Chapter 2

ICT policy initiatives in the MIC

Section 1 Promotion of comprehensive ICT policies

1. Current status and issues

(1) Progress of declining birthrate, aging population, and population decrease

In Japan, the declining birthrate and aging population are progressing, and it is expected that the population will continue to decrease in the future. Particularly, the decrease in the working-age population (ages 15-64) is a concern as it may lead to a reduction in labor supply, a decrease in future economic and market size, and a decline in economic growth rate. Therefore, improving labor productivity and expanding labor participation are urgent tasks. ICT plays a significant role in addressing these issues. For example, by utilizing AI and robots to improve work efficiency and allocate labor resources effectively, and by expanding employment options through telework and satellite offices, which are not constrained by location.

(2) Frequent and severe disasters, aging social infrastructure

In recent years, Japan has experienced frequent and severe weather disasters due to climate change, and the occurrence of large-scale earthquakes such as the Nankai Trough Earthquake, the Japan Trench and Kuril Trench Earthquakes, and the Tokyo Metropolitan Earthquake is also considered imminent. During such disasters, it is essential to utilize ICT to accurately collect disaster-related information and provide evacuation information, as well as to ensure the rapid restoration of communication and the continuous provision of communication services.

Moreover, the infrastructure that was intensively developed during the period of rapid economic growth is expected to age rapidly in the future, necessitating strategic maintenance and renewal. Given the decreasing labor supply due to the declining birthrate and aging population, it is also challenging to allocate manpower for infrastructure maintenance. Therefore, it is necessary to use ICT to manage and update infrastructure more efficiently.

(3) Increasing complexity of international situations

The international situation surrounding Japan is becoming increasingly complex, with events such as Russia's invasion of Ukraine, cross-border cyberattacks on critical infrastructure, and the spread of disinformation. In this context, the "Act on Promotion of Ensuring Security by Taking Integrated Economic Measures" (Act No. 43 of 2022), enacted in May 2022, lists "Telecommunications Business," "Broadcasting Business," and "Postal Business" as business fields that may be subject to the system for ensuring the stable provision of specific social infrastructure services. Efforts are being made to ensure the effective implementation of this system. Moving forward, it is necessary to build resilient ICT infrastructure, strengthen cybersecurity and supply chains, and collaborate with the international community.

Additionally, as climate change issues become more severe, Japan declared in October 2020 its goal to achieve carbon neutrality by 2050, aiming to reduce greenhouse gas emissions to net zero. The "Growth Strategy Execution Plan," formulated in June 2021, promotes the greening of the information and communication industry through two approaches: (1) promoting energy efficiency and CO2 reduction through digitalization (Green by ICT) and (2) improving energy efficiency and greening of digital devices and the information and communication industry itself (Green of ICT).

Japan's internet traffic[1] has surged approximately 2.7 times as of November 2023 compared to pre-COVID-19 levels in November 2019. With the expected continued increase in traffic, the power consumption of ICT-related equipment is also on the rise, necessitating the greening of ICT itself.

[1] Total download traffic for fixed broadband subscribers

2. Initiatives to promote comprehensive ICT policies

(1) Promoting efforts to realize the Vision of Digital Garden City Nation

To advance the implementation of digital technologies from rural areas, create a new wave of transformation, and narrow the gap between rural and urban areas, the "Vision of Digital Garden City Nation Realization Conference," chaired by the Prime Minister, was established in November 2021. This initiative aims to realize the "Vision for a Digital Garden City Nation," which connects Japan to the world, by concretizing the concept and promoting regional revitalization through digital implementation. Based on the discussions of this conference, the "Basic Policy for the Vision for a Digital Garden City Nation" was formulated in June 2022, and the "Comprehensive Strategy for the Vision for a Digital Garden City Nation," a five-year plan from FY2023 to FY2027, outlining the medium- to long-term basic direction of the concept, was approved by the Cabinet in December of the same year. Furthermore, in December 2023, the "Comprehensive Strategy for the Vision for a Digital Garden City Nation (Revised Edition in 2023)" was approved by the Cabinet, taking into account the trends in digital administrative and fiscal reforms.

Particularly regarding the development of digital infrastructure such as optical fiber and 5G, the "Infrastructure Development Plan for a Digital Garden City Nation" was formulated by the MIC in March 2022[2], and efforts are being vigorously promoted in line with this plan.

Figure (related data) Vision of Digital Garden City Nation Realization Conference
URL: https://www.cas.go.jp/jp/seisaku/digital_denen/index.html

[2] Revised on April 2023

Section 2 Trends in telecommunications business policies

1. Summary

(1) Initiatives so far

Since the liberalization of telecommunications in 1985 and the enactment of the Telecommunications Business Act (Act No. 86 of 1984), numerous new entrants have joined the market over the past 35 years. Under the principles of competition, various telecommunications technologies such as IP and digitalization, mobile, and broadband have advanced and been introduced, leading to significant progress in reducing costs, diversifying services, and enhancing their sophistication. The MIC has continuously reviewed various policies and systems to maintain the innovation and dynamism of these telecommunications services while ensuring the provision of reliable telecommunications services.

For example, in recent years, Japan's telecommunications market has seen significant environmental changes, such as the widespread adoption of mobile phones and broadband and the advancement of competition primarily among groups of mobile communication operators. In response to these changes, efforts have been made to establish systems that ensure a fair competitive environment. Additionally, given that mobile phones have become essential in daily life, issues such as high fees compared to other countries and the complexity of pricing plans have been addressed to enable citizens to access affordable and diverse mobile phone services.

Furthermore, systems have been established to address various issues related to the use of telecommunications services, such as the information gap between users and operators, inappropriate solicitations by operators, the increase in various troubles, and the growing complexity and sophistication of cyberattacks and global risks.

(2) Future challenges and directions

The telecommunications business provides essential telecommunications services necessary for the daily lives of citizens and socio-economic activities. As Japan's social structure moves towards "Rapid Population Decline and Super-aging," the role of ICT in regional revitalization, such as strengthening local industrial bases and promoting regional migration, is expected to increase. Additionally, ICT is anticipated to play a growing role in revitalizing economic activities, creating new businesses, improving productivity, ensuring a safe and secure society, and solving social issues in fields such as healthcare, education, and administration. Consequently, the importance of telecommunications services is increasing.

In this context, ensuring the benefits of telecommunications service users and developing digital infrastructure as a foundation to support the promotion of innovation, digitalization, and DX (Digital Transformation) in Japan's society and economy is extremely important.

Looking ahead, it is anticipated that not only the telecommunications market but also Japan's social structure will undergo further drastic changes, leading to an era where the social and economic models we have taken for granted may no longer apply. There is a growing need to use advanced information and communication technologies to solve social issues and create value.

Moreover, as telecommunications services have become indispensable for daily life and socio-economic activities, it is essential to provide continuous services even during emergencies such as natural disasters and communication disruptions.

Therefore, it is necessary to develop an environment where all entities in Japan can utilize reliable and secure information and communication.

2. Examination of telecommunications policy in response to changes in the market environment

To respond swiftly and flexibly to changes in the market environment and improve the quality of life for citizens and economic revitalization, the MIC consulted the Information and Communications Council in August 2023 on the "Telecommunications Policy in Response to Changes in the Market Environment Changes." Following discussions in the Special Subcommittee on Telecommunications Policy established under the council, the first report, compiled in February 2024, organized the discussions into two categories. Urgent issues necessary to strengthen international competitiveness, such as reviewing research responsibilities, were proposed as "Matters to be Implemented Promptly." Matters that could significantly impact citizens, users, and telecommunications operators, such as universal service, fair competition, and economic security, were organized as "Matters Requiring Further Consideration." The MIC submitted a bill to partially amend the "Act on Nippon Telegraph and Telephone Corporation, etc." to the Diet in March of the same year, incorporating the contents proposed as "Matters to be Implemented Promptly." The bill was enacted and came into effect in April of the same year. The Information and Communications Council continues to discuss the "Matters Requiring Further Consideration" proposed in the first report. In particular, specialized discussions are being held in a working group to compile recommendations on ensuring universal service, fair competition, and economic security in the telecommunications sector by around this summer.

3. Creation of a fair competitive environment

(1) Analysis and verification of the telecommunications market

A Verification of the telecommunications market

Since FY2016, the MIC has been implementing market verification initiatives that integrate the analysis and verification of market trends and the confirmation of the appropriateness of telecommunications operators' operations. To obtain advice from an objective and specialized perspective, the "Telecommunications Market Verification Conference," composed of academic experts and other professionals, has been convened. Additionally, starting from FY2023, in light of the rapid changes in the market environment and the diversification of services due to the advancement of digitalization, and considering the increasing dependence of national life and socio-economic activities on telecommunications, the MIC has decided to conduct monitoring of major telecommunications operators through hearings and other means. This monitoring will take into account the risks associated with providing telecommunications services, not only in emergencies but also during normal times. In August 2023, the MIC formulated the "Basic Policy on Market Verification in the Telecommunications Business Field," which includes this monitoring. Market verification is being conducted based on this basic policy.

B Ensuring a fair competitive environment in the mobile market

The MIC is working to establish a fair competitive environment in the mobile market to achieve affordable and diverse services through active competition among operators. In 2019, the MIC amended the Telecommunications Business Act to separate communication charges from device charges and to prohibit excessive customer retention practices. The effects of these measures and their impact on the mobile market have been continuously verified since 2020 by the "Working Group on the Verification of Competition Rules," established under the "Telecommunications Market Verification Conference." In September 2023, the working group compiled the results of the review based on Article 6 of the Supplementary Provisions of the 2019 Amendment to the Telecommunications Business Act into the "Report on the Verification of Competition Rules in 2023." Based on this report, the MIC revised the system in December 2023.

As part of its efforts, the MIC published the "Action Plan for Ensuring a Fair Competitive Environment in the Mobile Market" in October 2020, which outlines specific measures to establish a fair competitive environment in the mobile market. Based on the discussions in the "Working Group on the Verification of Competition Rules" and the action plan, the MIC implemented measures such as the principle prohibition of SIM locks (August 2021) and the establishment of systems to facilitate the early termination of existing contracts (January 2022). Additionally, mobile phone operators have made progress in eliminating cancellation fees, launching carrier email portability services, and introducing eSIMs, thereby advancing the establishment of a fair competitive environment in the mobile market. In November 2023, the MIC published the "Mobile Market Competition Promotion Plan to Enrich Daily Life," which outlines measures that the MIC will promptly implement to further promote a competitive environment focused on pricing and services.

Furthermore, the MIC is working to promote user understanding through public awareness activities via consumer organizations. Since December 2020, the MIC has also launched a "Mobile Phone Portal Site" on its website, which provides neutral information to help users choose plans that suit their needs, thereby enhancing consumer understanding.

Figure (related data) Mobile phone portal site
URL: https://www.soumu.go.jp/menu_seisaku/ictseisaku/keitai_portal/

(2) Establishment of interconnection rules and other regulations

A Review based on changes in the situation of voice communications

In voice services such as telephone calls, the typical form of connection (voice connection) involved mutual payment of interconnection charges between connecting operators, corresponding to the bidirectionality of voice calls. However, considering environmental changes such as the transition of fixed telephone networks to IP networks (scheduled for completion in January 2025), various discussions have been held regarding the system and rules.

In this context, the MIC has been discussing the review of voice connections, including the "Bill & Keep Method," where operators do not mutually pay interconnection charges, in the "Study Group on Calculation of Interconnection Charges etc." since 2023. Based on the results of these discussions, in March 2024, the MIC established a system allowing the selection of the "Bill & Keep Method" based on mutual agreement between connecting parties, including operators installing Designated telecommunications facilities such as MNOs (Amendment to the Ordinance for Enforcement of the

Telecommunications Business Act etc., Ministry of Internal Affairs and Communications Ordinance No. 14 of 2024).

Additionally, regarding the specific calculation method of interconnection charges applicable to "Metal IP Phones" and other services provided by NTT East and West after the transition of fixed telephone networks to IP networks, the MIC consulted the Information and Communications Council in October 2023 and received a report in June 2024. Based on this, the MIC plans to stipulate the specific calculation methods in ministerial ordinances.

B Review of the calculation method for mobile interconnection charges

The Telecommunications Business Act imposes regulations (designated telecommunications facilities system) on specific operators that establish major networks to ensure the fairness and transparency of interconnection charges and conditions, and the promptness of interconnections. The MIC ensures the appropriateness of interconnection charges through administrative procedures such as approval and notification, and improves the appropriateness of calculation methods through discussions in the "Study Group on Calculation of Interconnection Charges etc."

Regarding the interconnection charges for MNO networks in mobile communications (mobile interconnection charges), the "Seventh Report of the Study Group on Calculation of Interconnection Charges etc." in September 2023 pointed out differences in the allocation standards for costs and assets among MNOs when calculating both voice and data communication interconnection charges. Based on this report, MIC amended the "Rules for Category II Designated Telecommunications Facilities Interconnection Accounting" (Amendment to the Ordinance for Enforcement of the Telecommunications Business Act etc., Ministry of Internal Affairs and Communications Ordinance No. 99 of 2023) and organized unified allocation standards in the "Working Group on Cost Allocation for Mobile Interconnection Charges" under the same study group.

Regarding the interconnection charges for NTT East and West networks in fixed communications, the study group also organized necessary reviews, including the calculation method for remuneration (appropriate profit) and the handling of "Remaining Lines" of subscriber optical fibers.

C Review of the system for wholesale telecommunications services

For wholesale telecommunications services provided using Category I designated telecommunications facilities, the Act for Partial Amendment of the Telecommunications Business Act (Act No. 70 of 2022) imposes obligations to provide services and disclose information during negotiations to correct the negotiating superiority of wholesale providers and ensure the appropriateness of negotiations between wholesale providers and wholesale recipients.

The MIC confirms the status of negotiations and the operation of the system after the enforcement of the amended law through the "Study Group on Calculation of Interconnection Charges etc." and other forums. The MIC also discusses the verification of wholesale charges, focusing on the substitutability of wholesale telecommunications services and interconnection functions, and continues efforts to appropriately parallel the use of "Interconnections" and "Wholesale Telecommunications Services" in the use of Category I and II designated telecommunications facilities.

4. Development and maintenance of digital infrastructure

(1) Promotion of optical fiber development

Regarding digital infrastructure using optical fiber, there is a strong expectation for the utilization of digital technologies, including telework, remote education, and telemedicine, to solve regional issues. However, in geographically disadvantaged areas such as depopulated regions and remote islands, the financial burden is significant relative to the population, leading to delays in development[1].

In light of this background, the MIC has implemented the "Project to Promote Advanced Wireless Environment," which subsidizes part of the project costs when local governments and telecom service operators develop optical fiber, which is a prerequisite for high-speed, large-capacity wireless communication such as 5G, in disadvantaged areas. This project also includes subsidies for expenses required for the maintenance and management of optical fiber in remote island areas conducted by local governments. Additionally, based on the "Infrastructure Development Plan for a Digital Garden City Nation," (formulated in March 2022, revised in April 2023), efforts are being made to increase the national coverage rate for fiber optic broadband services (household coverage rate), which was 99.8% as of the end of March 2023, to 99.9% by the end of March 2028.

To accelerate development in remote islands, where the cost of laying submarine cables is often high, the support content has been significantly expanded in the supplementary budget for FY2023 and the budget for FY2024, including increased subsidy rates for remote island areas. The promotion of optical fiber development in disadvantaged areas, including remote islands, will continue. Furthermore, based on the requests of local governments, efforts will be made to promptly and smoothly transition public facilities to private facilities.

[1] Refer to Section 2 "Trends in telecommunications field" in Chapter 1, Part 2.

(2) Decentralization of data centers and submarine cables

Against the backdrop of increasing internet traffic and the growing use of cloud and AI with the advancement of DX, the demand for data centers and submarine cables is increasing globally. These digital infrastructures have become indispensable for supporting social life and economic activities. In Japan, while investment in the Osaka area has increased in recent years, about 60% of data centers are concentrated in the Tokyo area, and this trend is expected to continue. Regarding submarine cables, the landing stations for international submarine cables are concentrated on the Boso Peninsula and its surroundings, and the Sea of Japan side is a missing link for domestic submarine cables. In such a situation, if the Tokyo or Osaka areas are affected by a major disaster, there could be nationwide impacts on communication services. From the perspective of strengthening Japan's digital infrastructure, it is necessary to promote the decentralized location of data centers and the development of submarine cables on the Sea of Japan side. Additionally, given Japan's position as a relay point between North America/Europe and the Asia-Pacific region, it is essential to further promote the laying of international submarine cables to establish Japan as a hub for international data distribution and build autonomous digital infrastructure. Furthermore, considering the recent changes in the international situation, such as the increasing complexity of the national security environment surrounding Japan, it is also necessary to strengthen the security measures for international submarine cables and landing stations.

The MIC, as part of the supplementary budget project for FY2021, has created a fund to support private businesses in developing data centers and submarine cables, providing support for data center development projects located outside the Tokyo area. Additionally, as part of the supplementary budget project for FY2023, the fund has been increased, and new support targets, such as branch lines and branching devices for international submarine cables, have been added to promote the diversification of routes for international submarine cables.

Furthermore, in the "Infrastructure Development Plan for a Digital Garden City Nation" (formulated in March 2022, revised in April 2023), it is stated that (1) for data centers, the development of the third and fourth core bases to complement and substitute Tokyo and Osaka will be promoted, and in collaboration with relevant ministries such as the METI, further decentralization of data centers and necessary support for base development will be considered; and (2) for submarine cables, efforts will be made to develop domestic submarine cables on the Sea of Japan side, which is currently a missing link, to complete the submarine cable encircling Japan (Digital Rural City Super Highway). In conjunction with efforts to decentralize data centers, the development of submarine cables and other infrastructure will be promoted to strengthen Japan's function as an international data distribution hub. Additionally, to strengthen the security measures for international submarine cables and landing stations, efforts will be made to promote the diversification of routes in preparation for disconnections of international submarine cables, protect international submarine cables and landing stations, and strengthen the installation and maintenance systems for international submarine cables.

(3) Ensuring the provision of broadband services

The MIC has positioned broadband services, which are essential for utilizing services such as telework, remote education, and telemedicine, as the newly designated Type II Basic Telecommunications Services (Universal Services) under the Telecommunications Business Act. To ensure their appropriate, fair, and stable provision, the MIC has imposed business regulations, such as the requirement to submit contract terms, on telecommunications carriers providing these services. Additionally, the MIC has established a new grant system (Universal Service System for Broadband Services) funded by contributions from telecommunications carriers providing broadband services nationwide. This system reform was enacted through the partial amendment of the Telecommunications Business Act (Act No. 70 of 2022, hereinafter referred to as the "2022 Amended Telecommunications Business Act"). The 2022 Amended Telecommunications Business Act and the related cabinet orders and ministerial ordinances defining the scope of Type II Basic Telecommunications Services[2] came into effect in June 2023.

Regarding the specific calculation methods for grants under this system, in July 2023, the MIC consulted the Information and Communications Council on the "Framework for Basic Telecommunications Services Related to Broadband Services." From September of the same year, the Universal Service Policy Committee under the Telecommunications Business Policy Subcommittee of the Information and Communications Council convened the "Working Group on the Calculation of Grants and Contributions in the Universal Service System for Broadband Services" to conduct detailed examinations on the calculation of grants and contributions. Concurrently, to build and verify the standard determination formula used for designating support areas and calculating grants, the "Study Group on Cost Calculation in the Universal Service System for Broadband Services" was held from September 2023, deepening the discussions. In March 2024, the discussions from these councils and committees were compiled.

[2] FTTH access service, CATV access service (HFC method) and wireless fixed broadband access service (dedicated type)

5. Ensuring the safety and reliability of telecommunications infrastructure

(1) Establishment of technical standards for telecommunications infrastructure development

In light of the advancement of virtualization technology in communication networks and the utilization of cloud services, leading to the diversification and complexity of service provision structures, the Information and Communications Technology Subcommittee on IP Network Equipment of the Information and Communications Council deliberated on the "technical requirements for telecommunications equipment to address the diversification and complexity of networks due to the advancement of technology" from April 2022 to February 2023.

Based on the first interim report compiled in September 2022, the Information and Communications Council's partial recommendation[3] indicated the appropriateness of imposing standards equivalent to those currently applied to MNOs on MVNOs that receive the designation of voice transmission mobile phone numbers. Subsequently, following the recommendation of the Information and Communications Administration and Postal Administration Council[4], in February 2023, ministerial orders amending certain provisions of the Ordinance for Enforcement of the Telecommunications Business Act were implemented to relax the designation conditions for voice transmission mobile phone numbers.

Furthermore, the same committee conducted deliberations on "technical requirements for telecommunications equipment based on the advancement of virtualization technology" and "technical requirements for situations where there is a recognized risk of a significant accident," and compiled a second interim report in February 2023. Based on the partial recommendation[5] of the Information and Communications Council derived from this report, amendments were made to the Ordinance for Enforcement of the Telecommunications Business Act in June 2023 for "technical requirements for telecommunications equipment based on the advancement of virtualization technology," and the amended regulations were enforced in January 2024.

(2) Ensuring communication services during emergencies

A Efforts to establish standards for measures to be implemented by telecommunications operators

In recent years, Japan has experienced frequent natural disasters such as earthquakes, typhoons, heavy rains, heavy snowfalls, floods, landslides, and volcanic eruptions. These events have caused disruptions in communication services due to power outages, equipment failures, and cable cuts. The MIC has revised the "Information and Communication Network Safety and Reliability Standards" (Ministry of Posts and Telecommunications Notification No. 73 of 1987) to include measures such as earthquake resistance, power outage countermeasures, and fire prevention measures that telecommunications operators should implement, aiming to ensure communication services during disasters.

Additionally, since October 2018, the "Liaison Meeting on Ensuring Communication Services During Disasters" has been held to review responses to successive disasters, share information, and exchange opinions on issues such as rapid damage assessment and restoration efforts. Based on the information obtained from these meetings, efforts are being made to establish communication systems and initial response training between telecommunications operators and related organizations involved in power, fuel, and fallen trees removal.

B Efforts of the "MIC-TEAM" (MIC Disaster Telecom Support Team)

In June 2020, the MIC established the "MIC-TEAM" to support disaster response efforts aimed at ensuring communication means. The MIC-TEAM is dispatched to local governments in disaster-affected areas when a large-scale disaster occurs or is likely to occur. The team assesses the damage to communication services, coordinates with relevant administrative agencies and operators, and provides technical advice and support such as lending mobile power supply vehicles. For instance, during the heavy rains in the summer of 2023, the team was dispatched to the Fukuoka and Akita prefectural offices. Additionally, approximately 133 staff members were dispatched to the Ishikawa prefectural office following the Noto Peninsula Earthquake in January 2024 (as of the end of May 2024).

C Considerations on intercarrier network utilization during emergencies

Mobile phone services are essential lifelines for daily life and economic activities. Ensuring that users can continue to use communication services during emergencies, such as natural disasters or communication failures, by temporarily utilizing other operators' networks through "intercarrier roaming" is a critical issue. In response, the MIC has been holding the "Study Group on Intercarrier Roaming in Emergency Situations" since

[3] The partial recommendation of Information and Communications Council regarding "Technical conditions for telecommunications equipment that respond to the diversification and complexity of networks due to advances in virtualization technology, etc." (September 16, 2022), https://www.soumu.go.jp/menu_news/s-news/01kiban05_02000253.html

[4] Results of soliciting opinions regarding partial revisions to the Ordinance for Enforcement of the Telecommunications Business Act etc. and the recommendation of the Information and Communications Administration and Postal Administration Council (January 20, 2023) https://www.soumu.go.jp/menu_news/s-news/01kiban06_02000100.html

[5] The partial recommendation of Information and Communications Council regarding "Technical conditions for telecommunications equipment that respond to the diversification and complexity of networks due to advances in virtualization technology, etc." (February 24, 2023) https://www.soumu.go.jp/menu_news/s-news/01kiban05_02000283.html

September 2022. The first report, compiled and published in December 2022, set forth the basic policy of introducing Full Intercarrier Roaming, which allows for emergency calls, general calls, data communication, and call-backs from emergency respond agencies as early as possible during emergencies.

Furthermore, the second report, compiled in June 2023, outlined the policy of introducing a roaming method that allows emergency calls even if there is a failure in user authentication of the core network necessary for call-backs from emergency respond agencies, alongside Full Intercarrier Roaming. The third report, compiled in May 2024, detailed the basic concept of intercarrier roaming and the schedule aiming for the introduction of both methods around the end of FY2025.

Moving forward, efforts will be made to promote technical studies and verifications, ensure interconnectivity between base stations and terminals, and other initiatives to achieve "intercarrier roaming."

