developed based on the strategy, proposes a mechanism for the use of data that suits

needs across industries and borders in order to promote reliable data distribution.²¹ In addition, the Proposal for a Regulation on harmonized rules on fair access to and use of data²² that provides the right to access industrial data, etc., was published in February 2022. **The United States**, which is home to many global IT giants, including GAFA, has not made any strong interventions in the promotion of data utilization in the private sector. However, **both federal and state governments are working proactively in the public sector**. For example, the federal government is rapidly constructing a data value improvement and governance structure based on its Federal Data Strategy published in June 2019.²³ **In China, the Data Security Law** was enforced on September 1, 2021. This law clearly defined the concept of data, established basic systems including protection of data classification/grading, risk assessment, monitoring/early warning and emergency response, and clarified the obligations to be fulfilled when handling data.²⁴

In line with these international trends, Japan made a cabinet decision in June 2021 on a **National Data Strategy** and compiled challenges and countermeasures with seven layers, including strategy and policy, organization, rules and service platform.²⁵

MIC with cooperation of bodies concerned conducted a questionnaire survey to understand actual situations including efforts by telecommunications carriers and examined their security measures and data handling. In addition, the Act Partially Amending the Telecommunications Business Act (Act No. 70 of 2022) was enacted in June 2022. The act obligates the proper handling of user

¹⁵ One of the major technical fields under the IOWN initiative, which is being promoted by NTT.

¹⁶ For further details, see Chapter 4, Section 7.

¹⁷ For further details, see Chapter 4, Section 1.

¹⁸ National Data Strategy (Cabinet Decision on June 18, 2021)

¹⁹ Later, it was confirmed that access by the foreign corporation was a legitimate operation in the development and maintenance processes.

²⁰ <https://www.jetro.go.jp/biznews/2022/02/225affa523fffc72.html>

²¹ <https://www.pwc.com/jp/ja/knowledge/prmagazine/pwcs-view/202203/37-03.html>

²² <https://digital-strategy.ec.europa.eu/en/library/data-act-proposal-regulation-harmonised-rules-fair-access-and-use-data>

²³ https://www.soumu.go.jp/main_content/000756398.pdf

²⁴ https://www.jetro.go.jp/ext_images/_Reports/01/580a6448fa87f0bb/20210056_04.pdf

²⁵ National Data Strategy (Cabinet Decision on June 18, 2021)

https://www.digital.go.jp/assets/contents/node/basic_page/field_ref_resources/63d84bdb-0a7d-479b-8cce-565ed146f03b/02063701/policies_data_strategy_outline_02.pdf

information obtained by telecommunication carriers, which has a significant impact on the interests of users, by formulating and disclosing handling rules for such information. Moreover, when a telecommunication carrier intends to transmit a program that orders the trans-

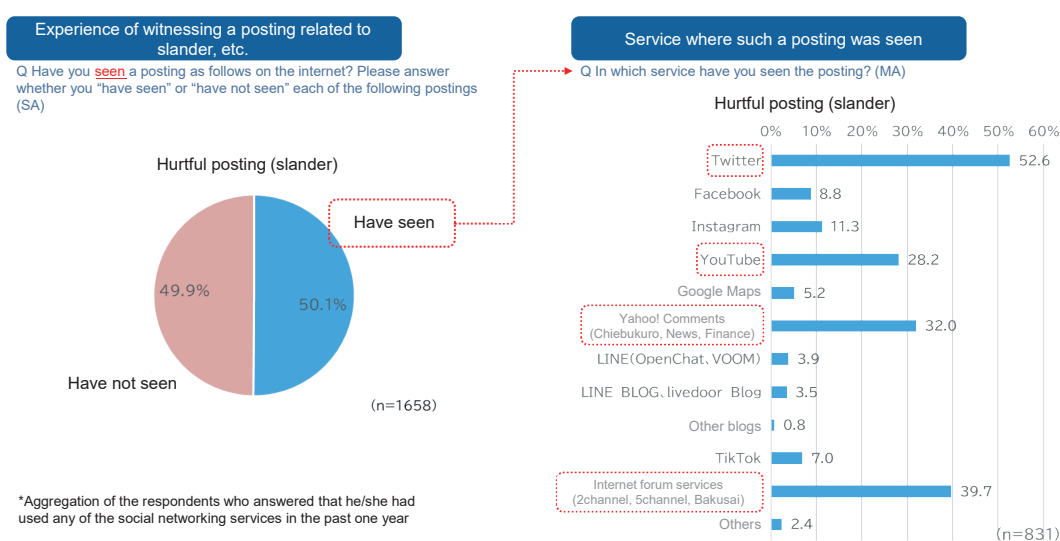
mission of information on a user to a third party, etc., carriers have to provide users with an opportunity to confirm, for example. Since then, the public and private sectors have been jointly advancing discussions toward the smooth enforcement of the act.