(3) Analysis and verification of telecommunications accidents

To prevent telecommunications accidents and minimize their impact, appropriate measures are necessary both before and after an accident occurs. Since 2015, the MIC has been holding the "Telecommunications Accident Verification Meeting" to analyze and verify reports related to "Serious Accidents" and "Situations Recognized as Likely to Cause Serious Accidents" as defined by the Telecommunications Business Act, as well as "Quarterly Report Accidents" as defined by the Telecommunications Business Reporting Regulations. The verification results of telecommunications accidents that occurred in FY2022 were compiled and published in the "Verification Report on Telecommunications Accidents in FY2022" in August 2023. Continuous verification of telecommunications accidents that occurred in FY2023 was also conducted. Based on these accidents, administrative guidance was provided to implement necessary measures from the perspective of preventing recurrence.

Common issues such as risk identification and evaluation, prevention of human errors, training, and maintenance and operation systems are considered to be behind the frequent occurrence of telecommunications accidents. Therefore, from December 2022, the Telecommunications Accident Verification Meeting has been examining structural issues related to organizational and system aspects behind individual accidents, as well as reviewing technical standards and management regulations based on these structural issues, and considering ways to strengthen governance over maintenance and operation systems related to safety measures. In March 2023, the "Report on the Verification of Structural Issues Related to Telecommunications Accidents" was compiled. Based on this report, in addition to various initiatives by telecommunications operators themselves, the administration also aims to implement monitoring of compliance with laws and regulations related to ensuring the safety and reliability of telecommunications services. In July 2023, the "Basic Policy on Monitoring the Safety and Reliability of Telecommunications Services" was formulated, and the first year's verification began in August. Additionally, in September, the Ordinance for Enforcement of the Telecommunications Business Act etc. were revised to include the inspection and evaluation of compliance with management regulations by telecommunications operators as part of the notification items for management regulations.

6. Creation of a safe and secure usage environments in telecommunication services

(1) Ensuring governance in the telecommunications sector

The telecommunications industry is an essential sector that promotes innovative advancements across various fields, including information and communication technology. To foster the provision of innovative services through the introduction of digital technologies and to promote the DX of society, it is crucial to ensure the provision of reliable and trustworthy telecommunications services that users can rely on.

The MIC has been working to ensure secure, safe, and reliable communication services and networks in the digital age. To this end, the MIC has been examining the governance of cybersecurity measures and data handling by telecommunications operators. In May 2021, the MIC established the "Study Group on the Telecommunications Business Governance" to discuss future measures based on these examinations. Following the committee's recommendations, the MIC introduced new regulations to promote the proper handling of user information, particularly by telecommunications operators who manage large volumes of data. These regulations align with international standards and include mandatory formulation and submission of regulation for handling information. Additionally, the MIC has established rules to ensure the smooth provision of telecommunications services, such as measures against cyberattacks and accident reporting systems. These amendments to the Telecommunications Business Act were enacted in June 2022. Subsequently, from June to September 2022, the MIC convened the "Working Group on the Proper Handling of Specified User Information" to discuss detailed regulations regarding the handling of specified user information. The Ordinance for Enforcement of the Telecommunications Business Act was amended to specify the following: (1) items to be included in regulations for handling information, (2) items to be included in information handling policies, (3) evalua-

tion items for the handling of specified user information, (4) requirements for the general manager of specified user information, and (5) reporting requirements in the event of a data breach. The revised Telecommunications Business Act and the revised Ordinance for Enforcement of the Telecommunications Business Act came into effect in June 2023. Furthermore, in December 2023, the MIC designated telecommunications operators who should handle specified user information properly, with the designation taking effect in January 2024.

(2) Establishing consumer protection rules in the telecommunications sector

A Overview

The advancement and diversification of telecommunications services have brought increased convenience and more options for many users. However, this has also led to issues such as information asymmetry between users and operators and inappropriate solicitations by operators, resulting in various troubles. To prevent such issues and ensure that consumers can benefit from the advanced and diversified telecommunications services, the MIC has been establishing and appropriately enforcing consumer protection rules related to telecommunications services, and revising them as necessary.

B Ensuring the effectiveness of consumer protection rules

(A) Handling complaints and consultations, coordination with stakeholders, and administrative guidance

The MIC has established the "MIC Telecommunications Consumer Consultation Center" to receive information from consumers[6]. Additionally, the telecommunications consumer support liaison meetings"[7] are held twice a year in various regions across the country to facilitate information sharing and exchange of opinions among stakeholders. Based on the information obtained through these initiatives, the MIC provides administrative guidance and coordinates with the Consumer Affairs Agency to ensure the effectiveness of consumer protection rules related to telecommunications services.

Furthermore, the MIC promotes voluntary efforts by related organizations to comply with consumer protection rules.

(B) Monitoring

The MIC has formulated the "Basic Policy for Supervising User Protection Regulations in the Telecommunications Business" and monitors the implementation status of consumer protection rules. The "Regular Monitoring Meetings on the Implementation Status of Consumer Protection Rules,[8]" which include experts and related business organizations, are held twice a year to share and evaluate the status among stakeholders.

These meetings analyze complaints and consultations in the telecommunications sector, not only in general trends but also by service type, such as MNO, MVNO, and FTTH. They also conduct thematic analyses[9], on-site investigations (mystery shopping), ad-hoc investigations of individual cases, and analyze complaints and consultations received by business organizations[10]. The results are summarized to evaluate and review the implementation status of consumer protection rules. Follow-up on the improvement efforts by operators is also conducted.

Based on the evaluations from these meetings, the MIC provides guidance to telecommunications operators identified in on-site investigations on areas needing improvement. The MIC also requests industry-wide efforts and dissemination of information to members from business organizations. The analysis results and evaluations from these meetings are utilized to review consumer protection rules and promote voluntary efforts by operators.

C Review of consumer protection rules

The MIC has been reviewing and expanding consumer protection rules in response to changes in the telecommunications market and the situation of consumer disputes. From June 2020, the "Study Group on the Review of Consumer Protection Rules" has been intensively examining the revision of the system, and in September 2021, the "Report on the Review of Consumer Protection Rules in 2021" was compiled. Based on this report, in February 2022, the MIC amended the Ordinance for Enforcement of the Telecommunications Business Act to: (1) mandate the use of written explanations in telemarketing for providing terms and conditions; (2) mandate measures to allow users to cancel without delay; and (3) institutionalize limits on the amounts that can be charged upon cancellation (effective from July 1, 2022).

Furthermore, in response to the "Study Group on the Review of Consumer Protection Rules," the MIC has been conducting follow-ups on the implementation and evaluation of the Telecommunications Business Act amended in 2019, as well as the "Recommendations on Efforts Based on the 'Report on the Review of Consum-

[6] 13,348 complaints have been received by phone and online (FY2023).
[7] A liaison group organized by the MIC to exchange opinions on how to support consumers in telecommunications services, with members of consumer centers and telecom operator organizations in various regions.
[8] Regular Monitoring Meetings on the Implementation Status of Consumer Protection Rules: https://www.soumu.go.jp/main_sosiki/kenkyu/shouhisha_hogorule/index.html
[9] The 15th meeting, held in July 2023, dealt with (1) complaints about communication speeds, (2) complaints from the elderly, (3) complaints about FTTH telemarketing, and (4) complaints about in-person sales visit.
[10] Telecommunications Carriers Association and National Association of Mobile-phone Distributors

er Protection Rules 2021'" compiled in July 2022. In August 2023, the "Report on the Review of Consumer Protection Rules 2023" was compiled based on this report. In line with this, the Ministry amended the Ordinance for Enforcement of the Telecommunications Business Act to clarify the necessary capabilities and systems required of sales agents, and also revised the "Guidelines on Consumer Protection Rules of the Telecommunications Business Act" to clarify that inappropriate business operations contrary to the principle of compliance may lead to issues regarding whether the telecommunications business operators, as the commissioning party, are effectively carrying out guidance and other measures. The Ministry will continue to advance monitoring and other initiatives to enhance consumer protection.

(3) Protection of secrecy of communication and user information

A Overview

With the proliferation of smartphones and IoT devices, a wide array of people, objects, and organizations are increasingly connected to the internet, leading to an exponential growth in the generation and accumulation of digital data. Concurrently, the results derived from data analysis using AI are being fed back into the real world, aiming to solve various societal challenges and realize Society 5.0.

In this context, the presence of platform operators offering various services for free is becoming more prominent, and there is a growing trend of user information being collected and accumulated. As essential services for daily life are increasingly provided by platform operators via smartphones and other devices, the importance of these operators in people's daily lives is rising, leading to the collection and accumulation of more sensitive information.

To ensure a balance between user convenience and the protection of secrecy of communication and personal data, it is crucial for platform operators to enhance the attractiveness of their services and ensure the proper handling of user information. This will allow users to utilize services with peace of mind, thereby enabling the full potential of platform functions to be realized.

B Further considerations for the protection of user information

In the "Study Group on Platform Services" held by the MIC, a "Working Group on the Handling of User Information Related to Platform Services" was established to discuss issues. Based on the results of these discussions, the "Interim Report" (September 2021) was compiled. This report suggested that it would be appropriate to advance considerations for the concrete institutionalization of the handling of user information, including cookies and location information, by referring to discussions on the ePrivacy Regulation (draft) in the EU, and examining the content and scope of regulations under the Telecommunications Business Act and other laws. Based on this report, a law to partially amend the Telecommunications Business Act was enacted in June 2022. This amendment mandates that when telecommunications carriers provide telecommunications services to users and transmit telecommunications that give instructions to send information externally, they must provide users with opportunities for notification and publication (hereinafter referred to as "external transmission regulations"). Subsequently, from June to September of the same year, the MIC held the same working group to discuss the details of the external transmission regulations. The Ordinance for Enforcement of Telecommunications Business Act were amended to specify the subjects of the regulations, the matters to be notified and published, and the methods of notification and publication. The amended Telecommunications Business Act and the revised Ordinance for Enforcement of Telecommunications Business Act came into effect in June 2023.

From February 2024, the "Study Group on Improving the Usage Environment for ICT Services" and the "Working Group on User Information" established under this study group, both held by the MIC, have been discussing further protection of user information. These discussions take into account changes in the domestic and international landscape of privacy measures on smartphones and various incidents.

(4) Measures against illegal and harmful information

A Overview

The circulation of illegal and harmful information on the internet remains a serious issue. The MIC has been continuously implementing measures against various types of illegal and harmful information, such as defamation and piracy, in collaboration with relevant parties.

B Measures Against Defamation on the Internet

Given the increasing severity of issues related to defamation on the internet, particularly on social networking services (social media) and other platform services, the MIC has been implementing the following measures based on the "Policy Package for Addressing Defamation on the Internet," which was compiled and published in September 2020.

(1) Awareness activities for improving information morality and ICT literacy among users
(2) Support for voluntary efforts by platform operators and enhancement of transparency and accountability (continuous monitoring of platform operators)
(3) Efforts related to disclosure of sender information

(smooth operation of the revised Provider Liability Limitation Act of 2021[11])

(4) Enhancement of consultation services (strengthening the system of the illegal and harmful information consultation center, enhancing collaboration among multiple consultation agencies, and publicizing a guide to multiple consultation windows)

As part of initiative (1), the MIC created an awareness video featuring a VTuber to inform the public about how to deal with defamation and other harms, which was released in late September 2023.

Additionally, in August 2022, the "Second Interim Report" was published by the "Study Group on Platform Services," summarizing future directions for addressing illegal and harmful information based on hearings with platform operators.

Based on this report, the "Working Group on Measures Against Illegal and Harmful Information, Including Defamation" was established in December 2022 to conduct specialized and intensive discussions on key issues such as (1) ensuring the transparency and accountability of deletions by platform operators and (2) the roles platform operators should play in effectively curbing the circulation of illegal and harmful information. As a result of the discussions in this working group, it was concluded that it is appropriate to require certain large-scale service providers among those with a purpose of communication between unspecified persons, to: (1) speed up responses by imposing obligations such as response deadlines within a certain period; and (2) enhance transparency by establishing standards and publicizing operational status (including legal measures). Following the working group's conclusions, the "Third Interim Report on Platform Services" was published in February 2024. Based on this report, a partial amendment to the Provider Liability Limitation Act was enacted in May 2024. This amendment also renamed the act to the "Act on Measures Against Rights Infringements Arising from the Distribution of Information via Specified Telecommunications" (abbreviated as the Information Distribution Platform Measures Act).

C Measures against online piracy

The MIC has been working on the following measures based on the "MIC's Policy Menu for Measures Against Online Piracy" (December 2020): awareness-raising activities to improve information ethics and ICT literacy among users; promotion of the introduction of access deterrence functions through security software; review of the sender information disclosure system; and promotion of international cooperation through discussions in international forums such as ICANN.

Additionally, based on the "Current Summary" by the "Study Group on Access Deterrence to Online Piracy Sites" (September 2022), the MIC has been confirming the progress of its policy menu and the initiatives of relevant businesses.

7. Mediation and arbitration by the Telecommunications Dispute Settlement Commission

(1) Functions of the Telecommunications Dispute Settlement Commission

The Telecommunications Dispute Settlement Commission (hereinafter referred to as the "Commission") is a specialized organization established to promptly and fairly handle increasingly diverse disputes in the telecommunications field, where technological innovation and the competitive environment are rapidly advancing. Disputes are currently handled by five members and eight special members appointed by the Minister for Internal Affairs and Communications.

The Commission has three functions: (1)mediation and arbitration, (2)deliberation and reporting on inquiries from the Minister for Internal Affairs and Communications, and (3)recommendations to the Minister for Internal Affairs and Communications.

The Commission Secretariat has established a consultation service for communications and broadcasting business operators and others, which can be accessed by dedicated phone or email. The secretariat responds to inquiries and regarding disputes between telecom operators, and has established a website dedicated to the committee. In order help resolve disputes smoothly, the Commission has established the "Telecommunications Dispute Settlement Manual" and various pamphlets that provide a collection of dispute cases and explanations of procedures (1), (2), and (3) above.

Figure (related data) Overview of the function of the Commission
URL: https://www.soumu.go.jp/main_sosiki/hunso/outline/about.html

A Mediation and arbitration

Mediation is a procedure whereby, in the event of a dispute between telecom operators or broadcasters, the

[11] An Act to amend the Act on the Limitation of Liability for Damages of Specified Telecommunications Service Providers and the Right to Demand Disclosure of Identification Information of the Senders (No. 27 in 2021)

commission appoints a "mediator" from among its members and special members, and the mediator encourages the parties to come to terms with each other in order to achieve a prompt and fair resolution of the dispute. If necessary, the mediator also presents a mediation proposal. The procedure is not compulsory and requires the approval of both parties to proceed. However, if agreement is reached between both parties following the mediation procedure, a settlement will have been reached under the Civil Code.

Arbitration is generally conducted after the commission designates three members from among the members and special members as "arbitrators" and then an agreement is reached following the decision of the arbitrators (arbitral tribunal). In this case, the arbitral decision would have the same effect as a final and binding judgment between the parties, as applied mutatis mutandis by the Arbitration Act.

B Deliberation and reporting on inquiries from the Minister for Internal Affairs and Communications

Based on the provisions of the Telecommunications Business Act or the Broadcast Act, a party may file a petition for a negotiation order or an application for a ruling with the Minister for Internal Affairs and Communications in the event that negotiations between telecom operators or broadcasters fails.

The Minister for Internal Affairs and Communications is required to consult with the Commission when issuing these negotiation orders and rulings. The commission is consulted by the Minister for Internal Affairs and Communications, and deliberates and reports on these matters.

C Recommendations to the Minister for Internal Affairs and Communications

The Commission may make recommendations to the Minister for Internal Affairs and Communications regarding improvements in rules of competition that have been identified through mediation, arbitration, and deliberation / reporting on inquiries. The Minister for Internal Affairs and Communications publicizes the content of recommendations received from the Commission.

(2) Commission Activities

In FY2023, there were no applications for mediation or arbitration, but the Commission was consulted by the Minister for Internal Affairs and Communications regarding decisions related to detailed provisions concerning interconnection agreements, and the Commission is currently deliberating on this matter. There were also 10 inquiries handled using the consultation service.

From when the Commission was established in November 2001 to the end of March 2024, 72 mediation cases and 3 arbitration cases were handled, while 11 inquiries to the Minister for Internal Affairs and Communications and 3 recommendations to the Minister for Internal Affairs and Communications were submitted.

Figure (related data) Mediation handling
URL: https://www.soumu.go.jp/main_sosiki/hunso/case/number.html

Section 3 Trends in radio policy

1. Summary

(1) Initiatives so far

Radio waves are a finite and scarce resource that is widely used to provide essential services for the public, such as mobile phones, police, and fire services. As a shared national asset, it is necessary to ensure their fair and efficient use. Specifically, radio waves have the characteristic of causing interference when the same frequency is used in the same area, making it impossible to use them indiscriminately. Therefore, a system to ensure proper use is required. Additionally, the way radio waves propagate and the amount of information they can transmit vary depending on the frequency band, necessitating the use of each frequency band for suitable purposes. Furthermore, since radio waves can propagate across national borders depending on their power, international agreements and coordination are necessary for their use.

The Radio Act, established in 1950 to replace the old Wireless Telegraphy Act, which stated "Wireless telegraphy and wireless telephony shall be managed by the government," aims to promote public welfare by ensuring the fair and efficient use of radio waves. Since then, Japan has promoted the private use of radio waves, which are now indispensable to the public.

The MIC has been working on various initiatives, including the allocation of frequencies under international cooperation, licensing of radio stations, radio wave management to ensure a good radio wave usage environment free from interference and disturbances, research and development to expand radio wave resources, and technical testing for the effective use of radio wave technology.

(2) Future challenges and directions

In the era of digital transformation, where advanced technologies such as IoT, big data, and AI, as well as digital technologies necessary for the "new normal," are integrated into various industries and aspects of daily life to solve national issues and achieve further economic growth, radio waves are an indispensable infrastructure.

In this era of digital transformation, it is expected that the radio wave utilization industry will further develop, and the demand for radio wave use will expand dramatically. Given that radio waves are a finite and scarce national asset, there is a growing need to promote their fair and efficient use.

Additionally, with the continued increase in traffic for land mobile radio stations, such as mobile phones, maintaining a comfortable radio wave usage environment for mobile phones and other devices is crucial. This includes not only the more effective use of currently utilized frequencies but also the sharing of frequencies used for other purposes and the exploration of unused frequencies such as terahertz bands, making frequency allocation a significant challenge.

Furthermore, it is important to maintain a good radio wave usage environment while adapting to changes in the situation surrounding radio wave use. To achieve this, it is necessary to advance initiatives such as radio wave monitoring and test purchases of wireless equipment to respond to new radio wave uses and changes in the distribution of wireless equipment.

2. Radio policy toward expansion of digital businesses

(1) Examination of promoting effective use of radio waves for expanding digital business

With the advancement of technology, the use of radio waves has proliferated and evolved across all spaces and socio-economic activities, including land, sea, air, and space, becoming a source of innovation. Therefore, it is crucial to leverage radio waves as a growth foundation for the digital society, thereby expanding business opportunities further.

In light of this, the MIC has been holding the "Radio Wave Policy Roundtable for Expanding Digital Business" since November 2023. This council aims to discuss the future vision of radio wave utilization and set new goals and implementation strategies for effective use of radio waves to expand digital business. The council is considering future visions such as "Evolved Businesses Spreading Worldwide," "a Truly Rich and Exciting Life," and "a Reliable Society without Unforeseen Risks." To achieve these visions, the main perspectives include: (1) measures to expand the use of radio waves in all kinds of space, including land, sea, air, and universe, starting with NTN (Non-Terrestrial Networks); (2) transitioning, reorganizing, and sharing radio waves for flexible use amid increasing demand and frequency congestion; (3) establishing a safe, secure, and stable environment for using wireless networks as infrastructure; and (4) examining the spectrum user fee system to ensure the appropriate use of radio waves, which is the source of expanding digital business **(Figure 2-2-3-1)**. The roundtable plans to compile its findings by around the summer of 2024. Based on these findings, the MIC intends to implement the necessary institutional arrangements and other measures.

Figure 2-2-3-1 Future image discussed in the Radio Policy Roundtable for Expanding Digital Business

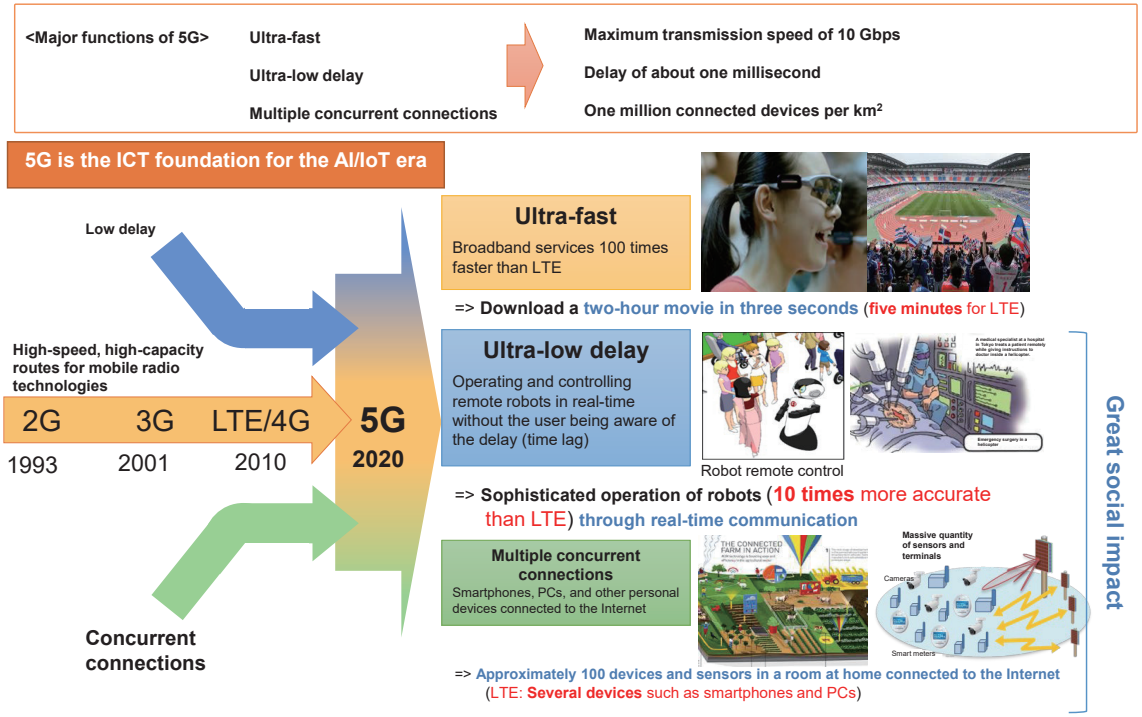
3. Spread and development of 5G and B5G

(1) Promotion and deployment of 5G based on the Infrastructure Development Plan for a Digital Garden City Nation

A Formulation of the "ICT Infrastructure Regional Deployment Master Plan"

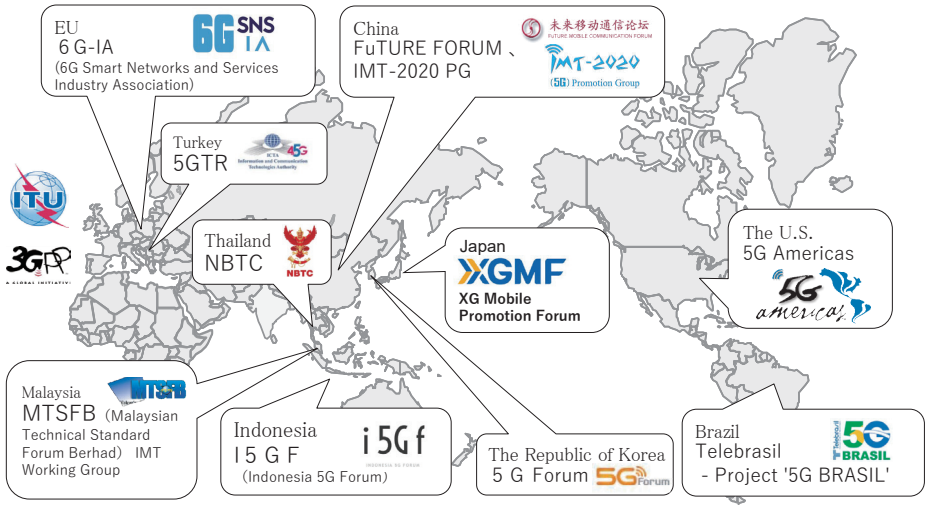
5G not only offers "Ultra-high Speed" as an evolution of 4G but also enables "Ultra-low Latency" for smooth operation of robots and other devices in remote areas, and "Massive Simultaneous Connections" where numerous devices can connect to the network simultaneously **(Figure 2-2-3-2)**. Therefore, 5G is highly anticipated as an essential infrastructure for realizing an IoT society where all "Things" are connected to the internet. In practice, various initiatives utilizing 5G are progressing in different regions and fields, such as autonomous driving of tractors, product inspection using AI-based image analysis, and remote control of construction machinery.

Figure 2-2-3-2 Features of 5G



The MIC recognizes 5G as a global economic and social foundation and actively contributes to the International Telecommunication Union (ITU) activities for 5G international standardization while strengthening international cooperation with Europe, the U.S., and Asian countries **(Figure 2-2-3-3)**. Additionally, to deploy ICT infrastructure nationwide as early as possible, the MIC formulated the "ICT Infrastructure Regional Deployment Master Plan" in June 2019, with revisions in July and December 2020, integrating support measures for ICT infrastructure development and 5G utilization promotion.

Figure 2-2-3-3 Promotion organization of 5G in each country and region



B Formulation of the "Infrastructure Development Plan for a Digital Garden City Nation"

In December 2021, Prime Minister Kishida announced the goal of raising the 5G population coverage rate to 90% by the end of FY2023 to realize the Vision for a Digital Garden City Nation. Following this, the MIC requested mobile phone operators to actively develop more 5G base stations and submit plans for the number of 5G base stations and 5G population coverage rates by FY2025. Based on the plans submitted by each company, the MIC formulated and published the "Infrastructure Development Plan for a Digital Garden City Nation" on March 29, 2022, as a follow-up to the "ICT Infrastructure Regional Deployment Master Plan." This plan was revised on April 25, 2023, considering changes in social conditions.

The infrastructure development plan aims to achieve a world-class 5G environment through a two-phase strategy: Phase 1 involves nationwide development of the 5G foundation (4G/5G parent stations), and Phase 2 involves regional deployment of child stations to expand area coverage nationwide **(Figure 2-2-3-4)**. Specifically, Phase 1 aims to make 4G available in all residential areas and deploy parent stations nationwide in almost all areas with demand for 5G. Phase 2 aims to achieve a 5G population coverage rate of 95% nationwide and establish 5G base stations in all municipalities by the end of FY2023, and 97% nationwide and at least 90% in each prefecture by the end of FY2025. As of the end of FY2022, the nationwide coverage rate was 96.6%, achieving the target one year ahead of schedule. Additionally, the plan sets a coverage target for non-residential areas, aiming for a 99% (100% for highways) coverage rate of roads (highways and national roads) with 4G/5G by the end of FY2030. To achieve these targets, the MIC has been working on specific measures such as allocating new 5G frequencies like the 2.3GHz band, providing subsidies for 5G base station development in disadvantaged areas through the "Mobile Phone Area Development Project," supporting tax measures, and promoting infrastructure sharing **(Figure 2-2-3-5)**.

Furthermore, to implement wireless and IoT solutions tailored to regional needs in a way that residents can experience their convenience, the MIC aims to flexibly combine various wireless systems, including local 5G, to develop regional digital infrastructure and promote the practical application of advanced solutions utilizing this digital infrastructure. Specific measures include promoting the development of digital infrastructure for social implementation of autonomous driving and drones in collaboration with relevant ministries, agencies, and local governments, as outlined in the interim summary of the Digital Lifeline National Comprehensive Development Realization Conference's Early Harvest Project.

Figure 2-2-3-4 Image of deployment of 5G

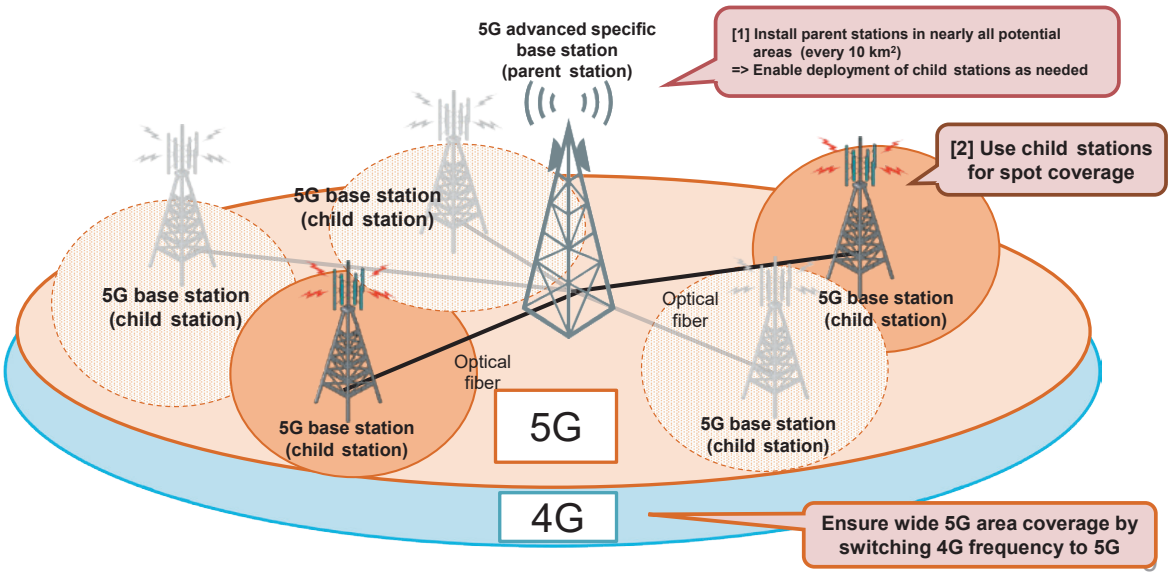
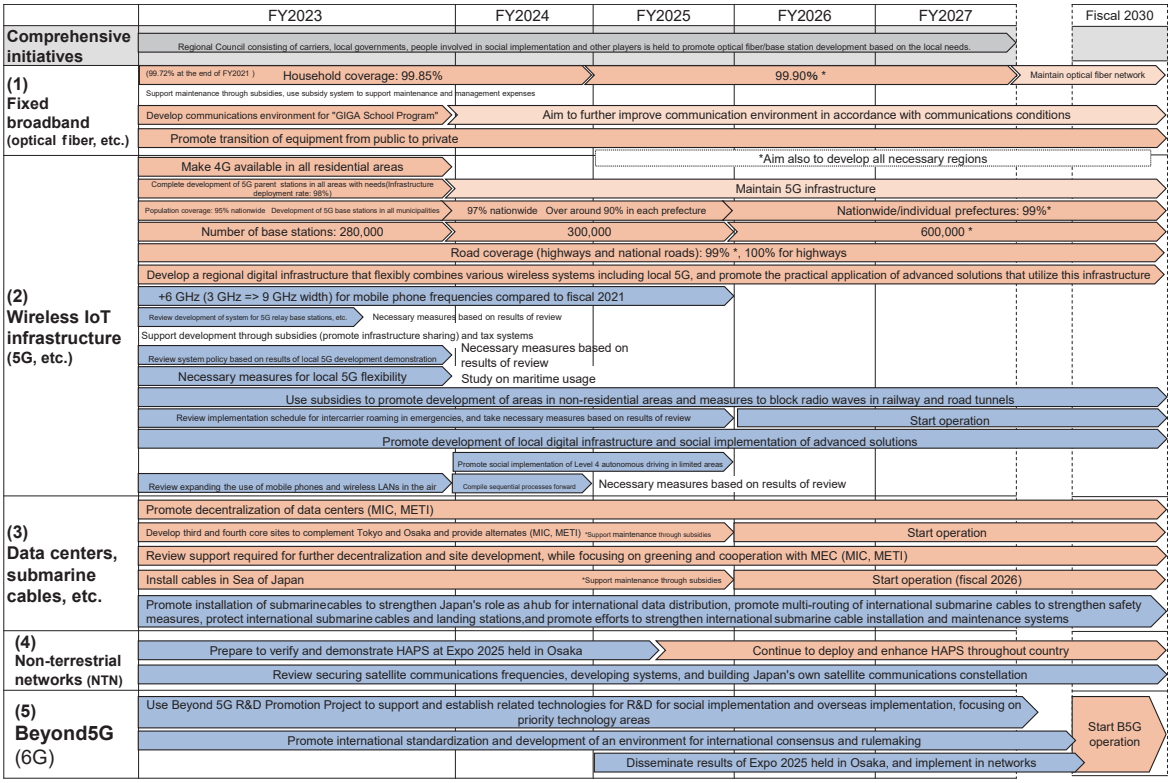


Figure 2-2-3-5 Infrastructure Development for a Digital Garden City Nation (roadmap)



(2) Beyond 5G

The next generation of information and communication infrastructure, "Beyond 5G (6G)," is expected to become the foundation for all industries and social activities in the 2030s. In June 2020, the MIC compiled the "Beyond 5G Promotion Strategy - Roadmap to 6G" and has been promoting this strategy in collaboration with relevant ministries and agencies[1].

4. Promotion of advanced radio use system

(1) Advancement of wireless LAN

Wireless LAN, standardized by the IEEE (Institute of Electrical and Electronics Engineers), is globally used and embedded in devices such as smartphones and tablets. Access points are installed in public places like sta-

[1] Refer to Section 7 "Trends in ICT technology policy" in Chapter 2, Part 2 for more information on efforts related to Beyond 5G.

tions, airports, tourist spots, commercial facilities, and schools, making it an essential communication infrastructure for the public. It is utilized not only in offices and homes but also in outdoor services, school education, and ensuring communication in disaster-stricken areas.

The MIC continuously examines the advancement of wireless LAN, considering the implementation status in other countries and domestic needs. Recently, there has been a global trend towards expanding the frequency bands available for wireless LAN. This aims to enable stable, high-speed, and large-capacity communication even in highly congested environments. In response to this trend, in 2022, regulations were established to allow the use of the 6GHz band in addition to the 2.4GHz and 5GHz bands. Furthermore, technical conditions for introducing the next-generation wireless LAN standard (IEEE 802.11be), which enables low-latency and ultra-high-speed communication, were discussed, leading to amendments in the Ordinance Regulating Radio Equipment (Radio Regulatory Commission Rules No. 18 of 1950) in December 2023. The expansion to the 6GHz band and the realization of the latest technology IEEE 802.11be are expected to create new services and applications in scenarios requiring real-time operations, such as AR (Augmented Reality)/VR (Virtual Reality)/MR (Mixed Reality) services, e-sports, and the control of robotic arms in factories **(Figure 2-2-3-6)**.

Additionally, the expansion of the use of drones and other devices utilizing wireless LAN technology has increased the demand for outdoor and aerial use of wireless LAN-equipped devices. However, there is a shortage of frequency channels available for outdoor use. Therefore, since 2023, discussions have been underway to expand the use of the 5GHz band for outdoor applications, with plans to proceed with regulatory considerations towards implementation by FY2024.

Moreover, to realize a wireless LAN system capable of accommodating future increases in mobile communication traffic and diverse usage needs, efforts are being made to further expand the 6GHz band, including its use outdoors, while considering coexistence with other wireless systems.

Figure 2-2-3-6 Examples pf new possible applications in the advanced wireless LAN

(2) Non-Terrestrial Networks

Non-Terrestrial Networks (NTN), such as High Altitude Platform Stations (HAPS) and satellite communications, extend mobile communication networks beyond the ground to include the sea, air, and space. These networks are useful for efficiently covering remote islands, maritime areas, and mountainous regions, as well as ensuring redundancy in communication networks during emergencies such as natural disasters.

The MIC is promoting initiatives to facilitate the early domestic deployment of NTN and related services based on the "Infrastructure Development Plan for a Digital Garden City Nation" (formulated in March 2022 and revised in April 2023).

Specifically, for HAPS, the MIC is advancing domestic regulatory frameworks through research and development support and technical demonstrations. The ministry is also working on international deployment in collaboration with relevant government agencies and through demonstrations at events such as the Osaka-Kansai Expo in 2025. Additionally, efforts are being made to secure frequencies for HAPS. At the World Radiocommunication Conference 2023 (WRC-23), held from November to December 2023, Japan led discussions resulting in the allocation of the 1.7GHz, 2GHz, and 2.6GHz bands for global use, and the 700MHz band for use in Region 1 (Europe, Africa), Region 2 (the Americas), and 14 countries in Region 3 (Asia), including Japan, for HAPS as mobile phone base stations.

Regarding satellite communications, the MIC has been establishing the necessary regulatory frameworks for the introduction of satellite constellations, which operate numerous non-geostationary satellites to provide high-speed, large-capacity communication services. The ministry continues to promote the allocation of frequencies and the establishment of necessary regulations to enable direct communication services between mobile phone terminals and satellites.

(3) Advanced road traffic systems

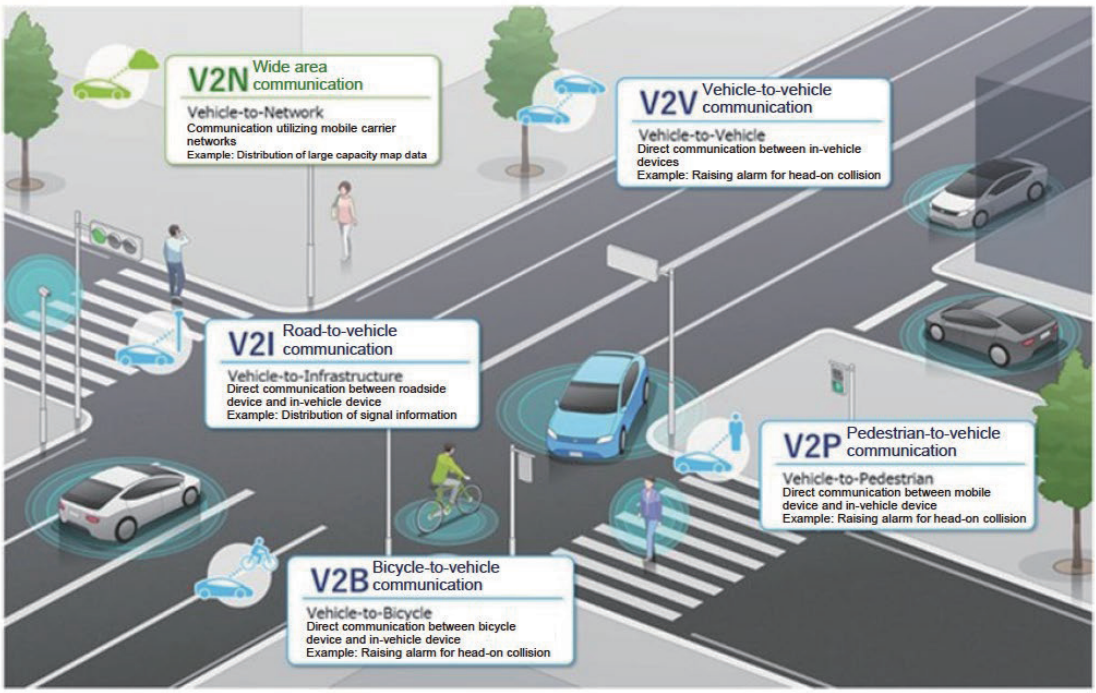
Intelligent Transport Systems (ITS) use information and communication technology to connect people,

roads, and vehicles, contributing to safer and more comfortable movement of people and goods by reducing traffic accidents and congestion.

The MIC has allocated frequencies and established technical standards for systems such as VICS (Vehicle Information and Communication System), ETC (Electronic Toll Collection System), in-vehicle radar systems, and the 700MHz band advanced road traffic systems. The ministry has also promoted the widespread adoption of these systems.

Globally, particularly in Europe and the U.S., there are ongoing demonstrations and implementations aimed at realizing autonomous driving. For advanced autonomous driving, such as merging and diverging support, V2X (vehicle-to-everything) communication, which exchanges information with surrounding vehicles and roadside infrastructure in addition to in-vehicle sensors like cameras and radars, is expected to play a crucial role **(Figure 2-2-3-7)**.

Figure 2-2-3-7 Image of communication by V2X



In Japan, the practical application of the 700MHz band advanced road traffic system as a V2X communication system has been progressing since 2015, ahead of the rest of the world. However, globally, the 5.9GHz band is being used for V2X communication systems. Therefore, to allocate the 5.9GHz band for V2X communication, the "Study Group on 'Next-Generation ITS Communication' for the Autonomous Driving Era" was established in February 2023. In August of the same year, an interim report was issued, stating that "considering international frequency harmonization and interference with existing radio stations, the allocation of up to 30MHz bandwidth in the 5,895MHz-5,925MHz range for V2X communication will be considered." Based on this interim report, the MIC has allocated 20.5 billion yen in the FY2023 supplementary budget for "Promoting Digital Infrastructure Development for the Social Implementation of Autonomous Driving" and will work with relevant government agencies to conduct demonstrations of autonomous driving trucks on the Shin-Tomei Expressway and other locations.

Additionally, to contribute to the international standardization and overseas deployment of Japan's ITS technology, the MIC is involved in submitting input to ITU-R reports and recommendations, disseminating information at international conferences such as the ITS World Congress, and promoting the spread of Japanese technology in Asia, including India.

(4) Public Safety Mobile System (Formerly: Public Safety LTE)

In Japan, major public institutions individually develop and operate wireless systems specialized for their respective operations, making inter-agency communication challenging. These systems are primarily voice-based due to constraints on available frequencies and development costs.

In countries like the U.S. and the UK, agencies responsible for public safety, such as fire departments and police, are adopting shared mobile communication networks that utilize the same communication technology as mobile phones. These networks enable high-speed data communication, including voice, image, and video transmission. Such Public Safety networks, using mobile phone technology, are expected to ensure inter-agency communication during terrorism or major disasters, facilitating smoother rescue operations. Additionally, using globally standardized technology offers benefits such as reduced equipment costs.

Since FY2019, the MIC has been collaborating with relevant agencies to examine the functions required for a public safety network in Japan and has conducted demonstrations. During the 2024 Noto Peninsula Earthquake, the demonstration terminals of the Public Safety Mobile System were utilized in the disaster area, confirming their usefulness.

From April 2024, some telecommunications operators have started providing communication services compatible with the Public Safety Mobile System. This system is expected to become an effective means of information sharing among public safety agencies during disasters **(Figure 2-2-3-8)**.

Figure 2-2-3-8 Major function of the Public Safety Mobile System

Major functions of public safety mobile system

Terminal image

Function items	Major functions of public safety mobile system
Communication line	**Multi carrier lines** (2 carriers are available) **Easily connected communication line** comparing to normal ones
Voice communication function	**Voice telephone using 070,080,090 (emergency call is available)**
Preferential connection	**Preferentially connected telephone in emergency is available** ※ ※The number of provided lines is limited.
App	**User organizations can select and download publicly available app**
Others	Can use the Internet and mails etc. the same as normal mobile phones

(5) Spatial transmission wireless power transfer system

The spatial transmission wireless power transfer system transmits power over a distance of several meters without wired connections through radio wave transmission and reception. It is expected to be used for powering sensor devices in factories. This system allows for low-power supply without the need for charging cables or battery replacement, improving convenience and enabling flexible installation of sensor devices. It is anticipated to contribute to the realization of Society 5.0 through the utilization of IoT.

The MIC has been examining the practical application of this system, including frequency sharing with other wireless systems, radio wave safety, technical conditions, and the establishment of smooth operational coordination mechanisms. Based on these examinations, regulatory measures were implemented in May 2022 to allow indoor use of the system under certain conditions in the 920MHz, 2.4GHz, and 5.7GHz frequency bands as on-premises radio stations.

5. Promotion of expansion of radio systems overseas

To ensure the safe and secure use of radio waves, the role of technologies and systems, including radio wave monitoring systems, has become increasingly significant. This importance is recognized not only in Japan but also in various foreign countries, particularly in Southeast Asian nations where the use of radio waves is rapidly expanding. Therefore, it is a crucial task for Japan to contribute internationally by deploying its advanced radio wave systems overseas, while also fostering Japan's wireless infrastructure and services into internationally competitive and promising businesses, thereby further boosting the domestic economy.

From this perspective, Japan is strategically promoting initiatives in cooperation with both the public and private sectors to globally expand radio wave systems in fields where Japan has strengths, focusing particularly on Asian countries. Specifically, to ensure that highly efficient frequency utilization technologies, which align with Japan's frequency circumstances, are established as international standards, the "Frequency International Harmonization Promotion Project" is being implemented. This project aims to secure the international superiority of these technologies through the overseas deployment of radio wave systems, conducting demonstration experiments both domestically and internationally, and facilitating human resource exchanges at the user level of the technology.

Moreover, considering the global demand for safe, secure, and highly reliable ICT infrastructure, the MIC plans to intensively promote the overseas deployment of 5G network solutions by Japanese companies using Open RAN and vRAN over the next three years. Leveraging the achievements of domestic 5G deployments, including local 5G, the ministry is advancing the openness of 5G by proposing 5G models tailored to specific needs.

Additionally, to promote the Open RAN ecosystem in Japan with an eye on overseas expansion, a testing and certification center "Japan OTIC" was established within the Yokosuka Telecom Research Park in December 2022 by multiple domestic telecommunications operators. This center conducts tests and certifications in

compliance with O-RAN Alliance standards, and the first certification was issued in June 2023. Various training sessions to promote the use of Japan OTIC are also being held regularly.

Furthermore, starting from FY2024, the MIC is conducting technical tests related to an interoperability verification environment that can simulate the networks of multiple domestic and international telecommunications operators.

6. Development of radio wave usage environment

(1) Promotion of measures for electromagnetic environment protection for human health

The MIC is promoting the establishment of an environment where radio waves can be used safely and securely.

Specifically, to ensure that radio waves do not adversely affect human health, the MIC has formulated the "Radio Wave Protection Guidelines[2]" and established part of these guidelines as safety standards concerning the strength of radio waves under the Radio Act. These standards reflect the results of long-term investigations into the safety of radio waves[3] and are aligned with international guidelines. To date, no causal relationship has been confirmed between radio waves below these safety standards and health effects. The MIC continues to raise public awareness about the safety of radio waves through telephone consultations, explanatory meetings, and the distribution of leaflets[4].

Additionally, to prevent the impact of radio waves from radio equipment on medical devices, the MIC conducts annual "Research on the Impact of Radio Waves on Medical Devices[5]." In FY2023, the MIC investigated the impact of radio waves from mobile phone terminals in the 2.3GHz and 3.4GHz-3.5GHz bands, as well as wireless LAN in the 6GHz band, on implantable medical devices (such as pacemakers and defibrillators). They also examined the impact of radio waves from mobile phone terminals in the 3.7GHz, 4.5GHz, and 28GHz bands on in-hospital medical devices (such as general-purpose infusion pumps) and home medical devices (such as personal dialysis machines). The findings from these investigations have been compiled into the "Guidelines for Preventing the Impact of Radio Waves from Various Radio Equipment on Implantable Medical Devices[6]." Furthermore, as the use of radio waves in medical institutions progresses, the MIC is conducting on-demand explanatory sessions for medical professionals on the proper management and precautions for using medical telemetry, mobile phones, and wireless LAN to ensure safe and secure use of radio waves. Since FY2017, the MIC has been implementing radio wave shielding measures for medical facilities through the "Subsidy for the Promotion of Wireless System Utilization," creating an environment where mobile phones can be used safely and securely in medical facilities.

(2) Promotion of measures against electromagnetic interference

With the proliferation of various electrical and electronic devices, it has become increasingly important to protect radio usage from unwanted radio waves emitted by various devices and equipment. To this end, the "Radio Wave Utilization Environment Committee[7]," established under the Information and Communications Technology Subcommittee of the Information and Communications Council, conducts research and deliberations on measures against electromagnetic interference. The committee also contributes to the deliberation of international standards at the International Special Committee on Radio Interference (CISPR: Comité International Spécial des Perturbations Radioélectriques). Based on the recommendations of the Information and Communications Council, the MIC promotes the standardization of measures to eliminate interference with radio equipment and prevent disruptions to electrical and electronic devices caused by unwanted radio waves.

In terms of international activities related to the CISPR, Japan is actively leading the technical discussions to ensure that leakage radio waves from wireless power transmission systems for electric vehicles (EVs) do not interfere with existing radio stations, amidst the full-scale examination of international standards for wireless power transmission systems used in EVs, multimedia equipment, and home appliances.

Additionally, following the "Regulatory Reform Implementation Plan" (approved by the Cabinet on June 16, 2023), the MIC established a system in December 2023 to relax the installation requirements for broadband power line communication (PLC) equipment, which is connected only to power lines maintained and operated by general transmission and distribution operators. Simultaneously, the MIC expanded the scope of type approval for high-power IH cookers, which are increasingly being used, by establishing a system in December 2023.

[2] Radio wave protection guidelines: https://www.tele.soumu.go.jp/j/sys/ele/medical/protect/
[3] Radio wave safety research at the MIC: https://www.tele.soumu.go.jp/j/sys/ele/seitai/index.htm
[4] Radio wave safety efforts: https://www.tele.soumu.go.jp/j/sys/ele/index.htm
[5] Research study on the effects of radio waves on medical devices: https://www.tele.soumu.go.jp/j/sys/ele/seitai/chis/index.htm
[6] Guidelines for preventing radio waves from devices from affecting implantable medical devices, etc.: https://www.tele.soumu.go.jp/resource/j/ele/medical/guide.pdf
[7] Radio Use Environment Committee: https://www.soumu.go.jp/main_sosiki/joho_tsusin/policyreports/joho_tsusin/denpa_kankyou/index.html

(3) Prevention of radio wave interference and disruption

As the use of new radio waves, such as the fifth-generation mobile communication system (5G), expands, the MIC is working to monitor radio waves, eliminate interference, and strengthen measures against non-compliant radio equipment (non-compliant equipment) to maintain a favorable radio wave utilization environment.