3. Response to illegal/harmful information

With the dissemination of various Internet services including social networking and video streaming services, anyone can send information, enormous quantities of information are being distributed, and a variety of information is readily available. While ICT has become an infrastructure that forms the foundation for daily life and socio-economic activities, the spread of illegal/

harmful information has become a challenge, which includes the distribution of expressions slandering people and contents infringing intellectual property rights. According to a survey conducted by MIC²⁶, about half of the respondents (50.1%) have seen “a hurtful post (slander)” (Figure 2-2-3-1).

Figure 2-2-3-1 Experience of witnessing a post related to slander, etc. and the service where such posts were found



(Source) From Material 5 of MIC Study Group on Platform Services (36th meeting)²⁷

Recently, the problem of disinformation has emerged, including false information distributed with intention and information of unknown authenticity. It has also been pointed out that there are biases in the information acquired by users on platform services such as social media. For example, communities of users with similar interests and opinions are formed and the community's users see only opinions similar to theirs (echo chamber); and other information, outside of their personalized, desired information, is automatically excluded (filter bubble). This problem is emerging across the world. Various initiatives are being conducted to address this around the world, such as efforts to improve the ICT literacy of users, to promote fact checking and to mediate information distribution by business operators.

Institutional responses are also progressing. For example, in April 2022 the EU provisionally agreed on the Digital Service Act, which stipulates the responsibilities of all intermediary service providers (e.g., platformers) on the distribution of illegal contents, and obligations to protect users according to the scale of the business. In

the United States, the problem of disinformation at the time of the 2016 presidential election triggered surveys and discussions on disinformation countermeasures. A public hearing on the efforts of platformers was held at Congress in a move to review Section 230 of the Communications Decency Act of 1996, which stipulates that providers are not responsible for content disseminated by a third party.

In Japan too, institutional measures have been implemented to facilitate relief for sufferers of rights violations through slander, etc., over the Internet, which includes an amendment of the Provider Liability Limitation Act to establish a new judicial procedure (for non-contentious cases) for the disclosure of sender information (the amended act was enacted in April 2021 and enforced in October 2022), and an amendment of the Penal Code to raise the statutory penalty of insults (the amended code was enacted in June 2022 and the statutory penalty of contempt is to be enforced in summer of the same year), for example. In addition, under the Policy Package for Dealing with Slander Over the Internet, which

²⁶ Questionnaire survey on actual state of distribution of slander on the Internet

²⁷ https://www.soumu.go.jp/main_sosiki/kenkyu/platform_service/02kiban18_02000207.html

was compiled and published in September 2020, MIC in collaboration with relevant groups has been implementing the following: a system to disclose the identification information of senders; user education on information ethics and ICT literacy; support for voluntary initiatives by platformers and improvement of their transparency and accountability (through the continuous monitoring of platformers); and enhancement of the consultation counter functions (strengthening the system of the Illegal/Harmful Information Hotline, strengthening of collaboration among consultation centers and dissemination of the information on multiple consultation centers). In addition, private businesses and groups are also taking actions, which include handling reports from the

public regarding illegal content and harmful content on the Internet by the Safer Internet Association (SIA).