Specifically, to prevent general consumers from purchasing and using non-compliant equipment, which would constitute a violation of the Radio Act (illegal establishment of a radio station) and cause significant interference and other disruptions, the MIC purchases widely sold radio equipment from the market, including online sales, and measures whether the strength of their radio waves complies with the standards for "Extremely Low-power Radio Stations[8]" as defined by the Radio Act. The results are published annually as part of the "Radio Equipment Test Purchase Program[9]" to provide information for consumer protection.

For radio equipment found to be non-compliant and publicly disclosed, the MIC requests the sellers to handle only radio equipment that meets technical standards and to refrain from selling non-compliant equipment. Furthermore, in FY2020, the MIC formulated the "Guidelines for preventing the distribution of wireless devices that do not conform with technical regulations" to clarify the responsibilities of manufacturers, importers, and sellers of radio equipment, as well as the voluntary efforts of internet shopping mall operators, thereby promoting measures to suppress the distribution of non-compliant equipment.

[8] Weak radio equipment: https://www.tele.soumu.go.jp/j/ref/material/rule/
[9] Tested from FY2013. Result of wireless equipment purchase tests: https://www.tele.soumu.go.jp/j/adm/monitoring/illegal/result/

Section 4 Trends in broadcasting policy

1. Summary

(1) Initiatives so far

Broadcasting has played a role as a social capital, sharing essential societal information such as disaster and local news, and is the foundation of democracy.

The traditional analog television broadcasting was completely digitized by the end of March 2012, leading to advancements in broadcasting services such as high-definition images and data broadcasting. The MIC has been promoting 4K/8K broadcasting services to enhance the collaboration with broadcasters and manufacturers, disseminate information about 4K8K satellite broadcasting reception methods and 4K/8K content, and certify operators providing 4K broadcasting. Efforts have also been made to promote the overseas expansion of broadcasting content in collaboration with relevant government agencies and organizations.

The overseas expansion of content can significantly enhance the appeal of Japan abroad, leading to an increase in inbound tourism and the expansion of exports of agricultural, forestry, and fishery products, as well as local products. The MIC has been promoting the overseas expansion of broadcast content in collaboration with relevant ministries and agencies.

Furthermore, measures have been taken to strengthen the resilience of broadcasting networks with a focus on radio which is recognized to be useful in disasters, such as initiatives to address hearing impairments in radios, disaster prevention measures for transmission facilities, and promoting equal access to information through broadcasting. This includes providing subsidies for the production costs of subtitled programs, commentary programs, sign language programs, and the installation of captioning equipment for live broadcasting programs by private broadcasters, as well as setting dissemination targets for subtitled broadcast, etc. and establishing the "Guidelines for Information Accessibility in the Broadcasting Field".

In addition, as it is important to have not only the existence of "Sender" of the broadcast program but also the "Receiver" of it, the MIC has been focusing on improving media literacy, particularly for elementary, junior high, and high school students, by providing educational materials and practical teaching packages.

(2) Future challenges and directions

The broadcasting environment is undergoing significant changes due to the widespread adoption of broadband, the growth of internet video streaming services, and the diversification of viewing devices. Viewers are increasingly obtaining information from the internet, leading to a potential long-term decline in terrestrial television advertising expenditure and accelerating the trend of viewers moving away from traditional television. Meanwhile, issues such as fake news in the online space have become apparent, highlighting the challenge of ensuring information health. In this context, broadcasting plays a crucial role in providing reliable information, guaranteeing the "Freedom to Know", sharing "Fundamental Societal Information", and promoting mutual understanding of diverse values, and the expectations for its role have increased in the digital age.

In response to these changing circumstances, it is necessary to consider the future outlook of broadcasting and the system of broadcasting from a medium- to long-term perspective, as well as address challenges such as strengthening the foundation of broadcasting business, promoting the distribution of broadcasting content, and enhancing the resilience and disaster resistance of broadcasting networks.

2. Examination of future vision of broadcasting institution in the digital age

The MIC has been holding the "Study Group on the Future of Broadcasting Systems in the Digital Age" (hereinafter referred to as the "Broadcasting System Study Group") since November 2021, in order to examine the future vision of broadcasting and the ideal state of broadcasting systems from a medium- to long-term perspective, amidst the rapid advancement of digitalization across society.

In the "Summary of the Future Vision and Ideal State of Broadcasting in the Digital Age" (hereinafter referred to as the "First Summary"), published by the Broadcasting System Study Group in August 2022, the results of the examination were compiled based on the perspective of what measures should be taken for broadcasting to continue meeting the expectations of viewers regarding its social role, even as the information space expands beyond broadcasting to include the internet[1]. Based on the First Summary, the MIC revised ministerial ordinances to relax the principle of excluding concentration of mass media ownership[2],[3] and also enacted partial amendments to the Broadcasting Act and the Radio Act (Act No. 40 of 2023), which include measures such as enabling multiple specified basic terrestrial broadcasters to jointly use relay station equipment in a single broadcasting region.

Regarding the joint use of relay station equipment, efforts are being made towards its realization, including the establishment of a national council in December 2023, as well as the formation of regional councils across the country. These efforts focus on creating a roadmap for the realization of joint use, defining the roles and responsibilities of stakeholders, and formulating and implementing relay station renewal plans in each region.

Furthermore, in October 2023, the Broadcasting System Study Group published the "Summary of the Future Vision and Ideal State of Broadcasting in the Digital Age (Second Summary)" (hereinafter referred to as the "Second Summary"). The Second Summary includes recommendations on issues such as "Satellite Broadcasting and Cable Television," "Effective Use of Frequencies for Broadcasting," "Ensuring the Truthfulness of Broadcasting," and "Information Disclosure by Private Operators." Additionally, it presents the results of specialized examinations on the following topics: (1) the potential for small relay stations to be replaced by broadband (cable TV, optical fiber, etc.); (2) the ideal state of NHK's internet distribution; (3) measures to promote the production and distribution of broadcasting content; and (4) NHK's role as a "platform related to the broadcasting industry."[4]

3. Future vision of public broadcasting

In the MIC, based on the First Summary of Broadcasting System Study Group, a "Public Broadcasting Working Group" has been held under the Broadcast System Review Committee since September 2022, to consider the manner of NHK's internet distribution. In the two subsequent "Summaries" released in October 2023 and February 2024[5], it was concluded that, under the dual broadcasting system framework, NHK should generally make all broadcasts available for internet distribution to fulfill its role of providing broadcast programs to viewers via the internet.

Based on the conclusions of these summaries, a law amending part of the Broadcasting Act was enacted in May 2024 (Act No. 36 of 2024), which adds the distribution of NHK's broadcast programs and program-related information to essential operations of NHK, and strengthens NHK's obligation to cooperate with measures taken by private broadcasters to eliminate poor broadcast reception, such as the joint use of relay stations (referred to as the "Amendment Broadcasting Act").

Furthermore, the Amendment Broadcasting Act establishes a mechanism for NHK to independently establish its own operating rules for the distribution of program-related information via the internet[6], ensuring that its content conforms to the requirement of ensuring there is not hindrance to fair competition. To ensure the smooth functioning of the framework for competition assessment, the MIC has been conducting discussions on the framework for competition assessment and related matters since November 2023 through the "Preparatory Meeting on Competition Assessment of the Japan Broadcasting Corporation's Internet Utilization Operations."

The MIC will continue to consider the manner in which public broadcasting should respond to the demands of the times.

[1] "Summary of the Future Vision of Broadcasting and the Ideal Broadcasting System in the Digital Age" (August 5, 2022) https://www.soumu.go.jp/menu_news/s-news/01ryutsu07_02000236.html

[2] The Principles aim to ensure that the opportunity to broadcast is secured for as many individuals as possible, thereby allowing the freedom of expression through broadcasting to be enjoyed by a broader audience. To achieve this, the number of key broadcasting stations that can be owned or controlled by a single entity is restricted.

[3] An ordinance amending some provisions of the Ministry of Internal Affairs and Communications Ordinance regarding the definition of specific officers and control relationships related to basic broadcasting operations and exceptions to the standards for the enjoyment of freedom of expression. (Ministry of Internal Affairs and Communications Ordinance No. 13 of 2023)

[4] "Summary of the Future Vision of Broadcasting and the Ideal Broadcasting System in the Digital Age (Second summary)" (October 18, 2023): https://www.soumu.go.jp/menu_news/s-news/01ryutsu07_02000269.html

[5] "Summary of Public Broadcasting Working Group" (October 18, 2023): https://www.soumu.go.jp/main_content/000907572.pdf "Summary of Public Broadcasting Working Group (Second Summary)" (February 28, 2024): https://www.soumu.go.jp/main_content/000931107.

[6] Information that is closely related to the content of broadcast programs that NHK broadcasts or has broadcasted, and is composed of materials necessary for the editing of the broadcast program (excluding the broadcast program itself, but including edited versions of the broadcast program).

4. Strengthening of the foundation of broadcasting businesses

(1) Efforts related to AM radio broadcasting

Many of the AM transmission facilities used by private AM radio broadcasters have been in place for over 50 years and are in a state of severe deterioration. Amidst this situation, private AM radio broadcasters are facing cost burdens associated with both AM and FM facilities due to the introduction of FM complementary broadcasting, which was implemented to resolve poor AM radio reception. Additionally, with a declining trend in business revenue, the cost of updating AM radio broadcasting facilities has become a management issue.

Given these challenging business conditions, the MIC has established special measures to allow private AM radio broadcasters to suspend AM station operations for a period of more than six months. This is to assess the impact if broadcasters decide, as a management decision, to switch from AM to FM broadcasting (switching to FM) or to discontinue AM relay stations without switching to FM. The MIC published the "Basic Policy on Special Measures Concerning the Suspension of AM Station Operations (March 2023)" outlining the content, requirements, and procedures for these special measures. During the simultaneous re-licensing of broadcasters in November 2023, applications for these special measures were accepted, and for AM stations where the application was approved, operations have been sequentially suspended from February 2024. The MIC plans to evaluate the impact on residents and local governments based on the results of these suspensions.

(2) Addressing issues in satellite broadcasting

A Examination of the future of sustainable satellite broadcasting

Based on the Second Summary published in October 2023, the MIC established a new "Working Group on Satellite Broadcasting" under the Broadcasting System Review Committee in November 2023. This was done to address issues in satellite broadcasting and to envision a sustainable future for satellite broadcasting amidst changing environmental conditions.

The "Working Group on Satellite Broadcasting" is conducting specific and specialized discussions on topics such as "reducing infrastructure costs related to satellite broadcasting," "utilizing satellite broadcasting as an alternative to terrestrial broadcasting," "effective use of the dextrorotation bandwidth," "handling of shopping programs in the approval of basic satellite broadcasting," and "utilization of satellite broadcasting during disasters."

B Efforts to promote 4K8K satellite broadcasting

Regarding 4K8K satellite broadcasting, which began on BS broadcasting and 110-degree east longitude CS broadcasting in December 2018, the MIC recognized three new basic satellite broadcasters to conduct 4K broadcasting in the dextrorotation bandwidth of BS broadcasting in November 2023, as part of efforts to expand this service.

Additionally, the cumulative shipment of receivers capable of viewing 4K8K satellite broadcasting reached approximately 19.21 million units by the end of March 2024. The MIC, in collaboration with broadcasters, manufacturers, and related organizations, is working to further promote the appeal of ultra-high-definition video, which is a characteristic of 4K8K satellite broadcasting, and to improve the reception environment.

Moving forward, through discussions on the effective use of the dextrorotation bandwidth (promotion of 4K broadcasting) within the "Working Group on Satellite Broadcasting," the MIC will consider the effective use of bandwidth to enhance 4K broadcasting, keeping in mind the need to accommodate advanced video encoding methods. The MIC will continue to work towards further expansion and promotion of 4K8K satellite broadcasting.

5. Promotion of the production and distribution of broadcasting contents

(1) Promotion of production and distribution of broadcasting content

A Initiatives for effective online distribution of broadcasting content

In the First Summary of the Broadcasting System Study Group, it was mentioned that it is important to reduce the equipment burden on broadcasters, including local stations, and to create an environment where they can focus on content production.

From the perspective of creating such an environment, it is considered important not only to promote the production of content by broadcasters but also to further promote the distribution of such content on both broadcasting and the internet so that it can be viewed more widely. In particular, local broadcasters are expected to play a significant role in disseminating regional information in the future.

As the environment surrounding broadcasting changes, including the growth of internet video distribution services and the diversification of viewing styles, it is considered important for Japanese broadcast content to be widely distributed both domestically and internationally by promoting the use of various platforms on the Internet, not just broadcast waves, in order to continue fulfilling the role of broadcasting as a social infrastructure.

Under this concept, the "Working Group on the Promotion of Production and Distribution of Broadcasting Content" has been held since December 2022 under the Broadcasting System Study Group to discuss ways to promote the production and distribution of broadcast

content in the internet age, with the cooperation of relevant businesses.

In the First Summary of the review, it was concluded that "to realize an environment where viewers can easily watch broadcast content via the internet at an early stage, it is necessary to ensure the proper guidance from a virtual platform that secures the list of broadcast content distributed by multiple internet distribution platforms on TV receivers connected to the internet. From the perspective of viewer convenience, it is necessary for the public and private sectors to work together to examine and verify the display and operability that allows viewers to easily watch broadcast content within a framework of cooperation among broadcasters and various stakeholders. In doing so, attention should be paid to the viewer's perspective (viewing habits, ways of viewing, and understanding of the above initiatives), and consideration should be given to creating a mechanism that makes it easy for local viewers to access broadcast content such as regional information provided by local stations"

B Utilization of viewing data in the broadcasting field and privacy protection

By collecting and analyzing viewing histories of broadcast programs from TV receivers connected to the internet, for example, it is possible to effectively utilize this data for program production that caters to the detailed viewing needs of viewers in each region and for providing disaster information. However, there is also the issue that it is technically possible to infer sensitive personal information such as individual viewers' political beliefs or medical histories.

The MIC has established specific rules for the broadcasting field that all those handling personal information of broadcast receivers must comply with, in addition to the minimum rules under personal information protection laws that apply to browsing histories on video-sharing sites, considering the public nature of broadcasting. These rules are set out in the "Guidelines on Personal Information Protection of Broadcast Recipients etc.," which have been revised multiple times (the most recent revision was based on the enforcement of the revised Enforcement Rules for the Act on the Protection of Personal Information in April 2024). Additionally, since April 2021, the "Study Group on the Utilization of Viewing Data in the Broadcasting Field and the Ideal State of Privacy Protection" has been held to discuss the rules for handling viewing histories collected in connection with broadcasting, as well as the rules for handling distribution histories in the online distribution of broadcast content, from the perspective of forming balanced rules between data utilization and privacy protection.

C Facilitation of rights processing for simultaneous distribution of broadcasting programs

Considering the changes in viewing environments due to the spread of smart devices, broadcasters are advancing efforts for simultaneous distribution of broadcasting programs on the Internet (including simultaneous distribution, catch-up distribution, and missed distribution. The same as below.). This initiative expands opportunities to view high-quality content and is important from the perspective of improving viewer convenience, promoting the content industry, and ensuring international competitiveness. However, broadcast programs use a diverse and large number of copyrighted works, and there are challenges in rights processing, such as the inability to process copyrights for simultaneous distribution, leading to "blackouts." To promote simultaneous distribution, it was necessary to create an environment where copyrighted works could be used more quickly and smoothly.

Therefore, the MIC, in cooperation with the Agency for Cultural Affairs, which oversees the Copyright Act, gathered opinions from stakeholders and examined the direction of system reforms. As a result, the Act to Partially Amend the Copyright Act (Act No. 52 of 2021) was enacted in the regular session of the Diet in 2021, and measures to facilitate rights processing were implemented. Following the amendment, simultaneous distribution by all five commercial broadcasting networks was realized in April 2022, and further examination is being conducted to facilitate rights processing while monitoring trends in simultaneous distribution.

D Promotion of proper production transactions for broadcasting content

The MIC has been holding the "Study Group on Verification and Review on Promotion of Production and Trade of Broadcast Content," composed of experts, to improve the production environment and enhance production motivation in the broadcast content field. Based on discussions at the meeting, the "Guidelines for Regulation on Production and Trade of Broadcast Content" (7th edition) (hereafter referred to as "Guidelines") were formulated to encourage broadcasters and program production companies to promote proper production transactions.

Specifically, regular surveys are conducted to understand the status of production transactions for broadcast content, and hearings are held with broadcasters and program production companies to understand the status of compliance with the Guidelines. Guidance is provided based on the Article 4 of the Act on the Promotion of Subcontracting Small and Medium-sized Enterprises (Act No. 145 of 1970) for identified issues, and training sessions are held to raise awareness of the guidelines. Additionally, a hotline for free legal consultation with lawyers on specific production transaction issues, the "Legal Consultation Hotline for Transaction of Produced Broadcast Content," has been established.

(2) Overseas expansion of broadcasting content

With the growth of video distribution services, the cross-border distribution of content is progressing, and

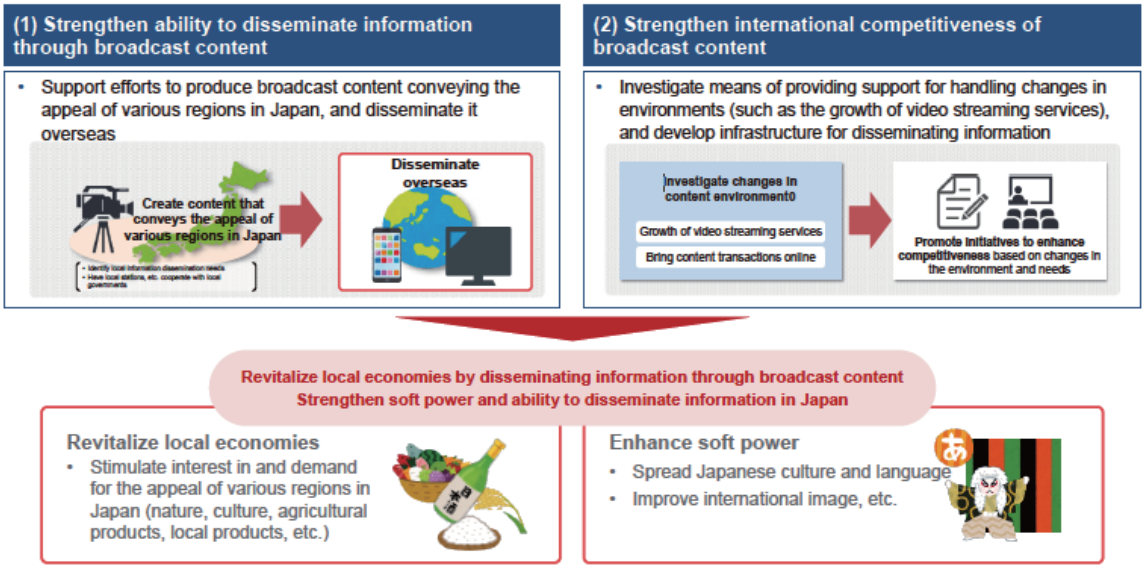
the presence of foreign content is increasing in Japan. In this context, for the Japanese content industry to develop, it is necessary to produce high-quality content with a global perspective and actively promote overseas expansion to capture the growth of expanding markets.

Moreover, the overseas expansion of content helps convey the appeal of Japan to the world, increasing interest in Japan's nature and culture, leading to economic effects such as an increase in foreign tourists visiting Japan and the expansion of sales channels for agricultural, forestry, and fishery products and local products. It also contributes to improving Japan's image and strengthening soft power, making it extremely important from a diplomatic perspective.

The MIC, in collaboration with the "Broadcast Program Export Association of Japan" (BEAJ) and related ministries and agencies, continuously supports initiatives where Japanese broadcasters and others collaborate with local governments to produce broadcast content that conveys the appeal of Japanese regions and disseminate it through overseas broadcasters. Additionally, at international content trade fairs such as MIPCOM (Cannes, France) and TIFFCOM (Tokyo) in October 2023, and ATF (Singapore) in December 2023, PR activities such as seminars were conducted in collaboration with the public and private sectors to widely promote Japanese content overseas. From FY2023, an online common platform has been established and is being operated and improved to disseminate information on Japanese broadcast content to overseas businesses, in collaboration with broadcasters and production companies actively engaged in overseas expansion.

Including these initiatives, the goal is to increase overseas sales by 1.5 times (compared to FY2020) by FY2025, and efforts to promote the overseas expansion of content will continue **(Figure 2-2-4-1)**.

Figure 2-2-4-1 Promotion of overseas expansion of broadcasting contents



6. Promotion of broadcasts for people with the audiovisual disabilities

To enable people with audiovisual disabilities, etc. to smoothly access information through television broadcasts, the MIC established the "Guidelines for Information Accessibility in the Broadcasting Field" in February 2018. These guidelines set dissemination targets for subtitled broadcasts, commentary broadcasts, and sign language broadcasts, encouraging voluntary efforts by broadcasters. Additionally, since November 2022, the "Study Group on Enhancing Broadcasting for People with Audiovisual Disabilities, etc.," composed of experts, disability organizations, and broadcasters, has been discussing policies to enhance broadcasting for people with audiovisual disabilities, etc. This includes reviewing the guidelines based on recent achievements in subtitled broadcasts and technological trends. A report was compiled in August 2023, and the guidelines were revised in October 2023 based on this report. Currently, broadcasters are advancing their efforts in accordance with these guidelines.

Furthermore, under the Act on Advancement of Facilitation Program for Disabled Persons' Use of Telecommunications and Broadcasting Services, with a View to Enhance Convenience of Disabled Persons (Act No. 54 of 1993), subsidies are provided for the production costs of subtitled programs, commentary programs, and sign language programs. Given that live broadcasts require significant manpower and costs, as well as specialized skills, since FY2020, subsidies have also been provided for the costs of equipment necessary for adding subtitles to live broadcasts, including systems utilizing cutting-edge ICT.

7. Improvement to the resilience of broadcasting networks and enhancement of disaster resistance

(1) Optical fiber installation for cable networks

The MIC is implementing the "Disaster Resilience Enhancement Project through Optical Fiber Installation for Cable Television Networks and Remote Area Shared Viewing Facilities" in the supplementary budget for the FY2023 and the initial budget for FY2024, with the aim of ensuring reliable and stable information transmission through broadcasting during disasters **(Figure 2-2-4-2)**. From the supplementary budget for the FY2023, measures have been taken to relax the financial strength index requirements and to provide support for cable television operators to expand the service areas of shared viewing facilities and to independently install optical fiber for shared viewing facilities. Additionally, provisions have been made to support "Successor Operators," which are private entities, in the event they receive the transfer of already optically-fibered cable television networks owned by municipalities for maintenance. Furthermore, support has been provided for the restoration of cable television networks affected by the 2024 Noto Peninsula Earthquake, including raising the subsidy rate for disaster recovery efforts.

Figure 2-2-4-2 Disaster Resilience Enhancement Project through Optical Fiber Installation for Cable Television Networks and Remote Area Shared Viewing Facilities

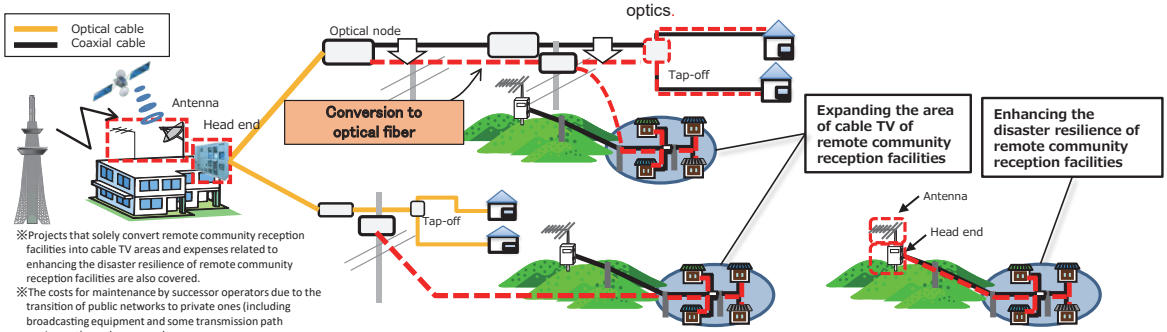
Project illustration

○ Project operator
Municipalities, municipality collaboration entities or a third sector (including entities that continue to fulfill the role pertaining to the provision of cable television services through transfer of the relevant facilities from these entities(Succeeding business operators))

○Target regions
Regions satisfying all of (1) to (3) below:
(1) Municipalities where cable television is positioned in their regional disaster prevention plan
(2) Regions with unfavorable conditions
(3) Municipalities with financial index 0.8 or lower and other regions where the subsidy is found particularly necessary

○Subsidy rate
(1) Municipalities or municipality collaboration entities (Succeeding business operators): 1/2
* Municipalities with financial index over 0.5 and less than 0.8: 1/3
* The case of succeeding business operators associated with privatization of publicly established network which was converted to optical cables,
(2) Third sector (Succeeding business operators): 1/3

○Subsidized costs (shown in red in the figure below)
Optical fiber cable, transmitting/receiving facilities, antennas, etc.
*Includes transmission line equipment necessary for converting remote communal reception facilities (coaxial cable) into cable television areas implemented simultaneously with the switch to fiber optics.



(2) Support for initiatives by broadcasters

The MIC is implementing the "Broadcast Network Development Support Project (Basic Terrestrial Broadcasting Network Development Project and Regional Cable Television Network Development Project)" **(Figure 2-2-4-3)** and the "Support Project for the Elimination of Difficulties to Listen to Radio in Commercial Radio Broadcasting" as well as the "Disaster Resilience Enhancement Support Project for Basic Terrestrial Broadcasting, etc." in the initial budget for FY2024 to support initiatives by broadcasters and local governments aimed at strengthening broadcast networks.

Figure 2-2-4-3 Broadcast Network Development Support Project

- In order to reliably provide disaster information, evacuation information, and other information essential for protecting the lives and property of citizens, the projects to support broadcast network development provide partial subsidies for the following maintenance costs, in order to bring resilience to the broadcast networks that serve as important means of transmitting information locally in the event of a disaster.
  [1] Emergency earthquake early warning equipment, such as spare transmitting station equipment and supplementary disaster response transmitting stations involved in new radio and television development
  [2] Doubling routes for cable television trunk lines

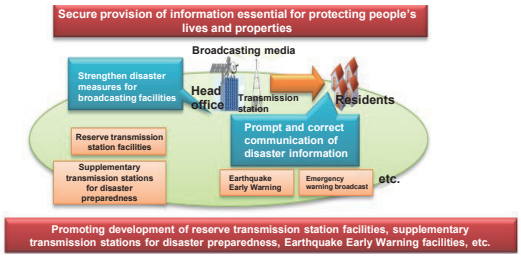
Subsidy rate

- Local governments (*) : 1/2
- Third sector(*), commercial broadcasters, (item [1] only): 1/3

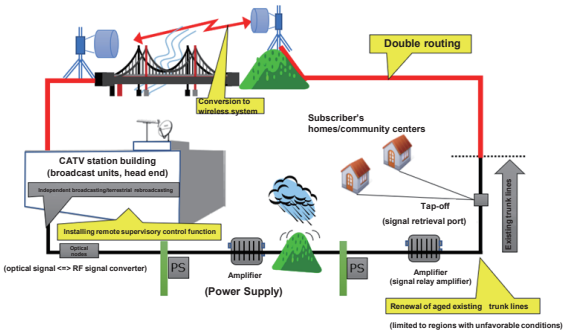
*Item [2] also includes entities that continue to fulfill the role pertaining to the provision of cable television services through transfer of the relevant facilities from these entities (succeeding business operators).

Project name/image

[1] Project to develop basic terrestrial broadcasting networks



[2] Project to develop regional cable television networks



Section 5 Trends in cybersecurity policy

1. Summary

(1) Initiatives so far

In response to the increasing global threat of cybersecurity, the Basic Act on Cybersecurity (Act No. 104 of 2014), which outlines the fundamental principles of Japan's cybersecurity policy, was enacted. Consequently, in 2015, the Cybersecurity Strategic Headquarters was established under the Cabinet. Since then, taking into account changes in the economic and social landscape as well as the growing cybersecurity threats, the "Cybersecurity Strategy[1]," which sets forth the goals and implementation policies of various measures, has been revised every three years. Currently, cybersecurity policies are being promoted based on the "Cybersecurity Strategy" approved by the Cabinet in September 2021.

Additionally, the "Cybersecurity Policy for Critical Infrastructure Protection[2]" (approved by the Cybersecurity Strategic Headquarters in June 2022 and revised in March 2024), which outlines the basic framework for protecting critical infrastructure, designates the information and communication sector (telecommunications, broadcasting, and cable television) as one of the 15 critical infrastructure sectors. This designation is due to the significant impact on national life and socio-economic activities if these functions are halted or become unavailable. As one of the ministries responsible for critical infrastructure, the MIC is required to continue promoting efforts to ensure the safety and reliability of information and communication networks.

Furthermore, the National Security Strategy, approved by the Cabinet in December 2022, emphasizes the need to "enhance the response capabilities in the field of cyber security to a level comparable to or exceeding that of major Western countries to ensure the safety of the nation and critical infrastructure." The government is collectively advancing discussions to realize the initiatives based on this strategy.

Since 2017, the MIC has convened the "Cyber Security Task Force," composed of experts in the security field. This task force has periodically compiled issues and measures that the MIC should address, considering various changes in circumstances, the Tokyo Olympic and Paralympic Games, and responses to the COVID-19 pandemic. Most recently, to address the frequent cyberattacks targeting IoT devices, the "Subcommittee on Cybersecurity Measures in Information and Communication Networks" was held under the task force starting in January 2023. Based on these discussions, the "Comprehensive ICT Cybersecurity Measures 2023[3]," which includes measures to ensure the safety and reliability of information and communication networks and to enhance autonomous response capabilities to cyberattacks, such as a comprehensive measures to deal with IoT botnets, was formulated in August 2023. Moreover, anticipating significant changes in the cybersecurity environment due to the rapid spread of new technologies and services such as generative AI and the increasing diversity and complexity of supply chains, the "ICT Cybersecurity Policy Subcommittee" has been convened since February 2024. This subcommittee is examining the direction of cybersecurity policies that the MIC should pursue in the medium to long term.

(2) Future challenges and directions

With the promotion of DX across society, cyberspace has become a part of everyday life for everyone. However, the risks surrounding cyberspace have evolved with the times and environment, as evidenced by the increasing reports of phishing scams and ransomware attacks.

In recent years, cyberspace has become a battleground for international conflicts, reflecting severe security environments and geopolitical tensions. Many countries have experienced cyberattacks targeting government agencies and critical infrastructure. Japan has also faced serious cyber incidents targeting ports, medical institutions, and government agencies. Moreover, while new technologies such as generative AI have increased convenience, they have also raised concerns about the expansion of risks due to their misuse.

As cyberspace becomes a public space, it is increasingly important to ensure cybersecurity so that every citizen can safely utilize ICT (Information and Communication Technology), including IoT and 5G, which form the foundation of this space.

In light of these considerations, it is necessary to ensure the safety and reliability of information and communication networks, enhance autonomous response capabilities to cyberattacks, promote international cooperation, and advance public awareness and education, as outlined below.

[1] Cybersecurity Strategy: https://www.nisc.go.jp/active/kihon/pdf/cs-senryaku2021.pdf
[2] The Cybersecurity Policy for Critical Infrastructure Protection: https://www.nisc.go.jp/pdf/policy/infra/cip_policy_2024.pdf
[3] Comprehensive ICT Cybersecurity Measures 2023: https://www.soumu.go.jp/main_content/000895981.pdf

2. Ensuring safety and reliability of information and communications networks

(1) Promotion of comprehensive IoT botnet countermeasures

In order to ensure the safety and reliability of the information and communication networks that support the cyber space, concerns are also raised about the impact of large-scale cyberattacks that disrupt the functionality of the information and communication networks, such as DDoS attacks. In the case of a typical large-scale cyberattack like a DDoS attack, there are two stages: (1) the expansion of the attack infrastructure by infecting a large number of IoT devices with malware (expansion of the attack infrastructure); and (2) the execution of attacks through the network using this attack infrastructure. In fact, with the increase in the number and functionality of IoT devices, cyberattacks exploiting IoT devices have been on the rise, and the NICTER, which is the cyberattack observation network operated by NICT, observed that attacks targeting IoT devices (especially DVR/NVR) remained the most common type of cyberattacks in the cyberattack-related communications observed in 2023.

To address these large-scale cyberattacks, it is necessary to promote comprehensive IoT botnet countermeasures from both the terminal side (IoT devices) to prevent the expansion of the attack infrastructure, and the network side to deal with the Command and Control (C&C) servers that issue instructions to the attack infrastructure.

On the terminal side, the MIC and the NICT have been implementing an initiative called "NOTICE (National Operation Towards IoT Clean Environment)" in collaboration with Internet Service Providers (ISPs) since February 2019. Under this initiative, based on the Act on the National Institute of Information and Communications Technology (hereinafter referred as to "NICT Act"), the NICT has been conducting investigations into IoT devices on the Internet that have easily guessable passwords such as "password" or "123456," as well as devices conducting communications due to malware infections, and has been promoting measures such as alerting device users to prevent these devices from being exploited for cyberattacks, achieving certain results.

However, the risk of cyberattacks exploiting IoT devices remains high, with an increase in cyberattacks targeting vulnerabilities in IoT device software. In response to this, in the 212th session of the National Diet in 2023, a revision of the NICT Act was carried out to continue the investigation of IoT devices with vulnerabilities in ID and password settings beyond FY2024, and to expand the scope of investigation to include IoT devices with software vulnerabilities or those already infected with malware. In addition to alerting IoT device administrators, efforts are being made to promote security measures for IoT devices in collaboration with manufacturers and system vendors, as well as to raise awareness of IoT device security measures through video distribution and online advertising.

On the network side, since FY2022, telecommunications service providers have been analyzing flow information related to communication traffic (IP addresses, port numbers, timestamps, etc.) to verify the effectiveness of technology for detecting Command and Control (C&C) servers that are the source of cyberattacks, as well as to study the sharing and utilization of information about detected C&C servers among operators. The effectiveness of flow information analysis has been confirmed, with successful detection of a certain number of C&C servers, and efforts will continue in FY2024 to further improve detection accuracy through the expansion of telecommunications service providers conducting flow information analysis and the active analysis of detected C&C servers.

Figure (related data) Awareness raising of IoT security countermeasures with the use of video distribution
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00399
(Data collection)

(2) Promotion of proactive cybersecurity measures by telecommunications operators

To make the security measures for IoT devices more effective, it is considered necessary to establish an environment that allows for more agile responses on the network side, where communication traffic passes through, in addition to the comprehensive IoT botnet measures mentioned earlier[4].

In FY2023, following FY2022, comprehensive demonstrations of cybersecurity measures were conducted to enable telecommunications operators to respond more efficiently and proactively to increasingly large-scale, sophisticated, and complex cyberattacks. In the "Demonstration of Detection Technologies and Sharing Methods for Malicious Websites such as Phishing Sites," a phishing response practical reference for web service providers was created, and awareness-raising activities for the general public were carried out. In the "Demonstration of Network Security Measures," guidelines for the introduction and operation of network security tech-

[4] "Comprehensive ICT Cybersecurity Measures 2021" (formulated in 2021) stated that "it is necessary to consider measures to realize advanced and flexible responses in information and communications networks managed by ISPs on the Internet" through "implementing active measures by telecom operators against cyberattacks". https://www.soumu.go.jp/menu_news/s-news/02cyber01_04000001_00192.html

nologies such as RPKI[5], DNSSEC[6], and DMARC[7], which are being implemented internationally but have not yet been widely adopted in Japan, were drafted based on the knowledge gained through technical demonstrations[8]. Efforts to promote their widespread adoption will continue in FY2024.

(3) Initiatives for supply chain risk measures

The MIC conducted technical verifications considering the entire 5G network, including virtualization infrastructure and management systems, from FY2019 to FY2021. In April 2022, the "5G Security Guidelines Version 1[9]" was published, summarizing the security issues and countermeasures that operators should be aware of. These guidelines were approved as a new work item for standardization at ITU-T SG17 in September 2022, and efforts are currently underway to promote international standardization in collaboration with specialized agencies.

In the field of communications, the system configurations are becoming more complex due to the increasing sophistication and diversification of required functions. Various commercial software and open-source software (OSS)[10] are being used as software components. With these changes in the software supply chain, cyberattacks targeting vulnerabilities in software components or the insertion of malicious code into software components have occurred. However, if the composition of software components within a system is not understood, it becomes difficult to respond quickly to attacks.

In light of this situation, the MIC has been conducting demonstration projects to introduce SBOM[11] in telecom sector since FY2023 to strengthen cybersecurity by understanding the software supply chain using SBOM.

Furthermore, from FY2023, considering the widespread use of smartphones and the limited methods available to verify whether smartphone apps are transmitting user information against the user's intent when concerned, demonstration projects are being conducted to understand the actual behavior of apps through technical analysis by third parties.

(4) Initiatives to ensure the safety of cloud services

A Evaluation of the safety of cloud services in government information systems

Under the principle of cloud by default, the government deliberated on the evaluation of the safety of cloud services in the "Study Group on the Safety Evaluation of Cloud Services" and established the "Basic Framework for the Security Evaluation System for Cloud Services in Government Information Systems" (the Cybersecurity Strategic Headquarters Decision of January 30, 2020). This decision included the basic framework of the system, the approach to usage by each government agency, and the administrative and operational structure.

Based on the basic framework, various regulations were determined by the ISMAP Operating Committee, consisting of experts and the ministries and agencies responsible for the system (the NISC, the Digital Agency, the MIC, and the METI), and the "Information system Security Management and Assessment Program (ISMAP)" was launched. From March 2021, the registration of cloud services that have been confirmed to have implemented security measures based on the criteria set by this system began, and as of May 1, 2024, a total of 68 services have been published as the ISMAP cloud service list[12].

In November 2022, the operation of "ISMAP for Low-Impact Use (ISMAP-LIU)" began, which is a system for SaaS that handles mainly confidential level 2 information and is used for processing tasks and information with low security risks. ISMAP-LIU is designed to be more lenient than the current ISMAP in terms of the overall audit for services that are extremely limited in their usage and functionality or handle relatively low-importance information.

Furthermore, with the maintenance of the reliability and stability of ISMAP as a premise, efforts to rationalize and clarify the system operation have been ongoing through the "ISMAP System Improvement Initiatives" since October 2022. As part of this, a full-scale operation of the improved framework, which includes "reducing the burden of external audits" and "streamlining and enhancing the efficiency of reviews", began in October 2023. Going forward, the promotion of further expansion of cloud by default will be pursued through system improvement initiatives and other efforts.

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[5] Resource Public-Key Infrastructure (RPKI). A technology that verifies the IP addresses and AS numbers of autonomous networks using digital certificates, preventing issues such as route hijacking.
[6] DNS Security Extensions (DNSSEC): A technology that verifies the association between domain names and IP addresses using digital certificates to prevent server impersonation and other related threats.
[7] Domain-based Message Authentication, Reporting & Conformance (DMARC): A technology that verifies the authenticity of the sender's domain in emails and automatically handles cases of impersonation and other similar threats.
[8] The 5th ICT Cybersecurity Policy Subcommittee Reference Materials 2-4 include: (1) Guidelines for Countermeasures against Illegitimate Routes on the Internet Using RPKI's ROA; (2) Guidelines for DNS Response Authentication Technology Using DNSSEC; and (3) Guidelines for Email Spoofing Countermeasures and Anti-Spam Technologies, including DMARC (including SPF and DKIM) Email Authentication Technology. https://www.soumu.go.jp/main_sosiki/kenkyu/cybersecurity_taskforce/02cyber01_04000001_00286.html
[9] 5G Security Guidelines Version 1: https://www.soumu.go.jp/main_content/000812253.pdf
[10] Software whose source code is freely available to the public, allowing anyone to use, modify, and redistribute it.
[11] Software Bill of Materials
[12] ISMAP Cloud Service List: https://www.ismap.go.jp/csm?id=cloud_service_list

B Development of guidelines for cloud security

The MIC has formulated the "Guidelines for Information Security Measures in Cloud Service Provision" as part of its efforts to promote the use of safe and secure cloud services. In September 2021, a revised version (3rd edition) was published, taking into account the actual provision and usage of cloud services. Moreover, due to cases where inappropriate use of cloud services by users has led to potential information leaks, a guideline for promotion of appropriate configuration in cloud service usage was formulated in October 2022 with the examination by wide range of stakeholders such as providers and users. In April 2024, a "Cloud Misconfiguration Prevention Guidebook" was published to provide a clear explanation of the content of the guidelines for cloud service users.

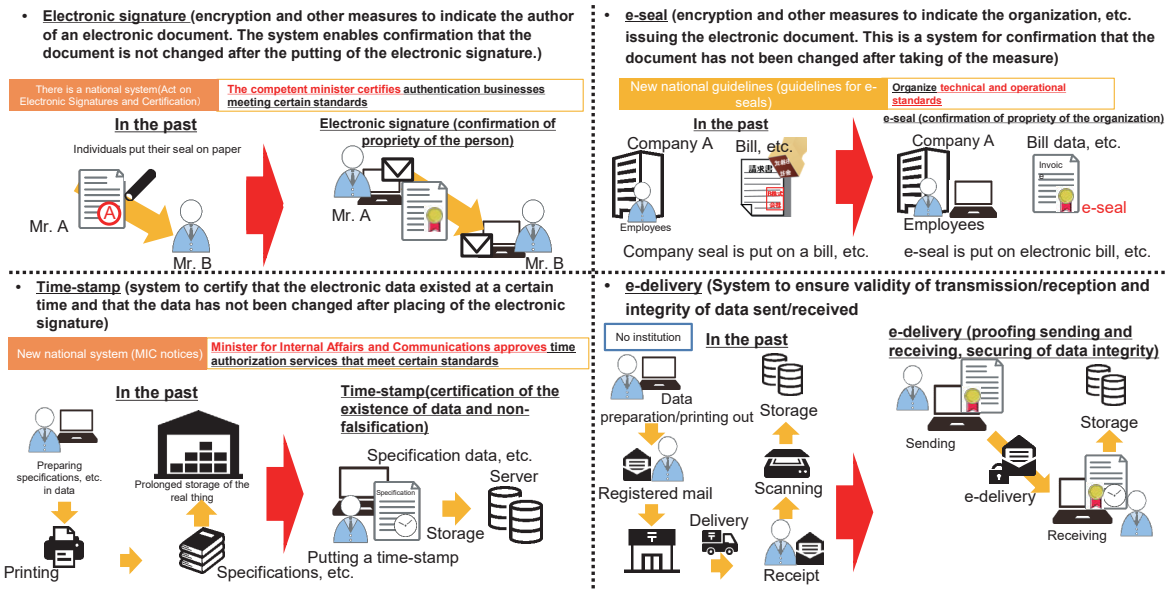
(5) Initiatives related to trust services

In Society 5.0, where the physical and cyber spaces are highly integrated, it is essential to seamlessly facilitate various interactions in the cyber space as well. To achieve this, it is crucial to establish a foundation that allows data to circulate safely and securely. The importance of trust services, which are mechanisms to prevent data tampering and spoofing of the sender **(Figure 2-2-5-1)**, is increasing.

As a government-wide effort, the "Sub-working Group for Trust-Assured Digital Transformation" was established in November 2021 under the "Data Strategy Promotion Working Group" based on the Digital Society Promotion Council Order (Cabinet Order No. 193 of 2021). This sub-working group examines the digitalization needs and required assurance levels for various public and private procedures and transactions. In July 2022, the "Report of the Sub-working Group for Trust-Assured Digital Transformation[13]" was published.

The MIC is advancing discussions on the appropriate operation of the electronic time stamps certification system and the establishment of standards and conformity assessments to evaluate the reliability of private electronic seals (e-Seals) services, based on the "Priority Plan for Realization of a Digital Society" (Cabinet decision on June 9, 2023)[14].

Figure 2-2-5-1 Image of trust service



A Establishment of a national certification system on electronic time stamps

Regarding time stamps, further discussions were held in the "Study Meeting on the Time Stamp Certification System," which was launched in March 2020. In April 2021, the "Rules Concerning the Certification of Time-stamping Services (MIC Notice No. 146 of 2021)" were established, creating a certification system by the national government (Minister of Internal Affairs and Communications). Additionally, due to the tax reform in FY2022, the electronic time stamps based on the national certification system was positioned to replace the electronic time stamps based on the certification system by the private sector (Japan Data Communications Association) for the scanner storage system related to tax documents. In February 2023, the first national certification for time authentication services was granted. Moving forward, the national certification system will continue to be operated appropriately and reliably, and necessary efforts will be made to further expand the use of electronic time stamps.

[13] Report of the Sub-working Group for Trust-Assured Digital Transformation: https://www.digital.go.jp/councils/trust-dx-sub-wg/
[14] Priority Plan for Realization of a Digital Society: https://www.digital.go.jp/assets/contents/node/basic_page/field_ref_resources/5ecac8cc-50f1-4168-b989-2bcaabffe870/b24ac613/20230609_policies_priority_outline_05.pdf

B Initiatives for institutionalizing e-Seals

Regarding e-Seals, the "Study Meeting on a System for Ensuring the Reliability of Data Issued by Organizations" was launched in April 2020 to discuss the ideal state of e-Seals in Japan. In June 2021, the "Guidelines on e-Seals" were formulated, indicating certain standards for the technology and operation of e-Seals in Japan. Furthermore, in September 2023, the "Study Group on e-Seals" was established to discuss the establishment of standards and conformity assessments to evaluate the reliability of private e-Seals services. In April 2024, the final report of the study group[15] and the "Guidelines on e-Seals (2nd Edition) [16]" were published. Based on these study results, efforts will be made to start the operation of a national certification system for e-Seals.

3. Improvement of ability to handle cyberattacks autonomously

(1) Initiatives for developing security personnel

As cyberattacks become more sophisticated and complex, Japan faces a significant shortage of cybersecurity personnel both in terms of quality and quantity. Addressing this issue is an urgent priority. To this end, the MIC is actively promoting initiatives for cybersecurity personnel development through the National Cyber Training Center of the NICT, including programs such as CYDER, CIDLE, and SecHack365.

A Practical cyber defense exercises for information system personnel (CYDER)

CYDER is a practical cyber defense exercise targeting information system personnel from national agencies, local governments, independent administrative agencies, and critical infrastructure operators. Participants join the exercise in teams and experience a series of responses to cyberattacks, from detection to response, reporting, and recovery, in a large-scale virtual LAN environment that simulates an organization's network environment **(Figure 2-2-5-2)**. In FY2023, in addition to the existing beginner, intermediate, and pre-advanced group exercise courses and the online introductory course, a trial implementation of "Pre-CYDER" was conducted, which allows participants to learn the basics of cyberattack mechanisms, trends, and incident handling **(Figure 2-2-5-3)**.

The number of participants in CYDER group exercises in FY2023 was 3,742, bringing the total number of participants since FY2017 to over 20,000.

Figure 2-2-5-2: Practical cyber defense exercises (CYDER Cyber Defense Exercise with Recurrence)

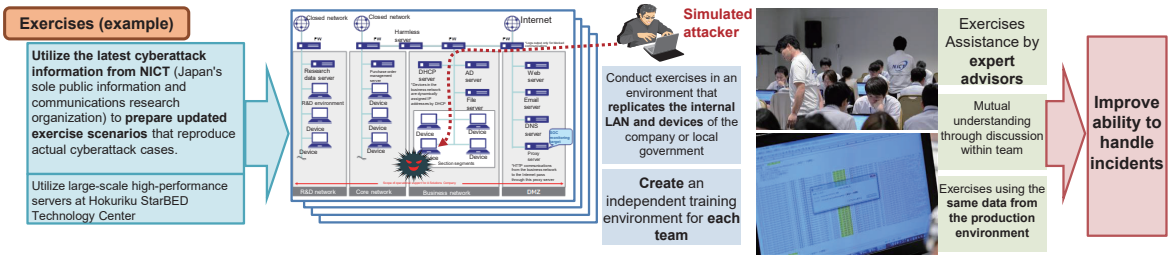


Figure 2-2-5-3 Implementation status of CYDER in FY2023

Course	Type of exercise	Level	Intended audience (topics covered)	Intended organizations	Location	Frequency	Period
A	Group exercises	Beginner	Individuals beginning to work with systems (Procedure for responding to incidents)	All organizations	47 prefectures	68 times	From Jul. to Jan. of the following year
B-1		Intermediate	System administrators and operators (Autonomous incident response and security management)	Local governments	11 regions nationwide	21 times	From Oct., to Jan. of the following year
B-2				Organizations other than local governments	Tokyo, Osaka, Nagoya	13 times	Jan. of the following year
C		Semi-advanced	Security specialists (Advanced security technology)	All organizations	Tokyo	4 times	From Nov., to Jan. of the following year
Online Standard	Online exercises	Equivalent to beginner	Individuals beginning to work with systems (Procedure for responding to incidents)	All organizations	(Participant workplaces, etc.)	As needed	From Mar. to Jul.
Pre CYDER		—	Individuals just beginning to work with systems (Prerequisite knowledge, basic matters)	National agencies etc., local government			From Dec., to Jan. of the following year

[15] Final Report of Study Group on e-Seal: https://www.soumu.go.jp/main_content/000942601.pdf
[16] Guidelines on e-Seals (2nd Edition): https://www.soumu.go.jp/main_content/000942602.pdf

B Cyber defense training for the Expo (CIDLE)

CIDLE is a cyber defense training program aimed at ensuring a robust security posture for the 2025 World Exposition (Osaka-Kansai Expo). It targets information system personnel from organizations related to the Osaka-Kansai Expo. Utilizing the legacy of the Tokyo 2020 Olympic and Paralympic Games, lecture and exercise programs have been provided since FY2023.