With regard to disinformation, MIC is continuously conducting surveys on the state of contact with, reception and spread of disinformation by citizens and their attitude to information distribution, and considering measures against disinformation based on the results, etc. Furthermore, diverse stakeholders in the private sector are advancing various initiatives. Examples are initiatives to promote fact checking, including the development and publication of the fact check guidelines and rating standard by the Fact Check Initiative Japan, and the study of disinformation countermeasures by the Forum against Disinformation set up by SIA.

Column 1 Past 50 years of mail and correspondence delivery

This column reviews the history of mail and correspondence delivery by dividing the 50 years after the publication of the White Paper into five periods as in Chapter 1.

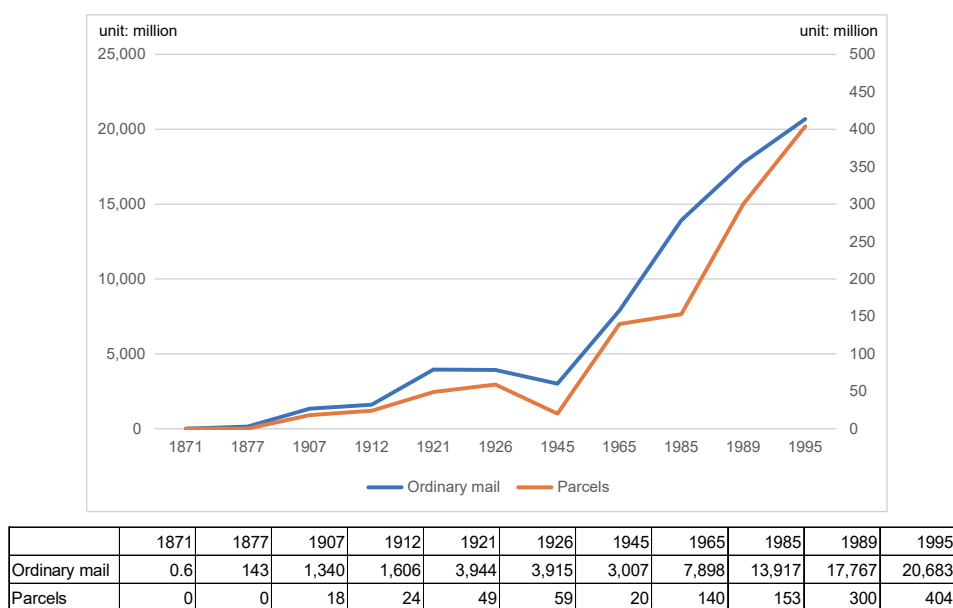
1. 1973 to 1985

With the expansion of economic activities during a period of high economic growth in Japan, the volume of mail and parcels increased. The total volume of post reached 15.3 billion items in fiscal 1979¹, the third highest volume in the world after the United States and the Soviet Union.

During this period, the further development of transportation means, including railways and aircraft, as well

as progress in mechanization and computerization, further increased the speed of postal service provision. Key initiatives of the mechanization and computerization of postal services include a full-automatic system to consistently handle all processes, from the sorting of letters to placing them in mailbags, was introduced in 1975, and self-service machines for accepting mail were introduced in 1976.

Figure 1 Changes in postal volume



(Source) Excerpt from Nakamura (1997)²

¹ Japan Post (2021) "Serving Customers – 150-year History of Postal Service" material p263.
<https://www.japanpost.jp/150th/digest/pdf/08.pdf>

² NAKAMURA, Yoshiaki (1997) "Transition of Postal Undertaking over 100 years -From Railroad Horse to Car & Airplane, from Manual Handling to Machine Processing" Japan Society of Mechanical Engineering, Vol.100, No.939, pp.177-184.
https://www.jstage.jst.go.jp/article/jsmemag/100/939/100_KJ00003054331/_pdf-char/ja

2. 1985 to 1995

In this period, attention was paid to how postal services contribute to creating vibrant communities. The Ministry of Posts and Telecommunications proposed its “Utopia Vision” in 1987 and experimentally introduced “Town Mail³” and “DM Support Service⁴” as new community post office services (**Figure 2**).