C Young security talent development program (SecHack365)

SecHack365 is a program aimed at developing cutting-edge security personnel (security innovators) who can create new security countermeasure technologies. It targets young ICT talents under the age of 25 residing in Japan. Utilizing actual cyberattack-related data held by the NICT, researchers and engineers at the forefront of the field provide continuous and intensive guidance on security technology research and development over the course of a year. In FY2023, 38 participants completed the program, bringing the total number of graduates since FY2017 to 289.

(2) Building an integrated cybersecurity intelligence and human resource development platform (CYNEX)

In Japan, security businesses primarily adopt and operate overseas security products. Consequently, the country's cybersecurity measures heavily rely on foreign products and information, leading to insufficient collection and analysis of domestic cyberattack information. The continued use of overseas security products results in domestic data being transferred to foreign businesses, leading to the analysis of Japan's security-related information abroad. Meanwhile, Japan continues to purchase threat information obtained from these analyses from foreign businesses.

This situation also results in a lack of accumulation of core knowledge and insights within domestic security businesses, making it difficult to effectively contribute to global-level information sharing and develop internationally recognized engineers. Furthermore, user companies also face a shortage of personnel capable of handling security products and information appropriately. To enhance Japan's autonomous response capability to cyberattacks, it is essential to accelerate the establishment of an ecosystem for accelerating the generation of domestic cyber security information and personnel development.

The MIC, in collaboration with the NICT, which conducts top-level research and development in cybersecurity, is promoting the CYNEX initiative. This initiative aims to enhance Japan's cybersecurity response capabilities by constructing and operating an advanced platform, the "Integrated Cybersecurity Intelligence and Human Resource Development Platform," which serves as a major nexus for industry-academia-government collaboration in cybersecurity, leveraging the technology and know-how accumulated by the NICT. In October 2023, the "CYNEX Alliance," composed of organizations from industry, academia, and government participating in CYNEX, was launched, marking the full-scale deployment of CYNEX. In the FY2024, the MIC will continue to expand collaboration with private companies and educational institutions, broadly collect and analyze Japan's cybersecurity information, promote the development of domestic security products using this information, and support the development of advanced security personnel and human resource development in private companies and educational institutions, aiming to further strengthen Japan's cybersecurity response capabilities.

Figure (related data) Building an integrated cybersecurity intelligence and human resource development platform (CYNEX)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00403
(Data collection)

Additionally, from FY2023, the "Project to Involves the Verification of Sensors Capable of Ensuring Safety and Transparency in Collecting and Analyzing Cybersecurity Information from Government Terminals (CYXROSS)", was initiated to aggregate and analyze the obtained information in the NICT's CYNEX, strengthening Japan's security measures. In FY2024, efforts will continue to expand the aggregation and analysis of cyber security information and increase the adoption of sensors in government agencies to enhance Japan's unique cyberattack analysis capability.

Figure (related data) Project to Involves the Verification of Sensors Capable of Ensuring Safety and Transparency in Collecting and Analyzing Cybersecurity Information from Government Terminals (CYXROSS)
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00404
(Data collection)

4. Promotion of international collaboration

Given the global nature of cyberspace, collaboration with other countries is essential for establishing robust cybersecurity measures. To this end, the MIC actively engages in discussions, information dissemination, and information gathering at various international conferences and cyber consultations to contribute to the formation of international consensus on cybersecurity.

Additionally, supporting capacity building in the field of cybersecurity for developing countries is crucial to reducing global cybersecurity risks. MIC promotes initiatives to enhance cybersecurity capabilities, particularly in the ASEAN region, through projects such as the ASEAN-Japan Cybersecurity Capacity Building Centre (AJCCBC)[17]. In FY2023, leveraging the expertise and know-how accumulated through AJCCBC activities, MIC has expanded its capacity-building support activities to include trial exercises for island nations in the Pacific region.

Furthermore, to promote international information sharing on cybersecurity at the private sector level, MIC organizes workshops involving ISPs from ASEAN countries and holds opinion exchange meetings with ISACs (Information Sharing and Analysis Centers) between Japan and the U.S. as well as between Japan and the EU.

5. Promotion of awareness raising

(1) Initiatives for telework security

According to a survey conducted on companies that have introduced telework[18], security assurance is considered the biggest challenge when implementing telework. In response to these security concerns, the MIC has been formulating and publishing the "Telework Security Guidelines" since 2004.

With the expansion of telework, which becomes prevalent due to the spread of COVID19 and is positioned as the central focus of workstyle reform, and considering the advancement of cloud utilization and the increasing sophistication of cyber-attacks, the guidelines were revised in May 2021 to comprehensively review the necessary security measures and specific trouble cases.

Additionally, for small and medium-sized enterprises where there may not be dedicated security personnel or where the responsible individuals may not have a deep understanding of security measures, a "Telework Security Guide for Small and Medium-sized Enterprises and Others (Checklist)" was formulated and published in 2020, focusing on ensuring the minimum level of security. In May 2022, the checklist was revised to ensure readable design and words with a view of universal design, and an "Employee Handbook" that employees can actually use was newly created as an appendix. Furthermore, to assist in implementing security measures according to the checklist, a "Configuration Explanation Document" was published to explain how products used in telework should be configured. In October 2023, the range of products covered by the "Configuration Explanation Document" was expanded, and updates were made to the content of the already published products.

(2) Formation and promotion of locally rooted security communities (Regional SECUNITY)

From the perspective of ensuring a safe and secure cyber space in Japan, ensuring cybersecurity at the local level is also an important issue. On the other hand, in local businesses and municipalities, there is an information disparity regarding cybersecurity compared to companies operating on a metropolitan or national scale. Additionally, due to reasons such as a lack of management resources such as personnel, it may be difficult for them to take sufficient security measures on their own or they may not recognize the necessity of security measures.

The MIC is promoting the formation of security communities ("Regional SECUNITY") based on a "mutual assistance" relationship among stakeholders in the security field. By the end of FY2022, the establishment of Regional SECUNITY had been completed in 11 regions based on the jurisdiction of the Regional Bureau of Telecommunications etc. In FY2023, 16 seminars, 10 incident response exercises, and 7 CTF (Capture The Flag) events for young people were conducted, and large-scale cross-regional events were also held. To further expand the activities of Regional SECUNITY, support for events will continue to be provided in FY2024[19].

Figure (related data) Security communities in each region
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00405
(Data collection)

[17] Regarding the AJCCBC, refer to Section 8 "Promotion of ICT International Strategy" in Chapter 2, Part 2.
[18] Survey on actual conditions of remote work security: https://www.soumu.go.jp/main_sosiki/cybersecurity/telework/
[19] Details on the latest events can be found at the following URL.
https://www.soumu.go.jp/main_sosiki/cybersecurity/localsecunity/index.html

(3) Appropriate promotion of sharing and disclosure of information related to cyberattack damages

As the threat of cyberattacks increases, it is beneficial for both the affected organizations and society as a whole for organizations that have suffered from cyberattacks to share and disclose information related to the damage with cybersecurity-related organizations. This helps in fully understanding the attack and strengthening countermeasures. However, due to concerns about their own reputation, affected organizations are often cautious about sharing and disclosing such information.

In response, in April 2022, the "Guidance Review Committee on Sharing and Disclosure of Information Related to Cyber Attack Damages" was established under the steering committee of the "Cybersecurity Council," a collaborative body involving various public and private entities. This committee compiled and published the "Guidance on Sharing and Disclosure of Information Related to Cyber Attack Damages" in March 2023, which serves as a practical reference for organizations that have suffered from cyberattacks[20].

Moving forward, relevant government agencies will work together to promote and raise awareness of this guidance. Additionally, based on feedback from organizations that utilize the guidance after suffering from cyberattacks, the necessity of revising the guidance will be considered.

(4) Initiatives related to wireless LAN security

Wireless LAN is widely used not only at home and workplaces but also in public wireless LAN services in urban areas. However, if appropriate security measures are not taken, there is a risk of attacks using wireless LAN devices as stepping stones or information theft. Therefore, the MIC has formulated guidelines for both users and providers of Wi-Fi to ensure security[21].

In March 2024, the content of the "Simple Manual for Wireless LAN Users" was updated and subdivided into two separate manuals: the "Simple Manual for Public Wireless LAN Users" and the "Simple Manual for Home Wireless LAN Users." This allows users to check appropriate content according to their wireless LAN usage situation.

The "Security Measures Guide for Wireless LAN Providers," aimed at a wide range of wireless LAN providers including restaurants and retail stores, was also updated, and the revised version was published in March 2024.

Additionally, to raise awareness and promote understanding of wireless LAN security measures, a free online course is held annually during the Cybersecurity Month (from February 1 to March 18). In FY2023, the online course "Learn Wireless LAN Security Measures Now" was held from March 1 to March 24, 2024.

[20] Guidance on sharing and disclosing information on damages by cyberattacks (formulated March 8, 2023): https://www.soumu.go.jp/menu_news/s-news/01cyber01_02000001_00160.html
[21] Guidelines on Wireless LAN (Wi-Fi) security: https://www.soumu.go.jp/main_sosiki/cybersecurity/wi-fi/index.html

Section 6 Promotion of ICT usage

1. Summary

(1) Initiatives so far

Since the establishment of the Information and Communication Technology Strategy Headquarters in 2000 and the enactment of the Basic Act on the Formation of an Advanced Information and Telecommunications Network Society (Act No. 144 of 2000)[1], Japan has been promoting the utilization of ICT through various national strategies such as the e-Japan Strategy and the Comprehensive Strategy for the Vision for a Digital Garden City Nation. Based on these policies, the MIC has been promoting the utilization of ICT in various fields, including the digitalization of local communities, new information and communication technologies, and the revitalization of society through data circulation, in order to address social and economic issues such as the declining workforce due to an aging population, the increase in medical and nursing care costs, and the exacerbation of natural disasters.

(2) Future challenges and directions

Japan faces a challenging economic environment, including a declining workforce due to an aging population and a projected shrinkage of the domestic market. Additionally, there are mounting challenges such as coping with severe and frequent disasters, and addressing the aging public infrastructure that has been in place for over 50 years.

Furthermore, as digitalization progresses in society, including the widespread adoption of smartphones and the advancement of network sophistication, the role of information and communication in the lives of citizens and economic activities is increasing. Digitalization has the potential to significantly enhance the productivity and convenience of local communities, improve the quality of industries and livelihoods, and enhance the attractiveness of regions. Moreover, services provided by platforms such as social media and searching engines contribute to the improvement of daily convenience.

On the other hand, issues such as defamation, slander, and dis-/mis-information have become apparent in the information circulated on the Internet. Additionally, the emergence of new information and communication technologies such as generative AI and the metaverse is significantly transforming the digital space.

The government has raised the banner of the "Comprehensive Strategy for the Vision for a Digital Garden City Nation," and is actively promoting DX in local areas through the rapid development of digital infrastructure by both the public and private sectors.

Considering these challenges and the potential of digitalization, it is important to promote the implementation of digital solutions as a key to solving social issues in local communities, contributing to the revitalization of regional societies and economies. Furthermore, it is crucial to comprehensively address new challenges associated with the advancement of the digital space, such as the circulation of dis-/mis-information, the proliferation of generative AI, and the metaverse.

Moreover, in order to achieve a society where everyone can enjoy the benefits of various digital services that utilize data, and to ensure that users can utilize information in a safe and secure environment, it is important to promote the realization of a society where everyone can enjoy the benefits of various digital services that utilize data, and to ensure that users can utilize information in a safe and secure environment.

2. Promotion of DX to contribute to stimulate local areas and economy

(1) Examination for the realization of vibrant local communities

The MIC has been implementing initiatives that contribute to the "Vision for a Digital Garden City Nation" and "Digital Administrative and Fiscal Reforms." However, there have been criticisms that these various initiatives have not necessarily led to the resolution of local issues.

Against this backdrop, the MIC has been holding the "Study Group on the Ideal State of Information and Communication Infrastructure and Utilization for the Realization of Vibrant Local Communities"[2] since December 2023. The purpose of this conference is to examine the policy direction necessary to improve the quality of life for local residents and realize vibrant and diverse local communities through the necessary information and communication infrastructure and its utilization. The study group discusses issues such as the direction of improving the usage environment based on the actual usage of communication and broadcasting services, including end-to-end services in local areas, creating an environment where digital talents nurtured in the region can thrive, promoting industries using the digital infrastructure established in the region, addressing social issues such as labor shortages using digital technology, and building and strengthening the collaboration system among stakeholders for promoting regional DX.

[1] This act was abolished by the Basic Act on the Formulation of a Digital Society (Act No.35 of 2021).
[2] Conference on the Ideal State of Information and Communication Infrastructure and Utilization for the Realization of Vibrant Local Communities https://www.soumu.go.jp/main_sosiki/kenkyu/chiikikon/index.html

A Solving issues using local digital infrastructure

(A) Promotion of local 5G

Local 5G, institutionalized in 2019, is a 5G system that can be flexibly constructed on a spot basis within buildings or premises by various entities such as local companies and municipalities, according to the specific needs of the region or industry, unlike the nationwide 5G service provided by mobile phone operators.

To promote the spread of Local 5G, the MIC has been conducting technical studies on radio wave propagation in various usage environments assuming various real-world scenarios from FY2020 to FY2022. Additionally, the MIC has been implementing the "Development and Demonstration for the Realization of Problem-Solving Local 5G," which aims to create solutions using Local 5G.

Furthermore, to promote the introduction of safe and reliable 5G and solve various social issues faced by regions using 5G, as well as to strengthen the international competitiveness of Japan's economy, a tax system to promote the introduction of 5G was established in FY2020. In the FY2022 tax reform, revisions were made to promote the establishment of base stations in rural areas to realize the "Vision for a Digital Garden City Nation." The tax incentives, including corporate tax and income tax credits or special depreciation and special measures for fixed asset tax, have been extended until the end of FY2024.

(B) Implementation of advanced digital technologies using local digital infrastructure

To realize the "Vision for a Digital Garden City Nation," it is important to promote the establishment of local digital infrastructure and the practical application of advanced solutions using this digital infrastructure in an integrated manner, so that residents can experience the convenience of digital technologies according to local needs. Therefore, the MIC has started the "Regional Digital Infrastructure Utilization Promotion Project" from FY2023 to comprehensively support local governments' efforts to solve regional issues using digital technologies. This project supports (1) the formulation of digital technology introduction plans, (2) the practical application of advanced solutions (demonstration projects), and (3) the establishment of local digital infrastructure (subsidy projects), in order to comprehensively support local governments' efforts to solve regional issues using digital technologies. Furthermore, from FY2024, the MIC will also work on building DX promotion systems through the collaboration of municipalities and verifying the reliability of communications necessary for safe autonomous driving to contribute to solving social issues aimed at by digital administrative and fiscal reforms.

(C) Promotion of smart cities

Since FY2017, the MIC has been promoting smart cities that solve regional issues and create new value leading to regional revitalization through the use of digital technologies and data. The MIC, in collaboration with relevant ministries and agencies such as the Cabinet Office, has been implementing the "Smart City Promotion Project for Solving Regional Issues," which supports local governments etc.' efforts to introduce City OS and develop service assets. In FY2023, the MIC supported the projects of eight organizations.

In FY2023, the MIC, together with relevant ministries and agencies, revised and published the second editions of the "Smart City Reference Architecture (White Paper) and Smart City Guidebook."[3] Additionally, aiming for further development and implementation of smart cities, the MIC formulated the "Smart City Policy Roadmap" looking beyond 2030. In FY2024, the MIC revised the "Smart City Security Guidelines" based on these trends.

(D) Social implementation of information banks

From the perspective of promoting the appropriate utilization of personal data, including personal information, the MIC and the METI established a study group on the certification scheme for information trust functions. In June 2018, they compiled the "Guidelines for Certification of Information Trust Functions ver1.0," which outlines a voluntary certification system for information banks by private organizations. These guidelines focus on data utilization starting from individual users and consist of certification criteria, items to be included in the model contract, and the certification scheme. Based on these guidelines, the General Incorporated Association Information Technology Federation of Japan, a certification body, decided on the first "Information Bank" certification in June 2018, and as of March 2024, two companies have been certified as "Information Banks."

The MIC and the METI have been continuously reviewing the guidelines and considering the utilization of information banks. In July 2023, they published the "Guidelines for Certification of Information Trust Functions Ver3.0," which stipulates the requirements for information banks to handle sensitive personal information in the health and medical fields. In FY2024, they are verifying the issues of the certification guidelines by demonstrating use cases where information banks con-

[3] Publication of the revised version of Smart City Reference Architecture (White Paper) and Smart City Guidebook
https://www8.cao.go.jp/cstp/stmain/20230810smartcity.html
Videos of case study / interview articles https://www.mlit.go.jp/scpf/efforts/index.html
Case studies of smart city service https://www.soumu.go.jp/main_content/000808085.pdf

tribute to solving regional issues by safely and securely distributing sensitive personal information in the health and medical fields through data linkage in smart cities.

B Securing and developing human resources to support the DX of local communities

(A) Support project of external human resource recruitment

In September 2022, the MIC formulated the "Standards of External Human Resource Skill for Promoting Municipal DX" to serve as a reference for municipalities when securing external human resources. These standards categorize the desirable skills and experiences that external personnel should possess. Based on these standards, the MIC publicly recruited individuals from the private sector with certain skills and experiences, evaluated them through experts, and provided training on municipal operations and information systems. Information on those who completed the training was compiled and provided to municipalities as an "List of External Human Resource" starting in June 2023.

(B) Dispatch system of regional informatization advisor

Since FY2007, the MIC has been dispatching experts with knowledge and know-how in ICT (referred to as "Regional Informatization Advisors") to municipalities and other entities upon request. These advisors provide advice, recommendations, and information to promote the use of ICT in solving regional issues, thereby contributing to the creation of vibrant and attractive communities and fostering human resources who can play a central role in the region.

In FY2023, 196 private sector experts with knowledge and know-how in regional informatization through research activities at universities, business activities in the region, NPO activities, etc., were appointed as "Regional Informatization Advisors," and 363 dispatches were conducted.

(2) Discovery and development of ICT startups

In Japan, 2022 was designated as the inaugural year for startup creation, with the goal of increasing investment in startups tenfold over five years. This goal was set forth in the "Startup Development Five-year Plan" (decided at the New Capitalism Realization Conference in November 2022), aiming to create an ecosystem that fosters and nurtures startups.

The MIC and the NICT host the "Entrepreneur Koshien" and "Entrepreneur Expo" to award and support excellent business plans from students aiming to start businesses and from startup companies, with the objective of solving regional issues and revitalizing the economy through the creation of ICT startups originating from local areas.

(3) Promotion of telework

A Overview of telework

Telework is a flexible working style that utilizes ICT to make effective use of time and location. It enables diverse working styles that fit the life stages and lifestyles of individuals, including those raising children, seniors, and people with disabilities. Additionally, it is effective in ensuring business continuity during disasters or infectious disease outbreaks. Telework also allows individuals to maintain their income while working in their preferred regions, potentially creating a flow of people from urban to rural areas, thereby offering various benefits to society as a whole. Since 2020, with the spread of COVID-19, telework has been widely adopted, especially in urban areas, as a means to reduce commuting. However, the image of telework as a measure to prevent infection has become prevalent. In May 2023, COVID-19 was reclassified as a Category 5 infectious disease, and a survey conducted by Persol Research Institute in July 2023 showed that the telework implementation rate among employees was at its lowest since April 2020[4], indicating a trend towards returning to the office.

In response to this situation, the MIC established the "Task Force on the Future of Telework in the Post-COVID Era" in April 2021 to further expand and firmly establish telework. The task force, which gathered expert opinions on telework style that Japan should aim for in the future, issued a recommendation in August 2021 stating that "Japanese-style Telework," which enhances communication through the use of ICT tools while maintaining the strengths of Japan's employment practices and work styles, should be the future direction for Japan.

To foster momentum for telework, the Telework Month Executive Committee (comprising the Cabinet Bureau of Personnel Affairs in the Cabinet Secretariat, the Office for Promotion of Regional Revitalization in the Cabinet Office, the Digital Agency, the MIC, the Ministry of Health, Labour and Welfare, the METI, the Ministry of Land, Infrastructure, Transport and Tourism, the Japan Tourism Agency, the General Incorporated Association Japan Telework Association, and the Japan Telework Society) designates November each year as "Telework Month," a period for concentrated telework initiatives. During this month, they conduct surveys on the effects of telework (such as contributions to work style reform and operational efficiency) and hold events and seminars organized by related ministries and agencies. Additionally, since 2015, the MIC has been recog-

[4] "8th Telework Survey/Mask Survey at Work" (Persol Research Institute)
https://rc.persol-group.co.jp/thinktank/assets/telework-survey8.pdf

nizing companies with significant telework achievements to incentivize telework adoption and provide reference examples for other companies considering telework.

In 2023, considering the widespread adoption of telework, the MIC selected and announced companies and organizations that not only implemented telework systems and achieved significant utilization but also demonstrated management effectiveness through telework, addressed communication challenges during telework, and contributed to solving regional issues such as revitalizing local industries and promoting regional informatization. These entities were recognized as "Telework Top Runners 2023," with the most outstanding initiatives receiving the "Minister of Internal Affairs and Communications Award."

B Support for the spread of telework

To support the adoption of telework among SMEs and in regional areas, where implementation rates remain low, the MIC has established regional consultation desks in collaboration with local chambers of commerce and local governments nationwide. These desks provide consultation services and other support. Additionally, the MIC offers free individual consulting by experts (telework managers) to companies considering the introduction or improvement of telework, aiming to promote the effective use of telework. Since FY2022, these support services have been integrated with the Ministry of Health, Labour and Welfare's labor-related telework consultation services and jointly implemented as the "Telework One-Stop Support Project."

Furthermore, to address the common concern of information security in telework, the MIC has developed the "Telework Security Guidelines" and the "Telework Security Handbook for SMEs (Checklist)" to serve as references for companies implementing telework.

3. Responses to address the new issues along with the advancement of digital space

(1) Promoting the spread of AI and addressing risks

In recent times, the development and proliferation of AI technology have been advancing at a rapid pace, to the extent that there is hardly a day without news about AI. The "AI Networking," where AI systems connect and collaborate with other AI systems via the internet, is expected to bring significant benefits to individuals, communities, nations, and the international society by addressing various challenges. Since the launch of OpenAI's ChatGPT in November 2022, global attention towards the potential and risks of AI has significantly increased.

In this context, during the G7 Digital and Technology Ministers' Meeting held in Takasaki, Gunma, Japan, in April 2023, six themes, including "Promoting Responsible AI and AI Governance," were discussed under Japan's leadership as the chair country. The meeting resulted in the adoption of the G7 Digital and Technology Ministers' Declaration. Furthermore, following the outcomes of the G7 Hiroshima Summit in May of the same year, the "Hiroshima AI Process" was initiated to discuss generative AI. In December, the "Comprehensive Policy Framework for the Hiroshima AI Process" was compiled and approved by the G7 leaders. The Hiroshima AI Process will continue to advance with the cooperation of G7 countries, the OECD, the GPAI, and the United Nations, among other multilateral platforms, under the "Work Plan to Advance the Hiroshima AI Process."[5]

Domestically, in response to the rapid changes in AI technology and international discussions, the government established the AI Strategic Council as a command center to conduct intensive discussions with experts possessing a wide range of knowledge on various issues. Based on the "Tentative Summary of AI Issues" (May 2023) compiled by the AI Strategic Council, the MIC and the METI have been working on integrating and updating existing guidelines[6][7][8] to address concerns and risks related to AI. They have held the "AI Network Society Promotion Council" and the "AI Business Operator Guidelines Review Committee" to develop unified and comprehensible guidelines for AI business operators. The "AI Guidelines for Business" Version 1.0 was formulated and published in April 2024. These guidelines will be updated as a Living Document, reflecting ongoing trends, issues, and international discussions surrounding AI.

(2) Organizing issues related to the utilization of the metaverse and other technologies

Recognizing the need to ensure a safe and secure cyberspace, the MIC has been working to identify and organize new issues related to cyberspace, anticipating the future widespread adoption of the metaverse. From August 2022 to July 2023, the "Study Group on the Utilization of Metaverse toward the Web3 Era[9]" was held.

[5] Regarding the discussion in G7, also refer to Section 8 "Promotion of international strategy" in Chapter 2, Part2.
[6] AI R&D Guidelines for International Discussions https://www.soumu.go.jp/main_content/000499625.pdf
[7] AI Utilization Guidelines https://www.soumu.go.jp/main_content/000809595.pdf
[8] Governance Guidelines for Implementation of AI Principles ver. 1.1 https://www.meti.go.jp/shingikai/mono_info_service/ai_shakai_jisso/pdf/20220128_1.pdf
[9] Holding "Study Group on the Utilization of Metaverse toward the Web3 Era" (Press release) https://www.soumu.go.jp/menu_news/s-news/01iicp01_02000109.html

The study group focused on improving user convenience, ensuring the appropriate and smooth provision of services, and fostering innovation in the utilization of virtual spaces like the metaverse. It addressed issues related to information and communication administration from the perspectives of user understanding and digital infrastructure, considering various use cases. In July 2023, the study group compiled a report[10].

The report outlined six key points and issues related to the development of the metaverse, including challenges associated with avatars, and proposed directions for resolving these issues, such as forming an international common understanding of the metaverse's principles. Based on the report, a new "Study Group on Realizing Safe and Secure Metaverse[11]" was launched in October 2023 to examine principles based on the democratic values of the metaverse, follow up on technological trends, and contribute to international discussions on the metaverse toward the realization of safe and secure metaverse for users. The group presented the first draft of the metaverse principles in March 2024 and plans to publish a report around the summer of the same year.

(3) Comprehensive measures to address dis-/mis-information on the Internet

A Response to the 2024 Noto Peninsula Earthquake

Following the Noto Peninsula Earthquake in January 2024, concerns were raised about the circulation of dis-/mis-information that could hinder swift life-saving, rescue, and smooth recovery and reconstruction efforts.

The MIC issued warnings about dis-/mis-information on the Internet through social media on the day after the disaster, January 2, and requested major social media platform operators to take appropriate measures in accordance with their terms of use. Subsequently, various layered public relations efforts have been implemented, primarily targeting the affected areas, to raise awareness about dis-/mis-information.

The "Package for Supporting the Lives and Livelihoods of Disaster Victims[12]" published on January 25, 2024 also incorporates measures to address dis-/mis-information circulating on the Internet. It includes ongoing follow-ups on the response status of platform operators in relation to the requests and the development and verification of technologies to identify deepfake videos circulating on the Internet, utilizing the supplementary budget for FY2023.

B Examination of the healthiness of information circulation in digital spaces

As various services utilizing digital spaces become widespread in society and new technologies such as generative AI continue to advance, new challenges such as the circulation and dissemination of dis-/mis-information have become apparent, with their impact on society growing. Taking into account international trends, a new "Study Group on the Healthiness of Information Circulation in Digital Spaces[13]" was launched in November 2023 to examine comprehensive measures, including institutional aspects, to address the circulation and dissemination of dis-/mis-information. The study group has been discussing the basic principles for ensuring the healthiness of information circulation in digital spaces, the roles and responsibilities expected of various stakeholders, and specific measures. In May 2024, a "Multi-Stakeholder Effort Collection for Addressing Dis-/mis-information on the Internet" was compiled and published to make it more accessible for a wide range of stakeholders from the private sector, academia, government, and civil society to refer to, with the aim of promoting collaboration and cooperation domestically and internationally. Concrete measures, including ensuring the transparency and accountability of platform operators' efforts, promoting fact-checking, raising awareness, improving literacy, nurturing talent, conducting research and development of technology, addressing challenges related to digital advertising, and strengthening international cooperation, are expected to be compiled and published around the summer of 2024.

C Promotion of international cooperation

In the ministerial declaration of the G7 Digital and Technology Ministers' Meeting held in Gunma Takasaki in April 2023, it was announced that the "Existing Practices against Disinformation (EPaD)" by stakeholders, including private companies and civil society, would be collected and edited, and then announced at the IGF Kyoto 2023. In response to this declaration, the Japanese government, as the G7 chair, compiled EPaD at the MIC and publicly announced it at the session "Sharing Existing Practices against Disinformation (EPaD)" held on Day 0 of IGF Kyoto 2023 (hosted by the MIC). The session discussed the importance of regional and cross-border collaboration and cooperation among a wide range of stakeholders, including platform operators, private companies, media, journalists, fact-checking organizations, legal professionals, academia, individuals, civil

[10] https://www.soumu.go.jp/main_content/000892205.pdf
[11] Holding "Study Group on Realizing Safe and Secure Metaverse" (Press release) https://www.soumu.go.jp/menu_news/s-news/01iicp01_02000121.html
[12] "Package for Supporting the Lives and Livelihoods of Disaster Victims" (The 2024 Noto Peninsula Earthquake Emergency Disaster Countermeasures Headquarters decision) https://www.bousai.go.jp/pdf/240125_shien.pdf
[13] Holding "Study Group on the Healthiness of Information Circulation in Digital Spaces" (Press release) https://www.soumu.go.jp/menu_news/s-news/01ryutsu02_02000374.html
Publication of "Multi-Stakeholder Effort Collection for Addressing Dis-/mis-information on the Internet" (Press release) https://www.soumu.go.jp/menu_news/s-news/01ryutsu02_02000405.html

society, and governments.

Furthermore, in bilateral dialogues such as the "14th Japan-the U.S. Dialogue on the Digital Economy" and the "29th Japan-EU ICT Policy Dialogue" held in February 2024, discussions were held on strengthening cooperation on measures against dis-/mis-information in the European and American regions, as well as in the Asia-Pacific region, including ASEAN.

4. Realization of data distribution society toward the stimulation of Japan

(1) Development of disaster information systems

Japan is one of the world's most disaster-prone countries, and each time a large-scale natural disaster occurs, it suffers significant social and economic damage. Given the ongoing predictions of large-scale natural disasters, such as the Nankai Trough Earthquake, it is crucial to efficiently utilize ICT to mitigate human and material damage caused by disasters.

A Development of a disaster-resilient fire and disaster prevention communication network

To collect and transmit information related to damage situations, a communication network that can reliably function even during disasters is essential. Therefore, the current infrastructure includes several key communication networks that connect the national government, the Fire and Disaster Management Agency, local governments, and residents. These networks are: (1) the Central Disaster Prevention Radio Network for collecting and transmitting information within the government; (2) the Fire and Disaster Prevention Radio Network connecting the Fire and Disaster Management Agency with prefectures; (3) the Prefectural Disaster Prevention Administrative Radio Network connecting prefectures with municipalities; (4) the Municipal Disaster Prevention Administrative Radio Network connecting municipalities with residents; and (5) the Satellite Communication Network connecting the national government with local governments or between local governments. Additionally, efforts are being made to introduce high-performance and cost-effective next-generation systems for the satellite communication network.

B Deployment of mobile communication equipment for disaster response

The MIC lends mobile communication equipment for disaster response to local governments to ensure communication in affected areas even if mobile phone networks are disrupted (As of April 2024, 1,065 simple radios, 179 MCA radios, and 106 satellite phones are deployed across the Regional Bureau of Telecommunications etc. nationwide). Following the 2024 Noto Peninsula Earthquake, the number of satellite phones was increased, and satellite internet equipment and public safety mobile systems were established. These devices are used to build communication environments in evacuation centers and to support the collection and transmission of disaster information and the smooth execution of emergency recovery activities.

C Securing emergency communication means during disasters

To prepare for situations where public telecommunication services become difficult to use during disasters, the MIC has been deploying ICT units (attaché case type) to regional communication bureaus nationwide since FY2016. These units are lent to disaster-related organizations upon request to ensure necessary communication means (As of April 2024, 25 units are deployed across the Regional Bureau of Telecommunications etc.).

D Stable operation of the Nationwide Instantaneous Warning System (J-Alert)

The Fire and Disaster Management Agency has established the "Nationwide Instantaneous Warning System (J-Alert)" to instantly transmit information on urgent situations, such as ballistic missile alerts, emergency earthquake warnings, and major tsunami warnings, from the national government to residents via emergency alert emails to mobile phones and municipal disaster prevention administrative radios. To ensure the rapid and reliable transmission of emergency information via J-Alert, municipalities are urged to thoroughly check the proper functioning of J-Alert-related equipment, and efforts are being made to promote the redundancy of J-Alert information transmission methods.

E Promotion of the use of L-Alert

The MIC promotes the use of the common platform (L-Alert) that allows local governments to simultaneously send disaster-related information, such as evacuation orders, to various media, including numerous broadcasters and internet service providers. L-Alert has achieved nationwide operation across all 47 prefectures and has become an essential part of the disaster information infrastructure.

To further promote the use and utilization of L-Alert, the MIC has conducted demonstrations related to mapping disaster-related information provided through L-Alert and has held training sessions for local government officials and other users. Additionally, considering the high public value of quickly and accurately convey-

ing disaster information to the public, the MIC is also examining the expansion of L-Alert functions to contribute to the government's overall disaster DX efforts.

(2) Promotion of ICT utilization in the medical field

Japan has entered a super-aging society, facing challenges such as increasing medical and nursing care costs and the uneven distribution of medical resources. To address these issues, the MIC is working to build and enhance a foundation for utilizing medical, nursing, and health data to improve and streamline medical and health services. The main focus is on promoting "Telemedicine" and "Utilization of PHR[14] data."

Specifically, as a research project by the Japan Agency for Medical Research and Development (AMED), the development and demonstration of an 8K endoscope system have been conducted since FY2022 to promote telemedicine, which is expected to be a significant solution to the uneven distribution of doctors. Additionally, efforts are being made to organize the necessary communication environments and network conditions for the realization of remote surgery. From FY2023, research and development are being conducted to build a data distribution infrastructure necessary for obtaining PHR data required by doctors from various PHR services to enhance medical care and refine diagnostic content.

Furthermore, considering the increasing complexity and diversification of information systems and services handling medical information and the emergence of new threats such as ransomware attacks, the "Guidelines for Safety Management in Information Systems and Service Providers Handling Medical Information" (the MIC and the METI) were revised in FY2023. Additionally, to promote the safe and secure utilization of private PHR services, discussions and improvements are being made to the "Basic Guidelines for Handling Health Checkup Information by Private PHR Service Providers" (the MIC, Ministry of Health, Labour and Welfare, and the METI).

(3) Promotion of ICT utilization in the education field

To promote the utilization of ICT in the education field, the MIC, in collaboration with the MEXT, conducted the "Smart School Platform Demonstration Project" from FY2017 to FY2019. This project aimed to verify safe, effective, and efficient data linkage methods between the "School Administration System" used by teachers and the "Classroom and Learning System" used by students. In FY2020, the "Smart School Platform Technical Specifications," which are the results of the demonstration, were published on the website to promote and disseminate the initiative. Additionally, from FY2021 to FY2022, the necessary technical specifications (reference model) were examined to realize the "Digital Education Platform," which enables data linkage between digital learning systems held by businesses outside of school.

From FY2023 onwards, to realize personalized education through the safe and secure utilization of educational data, investigations and studies are being conducted on the utilization of PDS (Personal Data Store) in the education field. Future efforts will include demonstrations to address the technical and institutional challenges specific to the education field.

(4) Promotion of cashless payments

In the "Follow-up of the Growth Strategy" decided by the Cabinet in June 2019, it was aimed to double the cashless payment ratio to about 40% by June 2025, promoting the shift to cashless payments.

Among cashless payment methods, code payments face the issue of operational complexity for stores due to the coexistence of multiple services. To address this, the "Payments Japan Association" (observers: the MIC, the METI, etc.) was established as a promotion body by related organizations and businesses. In March 2019, the "Unified Technical Specification Guidelines for Code Payments" were formulated, and the unified code based on these guidelines was named "JPQR." Subsequently, efforts have been made to promote JPQR in industries with high compatibility, such as dining, retail, beauty, and taxis, as well as at local government offices where various document issuance fees are handled. By the end of FY2023, approximately 15,000 stores have adopted JPQR. Additionally, from FY2023, local tax payments using the unified QR code for local taxes have started, and the unified JPQR standard is also utilized in this QR code.

(5) Promotion of safe and reliable cloud services

With the widespread adoption of cloud services such as ASP, SaaS, PaaS, and IaaS, the range of available service options has expanded. Consequently, it has become necessary to establish an environment where users can obtain sufficient information to compare, evaluate, and select cloud services. In this context, the MIC has formulated and published a total of eight guidelines known as the "Guidelines for Information Disclosure Concerning the Safety and Reliability of Cloud Services" since 2011 (partially revised in 2022). In 2022, an additional guideline titled "Guidelines for Information Disclosure Concerning the Safety and Reliability of AI-based Cloud Services (ASP/SaaS Edition)" was added to address the diversification of cloud services. Based on these guide-

[14] The abbreviation for "Personal Health Record" is PHR. It generally refers to an individual's lifelong health and medical information, including health check-up, vaccination history, medication information, test results, and other medical-related information, as well as personal vital signs measured daily. It is expected to be accurately understood by the individual as an electronic record and utilized for their own health promotion.

lines, the Japan Cloud Industry Association (ASPIC) has established and operates a certification system where third parties certify whether cloud service providers comply with the aforementioned guidelines. To date, over 310 services have been certified.

Furthermore, to promote the further adoption of cloud services, efforts are being made to disseminate and publicize exemplary cases of cloud services in collaboration with industry associations and other relevant organizations.

5. Creation of the safe and secure environment of ICT usage

(1) Improvement of support for digital utilization by the elderly and others

As the digitalization of society progresses, the MIC has been working on the "Project on Digital Utilization Support for Users" since FY2021 to provide support in the form of advice and consultations for the elderly and others who are anxious about using smartphones for online administrative procedures, with the aim of eliminating the digital divide and creating an environment where everyone can benefit from digitalization. In FY2023, these efforts were expanded to include conducting training sessions at over 6,000 locations nationwide, with a focus on mobile phone shops.

(2) Promotion of ICT literacy for a wide range of generations

To address the expanding opportunities for ICT use across a wide range of generations and the issue of the circulation of dis-/mis-information on the Internet, the MIC has been holding a "Study Group on Improving ICT Literacy for ICT Utilization[15]" since November 2022 and established a "Working Group on Improving ICT Literacy for Youth" in December 2022. Based on the results of these discussions, a "Roadmap for Improving ICT Literacy for ICT Utilization" was compiled and published in June 2023, outlining the direction for short- or medium and long-term initiatives. In FY2023, efforts were made to develop learning content to address the capabilities necessary for improving ICT literacy and common challenges across a wide range of generations.

(3) Establishment of a safe internet environment for the youth

The MIC has been conducting "e-Net Caravan" free outreach sessions at schools and other educational institutions for children, students, parents, and educators to ensure a safe and secure internet environment. Additionally, they have created and published an "Internet Trouble Case Collection" that summarizes methods for preventing internet-related issues. Furthermore, they have conducted research to promote responses using parental controls[16], including filtering.

In 2021, the MIC launched the website "Let's Use the Internet Wisely! - A Guide to Safe and Secure Internet Use -[17]" to promote awareness of safe and secure internet use, featuring content tailored to preschoolers, their parents, youth, parents and educators, and seniors. The site also includes special features on "Current Topics" such as "Cyberbullying including social media," "Measures against Piracy on the Internet," and "Dis-/mis-information," contributing to efforts to improve literacy[18].

Additionally, in FY2011, the MIC developed the "Internet Literacy Assessment Indicator for Students (ILAS)"[19] to visualize the internet literacy of youth, focusing on their ability to respond to dangers and threats on the Internet. This assessment measures seven risks, including illegal information risk, inappropriate use risk, and privacy risk, and has been conducted annually since FY2012 for first-year high school students nationwide. In FY2023, it was conducted at 75 schools with 13,108 participants, achieving an overall correct answer rate of 71.4%.

(4) Support for research and development towards information barrier-free

The MIC provides partial subsidies to companies conducting research and development of technologies related to communication and broadcasting services for people with disabilities and the elderly, as part of the "Research and Development for Eliminating the Digital Divide" program. In FY2023, subsidies were provided to five entities.

Additionally, under Act on Advancement of Facilitation Program for Disabled Persons' Use of Telecommunications and Broadcasting Services, with a View to Enhance Convenience of Disabled Persons (Act No. 54 of 1993), the NICT provides subsidies to companies and organizations developing and providing communication and broadcasting services for people with disabilities. In FY2023, subsidies were provided to six entities.

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[15] Study Group on Improving ICT Literacy for ICT Utilization
https://www.soumu.go.jp/main_sosiki/kenkyu/ict_literacy/index.html

[16] It means that parents oversee their children's internet use appropriately, considering their developmental stage and life cycle. This includes preventing troubles that may arise from children's information dissemination. Management methods are divided into technical means (such as filtering, billing restriction functions, and time management functions) and non-technical means (such as creating rules between parents and children). (General Principles for Child-Related Measures (Cabinet Decision on December 22, 2023), P50)

[17] Let's Use the Internet Wisely! - A Guide to Safe and Secure Internet Use –
https://www.soumu.go.jp/use_the_internet_wisely/

[18] Refer to the section 2 in Chapter 2, Part 2.

[19] https://www.soumu.go.jp/use_the_internet_wisely/special/ilas/

(5) Improvement of information accessibility

To make it easier for everyone, including the elderly and people with disabilities, to use public institution websites, the MIC conducted a partial revision of the "Guidelines for Operating Everyone's Public Websites" in the FY2023. In the same fiscal year, a survey on JIS compliance of public institution websites and workshops for public institutions were held at five locations nationwide. Efforts are also being made to promote the dissemination of self-assessment forms for information accessibility among companies and organizations. The "Information Accessibility Self-Assessment Form" is a tool for companies and organizations to publicly disclose the results of their self-assessment of whether their ICT equipment and services meet information accessibility standards, serving as a reference for companies, public institutions, and people with disabilities when selecting ICT equipment and services. This self-assessment form was created by the MIC, drawing on the Voluntary Product Accessibility Template (VPAT) used in the U.S. In the U.S., the law mandates that the government must procure accessible electronic information equipment. The MIC has been promoting the use of these forms through the establishment of support centers, seminars, and the collection of good practices, as well as the updating of guidebooks.

(6) Provision of telephone relay services as public infrastructure

The "Telephone Relay Service" is a service where sign language interpreters and other operators act as intermediaries, interpreting sign language and text from individuals with hearing impairments or other disabilities affecting auditory, speech, or vocal functions, to facilitate communication via telephone between these individuals and those without such impairments.

To ensure the proper and reliable provision of the "Telephone Relay Service," the Act on Facilitating the Use of Telephones by Persons with Hearing Impairments, etc. (Act No. 53 of 2020) was enacted in December 2020. From July 2021, the Japan Foundation Telephone Relay Service, designated as the service provider, began offering the Telephone Relay Service as public infrastructure. To further promote the use of the Telephone Relay Service, the MIC, in collaboration with relevant ministries and agencies, has been conducting awareness and publicity activities. As of the end of FY2023, the number of registered users reached 15,267. **(Figure 2-2-6-1)**

Figure 2-2-6-1 Illustration of promotion of telephone relay service

Section 7 Trends in ICT technology policy

1. Summary

(1) Initiatives so far

The MIC has been promoting technology policies in the field of information and communication, focusing on efforts towards Beyond 5G, which is expected to become the next-generation fundamental information and communication infrastructure, serving as the foundation for various industries and social activities and being utilized across borders.

Specifically, since the establishment of the "Beyond 5G Promotion Strategy" by the MIC in June 2020, discussions on the "Strategy for Information and Communication Technology towards Beyond 5G" have been progressing within the Information and Communication Council. Additionally, a research and development fund has been established based on this strategy, aiming to strengthen support for research and development activities related to Beyond 5G and international standardization efforts by private entities and others.

Furthermore, in March 2021, the "6th Science, Technology, and Innovation Basic Plan" was approved by the Cabinet, aiming to promote research and development in advanced fields to ensure the safety and security of the public and to achieve a sustainable and resilient society. Relevant government ministries and agencies are collaborating and cooperating to advance research and development in advanced fields such as AI, quantum technology, remote sensing, and space.

The NICT is promoting fundamental and foundational research and development in five key areas (advanced electromagnetic wave technology, innovative networks, cybersecurity, universal communication, and frontier science) during the 5th medium- to long-term plan period (from April 2021 to March 2026).

Additionally, the MIC is providing support for the creation of technological innovations and for startups, which are one of the key players in implementing advanced ICT and fostering next-generation industries.

(2) Future challenges and directions

Regarding Beyond 5G, it is necessary to address the lesson learned from the past that even if Japan's information and communication industry has established internationally excellent technologies, it has not always been able to translate them into significant business results. From the perspective of ensuring Japan's economic security, it is also essential to demonstrate competitiveness in the global market. Therefore, it is imperative to comprehensively address research and development, international standardization, social implementation, and overseas expansion to achieve its early realization.

In addition, for advanced fields such as AI, quantum technology, and space, early social implementation is considered a challenge for various issues, including strengthening the development of large LLMs, achieving simultaneous interpretation in anticipation of the Osaka-Kansai Expo, realizing highly reliable quantum communication, and achieving advanced space network technology.

2. Beyond 5G

In September 30, 2021, the MIC consulted the Information and Communications Council on the "Strategy for Information and Communication Technology Toward Beyond 5G," and the council's Information and Communication Technology Subcommittee on Technology Strategy deliberated on various activities and insights of industry, academia, and government, including the "Beyond 5G Promotion Consortium," major companies, universities, and national research and development institutions, to discuss technology strategies such as research and development, intellectual property, and standardization. As a result, an interim report was compiled on June 30, 2022, containing recommendations for Japan's focus on key technology areas for Beyond 5G and the establishment of a framework enabling multi-year budgeting.

Subsequently, the "Act to Amend the Act on the National Institute of Information and Communications Technology, National Research and Development Agency and the Radio Act" (Act No. 93 of 2022) was enacted in December 2022, leading to the full-scale operation of the research and development fund established at the NICT in March 2023, as well as progress in the efforts of private sector entities and international discussions.

(1) Implementation of the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund Program

The MIC is implementing the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund Project based on the "Act to Amend the Act on the National Institute of Information and Communications Technology, National Research and Development Agency and the Radio Act" (Act No. 93 of 2022), which established a permanent fund at the NICT in March 2023 as a successor to the temporary fund set up in February 2021.

Under the aforementioned fund project, three programs have been established: the "Social Implementation and Overseas Deployment-Oriented Strategic Program" that provides focused support for research and development projects with strategic commitment for social implementation and overseas deployment; the "Element Tech-

nology and Seed Creation-Oriented Program" targeting the establishment of long-term element technologies and the creation of technology seeds; and the "Radio Effective Utilization Research and Development Program" targeting the research and development of technologies specified in Article 103-2, Paragraph 4, Item 3 of the Radio Act.

In particular, for the main target of the fund project, the "Social Implementation and Overseas Deployment-Oriented Strategic Program," strong promotion of research and development aimed at social implementation and overseas deployment is being pursued, focusing on the following key technology areas based on the interim report of the Information and Communications Council, with the aim of sequentially implementing social implementation of the development results after 2025:

(1) All photonics network technology to achieve ultra-high-speed, ultra-low-latency, and ultra-low-power consumption of communication infrastructure
(2) Non-terrestrial network (NTN) technology such as satellite and HAPS for seamless connection of land, sea, and air communication coverage
(3) Secure virtualization and integrated network technology to ensure a safe and highly reliable communication environment for users

In carrying out these activities, the MIC has established the "WG on Innovative Information and Communication Technology Project Business Evaluation[1]" within the Information and Communications Council (Information and Communication Technology Subcommittee on Technology Strategy) and compiled the "Appropriate Evaluation of Business Aspects of the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund Project" (announced on March 10, 2023), taking into account the interim report. In FY2023, 17 major research and development projects have been adopted in the Social Implementation and Overseas Deployment-Oriented Strategic Program, and the operation of the fund project is in full swing.

Furthermore, the fund will be expanded with FY2023 supplementary budget, and new initiatives will be launched, including the development of common infrastructure technology for inter-operator cooperation in all-optical networks, as well as support for strategic projects in international standardization activities.

(2) Promotion of intellectual property and standardization activities for Beyond 5G

The international standardization activities for Beyond 5G are expected to intensify, with major companies from around the world focusing their efforts on this. To achieve success in international standardization activities related to our country's development achievements, it is important to support strategic projects with investments, business strategies, and management commitments in research and development projects. This support is crucial for the social implementation and overseas deployment of strategic products. The MIC has expanded the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund project through the supplementary budget for FY2023, and has established a new menu to support international standardization activities in addition to research and development. The operation of this support menu will be based on the "Approach to Support for International Standardization Activities through the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund Project," which was compiled in March 2024 based on discussions in the Information and Communication Technology Subcommittee of the Information and Communication Council, the Technology Strategy Committee, and the Innovative Information and Communication Technology Project Business Evaluation WG.