This is also a period when the quality of postal service

was improved through use of information and communications technologies. Introduction of a parcel tracking system and the international business mail (current EMS) tracking system in 1988 and the registered mail tracking system in 1991 enabled a prompt answer to customers’ inquiry of arrival.⁵

Figure 2 Model cities of the Utopia Vision



(Source) Excerpt from 1989 Communications White Paper⁶

3. 1995 to 2005

This period saw major changes in systems for providing postal services. Specifically, as a result of a central government reorganization in January 2001, the Ministry of Posts and Telecommunications was reorganized into the Ministry of Internal Affairs and Communications (MIC) and the Postal Service Agency was set up as an affiliated agency of MIC. Later, the Postal Service Agency was reorganized into a public corporation, Japan Post, in April 2003. This marked a radical change in the form of postal services, and was a transition from national on-site operations that had existed since the Meiji Period (1868-1912). At the same time as the establish-

ment of Japan Post, private enterprises were permitted to enter the industry of correspondence delivery services, which had previously been a monopoly.

This is also a period during which various initiatives started for the streamlining and stabilization of postal services. In particular, the expansion of postal codes to seven digits in 1998 enabled the identification of addresses to a town level. Furthermore, sorting work was facilitated and overall postal services were streamlined by the reading of postal codes and address information on post with an OCR (Optical Character Reader) and by attaching bar codes to individual addresses.⁷

³ Service to deliver post without addresses to all households in areas designated by the sender

⁴ Direct mail support service where post offices connect individuals’ demand to receive direct mail meeting their needs and demand of enterprises, stores, etc. to send direct mail meeting needs

⁵ NAKAMURA, Yoshiaki (1997)

⁶ <https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h01/html/h01a01040600.html>

⁷ OE Hiroko and UCHIDA Hideo (2007) “Paradigm Shift Brought about by Information Processing Technologies in Postal Services – Impact of 7-digit Postal Code” Lectures of the 69th National Convention of the Information Processing Society of Japan, pp.341-342. https://ipsj.ixsq.nii.ac.jp/ej/?action=repository_action_common_download&item_id=173915&item_no=1&attribute_id=1&file_no=1

4. 2005 to 2015

With the enactment of the Postal Service Privatization Act (Act No. 97 of 2005), the Japan Post Group consisting of five companies was established: Japan Post Holdings, Japan Post Service, Japan Post Network, Japan Post Bank, and Japan Post Insurance. Later in October 2012, with the amendment of the Postal Service Privatization Act, Japan Post was established with the merging

of Japan Post Service and Japan Post Network (reorganization to the current 4-company structure). At the same time, the obligation of universal financial services at post offices⁸ expanded the scope of universal services: a system was established to provide basic bank and insurance services in addition to existing postal services in an integrated manner at post offices.

5. From 2015 to present day

In November 2015, a part of the shares of the three companies of Japan Post Group (stocks of Japan Post Holdings held by the government and the stocks of Japan Post Bank and Japan Post Insurance held by Japan Post Holdings) were listed on the Tokyo Stock Exchange and sold to the market.

During this period, as ICT has come to play a key role

in social and economic activities, the Japan Post Group has worked to upgrade its post office network using ICT, which includes collaboration with other companies in the mobile, digital transformation and e-commerce fields.⁹ Initiatives to take advantage of ICT and use the nationwide post office network to solve regional challenges are also in progress.



Data related to Column 1

URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2022/data_collection.pdf#2-C-1 (Data collection)

⁸ https://www.soumu.go.jp/main_content/000431455.pdf

⁹ Rakuten Group “Progress of business alliance between the Japan Post Group and the Rakuten Group” (April 28, 2021) https://corp.rakuten.co.jp/news/press/2021/0428_02.html