Furthermore, in preparation for Beyond 5G, a "Business Strategy" in organizations and companies is essential as a strategic promotion of international standardization and intellectual property activities through collaboration between industry, government, and academia is being pursued. In line with this principle, the "Beyond 5G New Business Strategy Center" was established in December 2020 to develop talent leading standardization and intellectual property activities, promote industry collaboration, raise awareness, and disseminate information. Specific activities include cross-organizational training programs for young talent at the core of next-generation corporate management, such as the "Leaders Forum," and awareness-raising and information dissemination seminars for companies, especially in management and business departments, known as the "New Business Strategy Seminar." Additionally, a new industry collaboration activity, "XG Ignite," bridging information and communication, digital, and diverse fields and industries, was initiated from FY2023.

To advance international standardization activities from the early stages of research and development, international joint research with trustworthy and synergistic strategic partners in countries and regions is being conducted. Specifically, international joint research has been conducted with the U.S. and Germany since FY2022. Furthermore, based on the "Japan-EU Digital Partnership" in May 2022, joint research themes were solicited for the Innovative Information and Communication Technology (Beyond 5G (6G)) Fund project "Element Technology and Seed Creation Program."

The "Beyond 5G Promotion Consortium," established in December 2020 to vigorously and actively promote Beyond 5G through collaboration between industry, government, and academia, has been conducting studies on future technological trends and prospects for Beyond 5G as part of its activities. It has contributed to the development of the IMT-2030 framework recommendation[2] at the ITU-R based on input of contribution docu-

[1] Changed the name of the WG from "WG Innovative Information and Communications Technology Project" (February 22, 2024)
[2] The recommendation ITU-R M.2160-0 "Framework and overall objectives of the future development of IMT for 2030 and beyond" was newly approved at the ITU Radiocommunication Assembly (RA-23) held in November 2023. Its purpose is to provide an overview, including the capabilities and use cases required for the next-generation mobile phone standards expected to be realized around 2030.

ments derived from the study results, following the 38th meeting of ITU-R SG5 WP5D in June 2021. Additionally, a "Beyond 5G White Paper" summarizing the study results on usage methods and performance targets was created in March 2022. Furthermore, to contribute to the discussion and promotion of the ITU-R WRC-27 Agenda Item 1.7, which focuses on the consideration of new frequency allocations for IMT beyond 5G, a survey of the usage status of existing wireless systems in the frequency bands under consideration, 7,125MHz-8,400MHz and 14.8GHz-15.35GHz, was conducted. Based on this survey, an updated version of the "Beyond 5G White Paper ver. 3.0" was published in March 2024. In addition, to promote the spread and advancement of Open RAN in our country and the overseas expansion of domestic companies, the "Open RAN Promotion Subcommittee" was established in March 2022 to discuss various issues related to Open RAN. The results of these discussions were compiled in the "Open RAN Promotion Subcommittee Activity Report" in March 2023. Furthermore, an "Beyond 5G International Conference" was held in February 2024 with the aim of strengthening collaboration between domestic and international stakeholders. In FY2024, the consortium plans to integrate with the 5th Generation Mobile Communications Promotion Forum (5GMF) to enhance the promotion structure for next-generation mobile communications and further accelerate efforts toward the social implementation of Beyond 5G technologies.

(3) Trends in Japan and overseas surrounding Beyond 5G

A Initiatives by private sector entities

The number of domestic and international participants in the industry forum "IOWN Global Forum," established by NTT, Intel, and Sony in 2019 as part of NTT's IOWN concept, has been steadily increasing. In addition, Japan's telecommunications industry has been making efforts as a whole, with KDDI joining in March 2023, following Rakuten Mobile's participation.

In March 2023, NTT East and West commenced commercial services for "IOWN 1.0," an all-optical network that achieves ultra-low latency. Furthermore, KDDI and SoftBank announced the introduction of all photonics networks into their core networks. Regarding non-terrestrial network (NTN) technologies such as low-earth orbit satellites and HAPS, SoftBank is promoting the utilization of HAPS through alliances such as the "HAPS Alliance," aiming to integrate various communication technologies into a single system to provide ubiquitous communication on land, at sea, and in the air. Additionally, Rakuten Mobile announced plans to provide domestic services using satellite-to-mobile direct communication in 2026 in collaboration with AST SpaceMobile in February 2024.

B Initiatives towards societal implementation

Various private sector entities and organizations are advancing efforts towards societal implementation for Beyond 5G.

The IOWN Global Forum is collaborating with various industries to consider use cases for the realization and proliferation of the IOWN concept, targeting practical use and commercialization around 2025, in addition to envisioning the future around 2030. They have cited early adoption examples around 2025, such as data center connections for the financial industry and remote/cloud media production for the broadcasting industry. They plan to proceed with specification development and verification towards commercialization.

In June 2023, Tokyu Land Corporation agreed to collaborate with NTT and its affiliates on new urban development utilizing IOWN-related technologies and services, with the initial implementation being the introduction of IOWN 1.0 to "Shibuya Sakura Stage" in December 2023.

Furthermore, towards international standardization, organizations such as the NICT and the "Beyond 5G Promotion Consortium" have been contributing to the international vision for Beyond 5G. In November 2023, a framework recommendation was approved by ITU-R, reflecting proposals from Japan, outlining the capabilities and use cases for "IMT-2030," with 6G in mind.

Additionally, at the 2023 World Radiocommunication Conference (WRC-23), frequencies and other resources were secured for the realization of Beyond 5G, including non-terrestrial network (NTN) technologies such as HAPS.

C Efforts toward overseas expansion

Regarding Open RAN, NTT DOCOMO established OREX as a brand to globally deploy Open RAN architecture and announced the establishment of a joint venture company "OREX SAI" with NEC in February 2024 to provide it in response to the requests of overseas telecommunications operators. Rakuten Mobile is also aiming to promote and expand the adoption of Open RAN technology, establishing facilities for showcasing Open RAN technology and flexible technical verification environments to meet requests domestically and internationally. Against this backdrop, the adoption of Open RAN-related products by major telecommunications operators in North America and Europe is progressing **(Figure 2-2-7-1)**.

Figure 2-2-7-1 Status of promotion of Open RAN to foreign telecommunication operators

Dish (the U.S.) adapted Open RAN of Fujitsu

- Dish, the U.S. telecommunication carrier, started to introduce the RU of Open RAN by Fujitsu (March 2021).

NEC & Mavenir constructed the examination environment of Open RAN of Orange (France)

- NEC and Mavenir, who provides network software, constructed Open RAN in the 5G examination environment (September 2022).

1 & 1 (Germany) started commercial service using fully virtual technology by Rakuten

- 1&1 (German telecommunication carrier) constructed fully virtual mobile network of Open RAN technology by Rakuten and launched 5G commercial service (December 2022).

Deutsche Telekom (Germany) adapted Open RAN of Fujitsu

- Deutsche Telekom selected Fujitsu and Nokia as the first commercial partner of Open RAN (February 2023).

NEC & Freshwave (the UK) demonstrated Open RAN in London

- DSIT (the UK) selected NEC & Freshwave (the UK telecommunication carrier), as a project to demonstrate technology, trust and possibility of realization of Open RAN in the center of London, and supported approximately 600 million yen (September 2023).

AT&T (the U.S.) collaborate with Ericsson & Fujitsu in Open RAN

- AT&T announced a plan to lead the development of Open Ran in the U.S. It is planned to collaborate with suppliers such as Fujitsu and Ericsson to expand the Open RAN environment to full of wireless network (December 2023).

Fujitsu & Rakuten joined consortium of the U.S Open RAN construction

- NTIA (the U.S.) selected consortium (Fujitsu, Mavenir etc.) led by Dish, as a project to integrate and construct Open RAN, and supported approximately 76 hundred million yen (January 2024).
- Moreover, NTIA (the U.S.) selected a consortium led by AT&T (Verizon and docomo etc.), as a project to promote compatibility and commercialization of Open RAN, and supported approximately 64 hundred million yen (February 2024) . Fujitsu & Rakuten collaborate as a supplier.

White paper published by the European major telecommunication carriers

- Deutsche Telekom (Germany) , Orange (France) , TIM (Italy), Telefonica (Spain) , Vodafone (the UK) published white paper on a process of Open RAN (February 2023)
- Europe plans many pilot projects of Open RAN after 2023, and also plans to implement commercially until 2025 in the all of Europe.

(Source) Compiled from various press materials

In preparation for Beyond 5G, NTT and its group companies are working on global deployment, including the establishment of the IOWN Global Promotion Office. NTT and NTT Data Group have conducted demonstrations of data center interconnection using all-optical networks in the U.S. and the UK. In October 2023, NTT and Chunghwa Telecom in Taiwan signed a basic agreement to realize international network connections based on IOWN. Additionally, in February 2024, Fujitsu announced joint discussions with Chunghwa Telecom to build all-optical networks based on the IOWN concept in Taiwan. In the optical field, Japanese companies have been expanding their share of major transmission equipment in the global market, particularly in North America.

At the G7 Digital Technology Ministers' Meeting held in Gunma Takasaki in April 2023, a future vision for next-generation networks, including both wireless and wired networks, based on the vision of Beyond 5G, was formulated, and agreement was reached on the G7 Action Plan for building safe and resilient digital infrastructure.

(4) Formulation of a new information and communication technology strategy

Based on these trends related to Beyond 5G, a new strategy for research and development, international standardization, social implementation, and overseas expansion of Beyond 5G was formulated through organic collaboration. In November 2023, discussions were resumed at the Information and Communication Council, and in June 2024, the final report "Approach to Information and Communication Technology Strategy for Beyond 5G" was compiled.

3. AI technologies

Since the proposal of deep learning in 2006, the third AI boom has arrived, leading to significant technological innovations in fields such as image recognition and natural language processing. Furthermore, in 2022, the trend of generating AI[3], which can automatically generate images and text based on training data, began to gain popularity worldwide, intensifying the competition in the development of generating AI. In Japan, the development of generating AI has become active in numerous private companies, academia, and other entities. Simultaneously, the utilization of generating AI in a wide range of industrial sectors is progressing, showing signs of bringing about a major transformation in society.

The MIC, based on the "AI Strategy 2022" (decided by the Integrated Innovation Strategy Promotion Council in April 2022) and the "Tentative Summary of AI Issues" (AI Strategic Council in May 2023), is collaborating with the NICT, a core center for AI-related activities, to conduct a wide range of research and development and social implementation related to natural language processing technologies such as large-scale language models and multilingual speech translation, distributed federated machine learning technologies, and AI technologies based on cognitive models of the brain.

[3] In 2022, "Stable Diffusion" which can automatically generate images, and "ChatGPT" which can automatically generate sentences appeared.

(1) Strengthening the development capability and risk response capability of LLMs

The NICT has accumulated a vast amount of language data through years of research and development in AI technology. In addition, in July 2023, it prototyped LLMs based on high-quality Japanese data created from the language data, demonstrating expertise in constructing high-quality training language data required for LLMs development. Leveraging the data and expertise possessed by the NICT, efforts are underway to enhance the development capability of LLMs in Japan by establishing and expanding a large amount of high-quality, safe Japanese-centric training language data required for LLMs development and providing access to LLMs developers in Japan. Additionally, research and development efforts are being made to address various risks associated with LLMs.

Figure (related data) Process of the development and use of LLMs and initiatives by the NICT
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00408
(Data collection)

(2) Research and development for advanced multilingual translation technology

The MIC, in collaboration with the NICT, is working on research and development of multilingual translation technology to eliminate the "Language Barrier" worldwide and achieve free global exchange. The NICT's multilingual translation technology, utilizing the latest AI technology, has achieved practical-level translation accuracy for 18 languages, considering visits to Japan, foreign residents, and diplomatic responses. Furthermore, the MIC and the NICT are promoting the social implementation of multilingual translation technology. The NICT provides "VoiceTra," a research app for individual travelers, and over 30 private services have been deployed through technology transfer[4], utilized in a wide range of fields such as government agencies, disaster prevention, transportation, and healthcare.

Figure (related data) Multilingual translation technology
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00409
(Data collection)

In anticipation of the 2025 Osaka-Kansai Expo, the MIC formulated the "Global Communication Plan 2025" in March 2020. Based on this plan, the MIC is establishing a computing environment for the NICT to conduct AI research and development at the world's top level and is conducting research and development from FY2020 to achieve "Simultaneous Interpretation" that goes beyond the conventional sequential translation, addressing business and international conference discussions.

Figure (related data) Initiatives to further advance multilingual translation technology
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00410
(Data collection)

Additionally, plans are in place to add three more languages, along with research and development for multilingual simultaneous interpretation, for the languages with practical-level translation accuracy, considering responses to foreign residents.

[4] Council for the Promotion of Global Communication Development: Examples of Products and Services by Private Companies Utilizing Multilingual Translation Technology from the NICT https://gcp.nict.go.jp/news/products_and_services_GCP.pdf

4. Quantum technologies

(1) Trends in quantum security and network policy

Quantum technology is an innovative technology that will dramatically and discontinuously advance future society and the economy. It is also crucial for economic security. Countries such as the U.S., Europe, and China have significantly expanded their investments in research and development and have strategically developed research and development bases and talent in various countries.

The government as a whole, based on the "Quantum Technology Innovation Strategy" (decided by the Integrated Innovation Strategy Promotion Council in January 2020), the "Vision for a Quantum Future Society - Vision for the Future Society to be Aims by Quantum Technology and Strategies for its Realization -" (decided by the Integrated Innovation Strategy Promotion Council in April 2022), and the "Quantum Future Industry Creation Strategy" (decided by the Integrated Innovation Strategy Promotion Council in April 2023), as well as the "Promotion Measures for the Creation and Development of the Quantum Industry" (reported by the Quantum Technology Innovation Conference to the Integrated Innovation Strategy Promotion Council in April 2024), have been working to strengthen and complement these three strategies. They are also promoting activities to support the strengthening of research and development and commercialization in various technology fields (quantum computers, quantum software, quantum security networks, quantum measurement/sensing/quantum materials, etc.), and are working to create innovation through a comprehensive approach involving industry, academia, and government, from basic research to technology verification and talent development.

(2) Research and development of quantum cryptographic communication technology

In the era of quantum computers, where the security of modern cryptography is at risk, quantum cryptography that can reliably detect eavesdropping based on the physical properties of quantum is required. The MIC is promoting research and development of quantum cryptographic communication technology (quantum key distribution technology) in collaboration with the NICT. Based on the government's overall strategy, a "Quantum Security Base" was established at the NICT in FY2021, and efforts are being made to promote social implementation, talent development, and a wide range of activities through the construction and use of test beds.

A Research and development of long-distance and networked quantum cryptographic communication

To realize the social implementation of quantum cryptographic communication, extending the communication distance is a major challenge. Therefore, the MIC has been working on the research and development of long-distance link technology and relay technology for ground-based quantum cryptographic communication since FY2020. In addition, research and development for the use of quantum cryptographic communication in secure satellite communication networks has been underway since FY2018, and in FY2023, a demonstration test of cryptographic key sharing technology between the International Space Station (ISS) and the ground was conducted. Efforts will continue to advance research and development for the construction of a global-scale quantum cryptographic communication network.

B Establishment of quantum cryptographic communication test beds and promotion of social implementation

The NICT has been conducting research and development of quantum cryptographic communication technology from an early stage, and has been operating the "Tokyo QKD Network", a quantum cryptographic communication test bed, since 2010 for the purpose of verifying the principles of quantum cryptographic communication. The basic specifications of quantum cryptographic communication equipment, based on the long-term operation results of the Tokyo QKD Network, were adopted as international standards (ITU-T Y.3800 series) in 2020, and have high international competitiveness.

Quantum cryptographic communication is expected to be deployed not only for information exchange between important domestic institutions, but also for commercial services such as finance and healthcare. Therefore, the MIC has been working on the construction of a wide-area test bed for quantum cryptographic communication that can conduct network configuration verification since FY2021, and is accelerating social implementation through the use of practical environments.

C Research and development for the realization of a quantum internet

A quantum internet, which stably realizes long-distance communication while maintaining quantum states, is expected to serve as the foundation for various quantum technologies, such as secure communication and distributed quantum computing. Therefore, the MIC has started research and development of essential technologies to realize a quantum internet that maintains quantum states and achieves stable long-distance quantum communication from FY2023.

Figure (related data) Image of communication network of quantum cryptographic at the global level
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/datashu.html#f00411
(Data collection)

5. Remote sensing technologies

At the NICT, research and development of remote sensing technology are being conducted to observe conditions such as rainfall, water vapor, wind, and the earth's surface with high temporal and spatial resolution. This is aimed at early detection and understanding of the development mechanisms of sudden atmospheric phenomena such as linear precipitation zones and localized torrential rainfall, as well as rapid assessment of damage situations during disasters.

Research and development efforts include the deployment of dual-polarization phased array weather radar (MPPAWR) capable of high-speed and high-precision three-dimensional observation of rain clouds and promoting the utilization of its data. Other efforts include technology to estimate the amount of water vapor in the atmosphere using the propagation delay of digital terrestrial broadcasting waves, wind profiler technology capable of observing wind speed in the upper atmosphere, and ground-based water vapor and wind LiDAR technology using eye-safe infrared pulse lasers capable of simultaneously observing water vapor and wind.

Figure (related data) Deployment of a network for observing water vapor in linear precipitation zones - A challenge to improve the accuracy of short-term rainfall forecasts
URL: https://www.nict.go.jp/press/2022/06/29-1.html

6. Space ICT

Based on the Basic Plan for Space Policy under the Basic Act on Space (Act No. 43 of 2008), the MIC is promoting research and development related to space development and utilization, including the following:

(1) Research and development of radio and optical hybrid communication technology for small satellite constellations and the use of unused frequency bands for space networks to effectively utilize frequency resources and realize future ultra-wideband satellite communication systems;
(2) Research and development to establish the foundational technology for satellite-based quantum cryptography and to realize a quantum cryptography network using satellite networks;
(3) Research and development of terahertz wave-based lunar water and energy resource exploration technology to contribute to the international space exploration program proposed by the U.S. (Artemis program);
(4) Research and development of satellite communication systems for the Technology Experiment Satellite 9 and optical communication technology capable of 10Gbps-class ground-to-satellite and inter-satellite data transmission;
(5) Development of space environment monitoring sensors for 24/7 manned operation for space weather forecasting and for the successor to the Himawari geostationary meteorological satellite, which involves observing and analyzing the ionosphere, magnetosphere, and solar activity; and
(6) Research and development of foundational technologies such as optical amplifiers to further enable high-speed, high-capacity, and long-distance satellite optical communication technology in conjunction with the practical application of satellite optical communication technology.

Furthermore, to maintain and strengthen the independence of Japan's space activities and to strongly support the efforts of private companies and others in advanced technology development, technology demonstration, and commercialization, the Japan Aerospace Exploration Agency (JAXA) established the Space Strategy Fund in March 2024 as a focal point for academia, industry, and government. Going forward, in collaboration with relevant government ministries (the Cabinet Office, the MEXT, the METI), the aim is to accelerate the commercialization of private companies targeting the space-related market, expand access and utilization of space by academia, industry, and government, and actively engage in and strategically collaborate on cutting-edge technology development by a wide range of players.

7. Supports for ICT startups

Based on the "Startup Development Five-year Plan" (decided by the New Capitalism Realization Conference in November 2022), the MIC is implementing the "Start-up and Budding Researchers Support Program" to foster next-generation industries through the creation and utilization of advanced ICT, with a division of roles between the public and private sectors, providing comprehensive support from seed research and development to business implementation.

Through public solicitation, individuals or startups aiming to start businesses or expand them are selected to receive research and development funding for ICT-related projects. Additionally, leveraging the results of the "INNO-vation Program" implemented for 10 years until FY2023, the ministry is providing comprehensive support in collaboration with support organizations nationwide and across various fields, promoting joint public-private support.

Furthermore, to enhance the ripple effects of the measures, the MIC is promoting initiatives under the name "ICT Startup League," in collaboration with willing private companies and others, to support private sector activities and industry revitalization.

Section 8 Promotion of international strategies for ICT

1. Summary

(1) Initiatives so far

Based on the "Infrastructure System Overseas Promotion Strategy 2025" (decided by the Ministerial Meeting on Strategy relating to Infrastructure Export and Economic Cooperation on December 10, 2020, revised on June 17, 2021, and supplemented on June 1, 2023) and the "Ministry of Internal Affairs and Communications Overseas Promotion Action Plan 2025" (established by the MIC on July 21, 2022), the MIC has been actively engaged in the overseas expansion of ICT infrastructure systems. This includes activities such as project discovery, proposal, and formation, as well as providing comprehensive support for companies, including human resource development, maintenance, and finance, from the stage of development to commercialization.

Furthermore, we have actively participated in policy dialogues between countries, including bilateral dialogues with the U.S., as well as multilateral forums such as the G7 and G20, contributing to the formation of international rules related to the digital economy and international rule-making discussions.

In addition, as digital infrastructures such as submarine optical cables and 5G networks have become essential infrastructures supporting national life and economic activities, we have worked to ensure their safety and reliability from the perspective of economic security through international cooperation.

(2) Future challenges and directions

The global spread of the novel coronavirus has accelerated the digitalization of society and the economy, leading to an increased demand for the development and enhancement of communication networks and effective digital solutions for problem-solving. Moreover, the importance of high-quality infrastructure has been highlighted in the context of discussions on economic security. In this context, leveraging bilateral and multilateral frameworks to expand our country's high-quality infrastructure overseas not only contributes to addressing social issues in various countries but also helps tackle global challenges such as climate change, and further contributes to the realization of the SDGs. Additionally, enhancing the international competitiveness of our country through the dissemination and development of digital technologies is crucial for the economic development of our nation.

In light of these circumstances, the MIC aims to promote the strengthening of our country's international competitiveness in digital technology and the advancement of global problem-solving through international cooperation. Specifically, as part of the promotion of the "Ministry of Internal Affairs and Communications Overseas Promotion Action Plan 2025," we are placing emphasis on the overseas expansion of ICT infrastructure systems such as 5G and submarine optical cables, as well as the one-stop deployment of ICT solutions in fields such as healthcare and agriculture. We believe it is essential to leverage our country's technology and experience to contribute to the economic development and problem-solving efforts worldwide. Furthermore, taking a leading role in international rule-making in the digital field is crucial, and we will actively participate in international discussions and utilize international conferences as platforms for engagement.

2. Expansion of digital infrastructures overseas

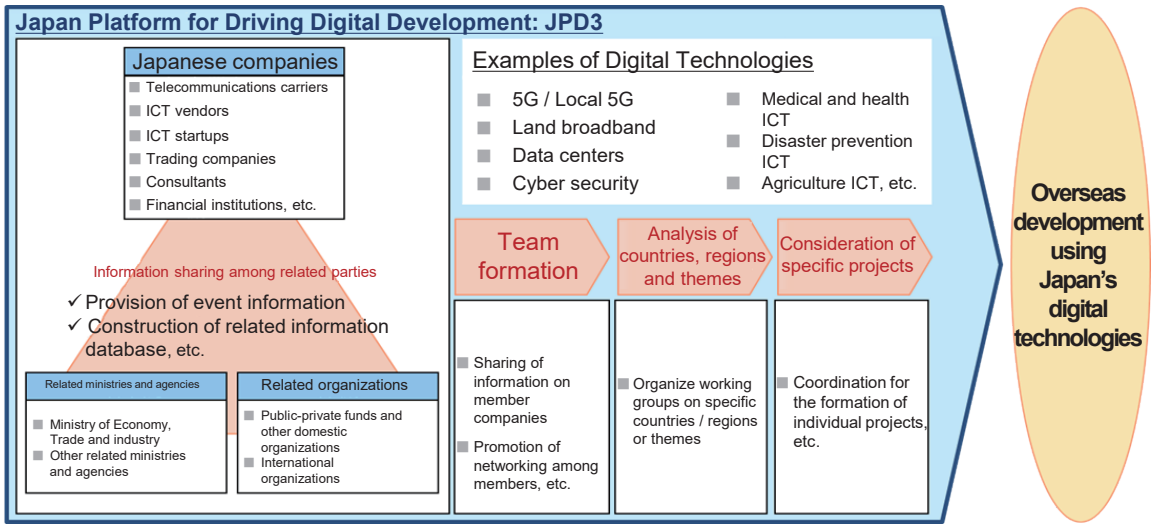
In the context of the increasing global demand for communication infrastructure and services due to the advancement of digitalization in society and the economy, the MIC is promoting the enhancement of the international competitiveness of Japan's digital industry and the promotion of global problem-solving using digital technology. This includes supporting the overseas promotion of digital infrastructure.

(1) Overseas promotion support tools by the MIC

The MIC is implementing initiatives that take into account the circumstances and challenges of each country, providing support tailored to each phase from basic research to demonstration projects for the overseas expansion of Japan's high-quality digital infrastructure.

Additionally, in February 2021, the MIC established the "Digital Overseas Promotion Platform," a public-private partnership framework to support the overseas expansion of Japan's ICT **(Figure 2-2-8-1)**. As of the end of March 2024, this framework includes over 200 members, primarily Japanese ICT companies, as well as related ministries and agencies. The platform facilitates information sharing on 71 countries and regions through a database, holds workshops, forms teams, and discusses specific projects.

Figure 2-2-8-1 Digital Overseas Promotion Platform

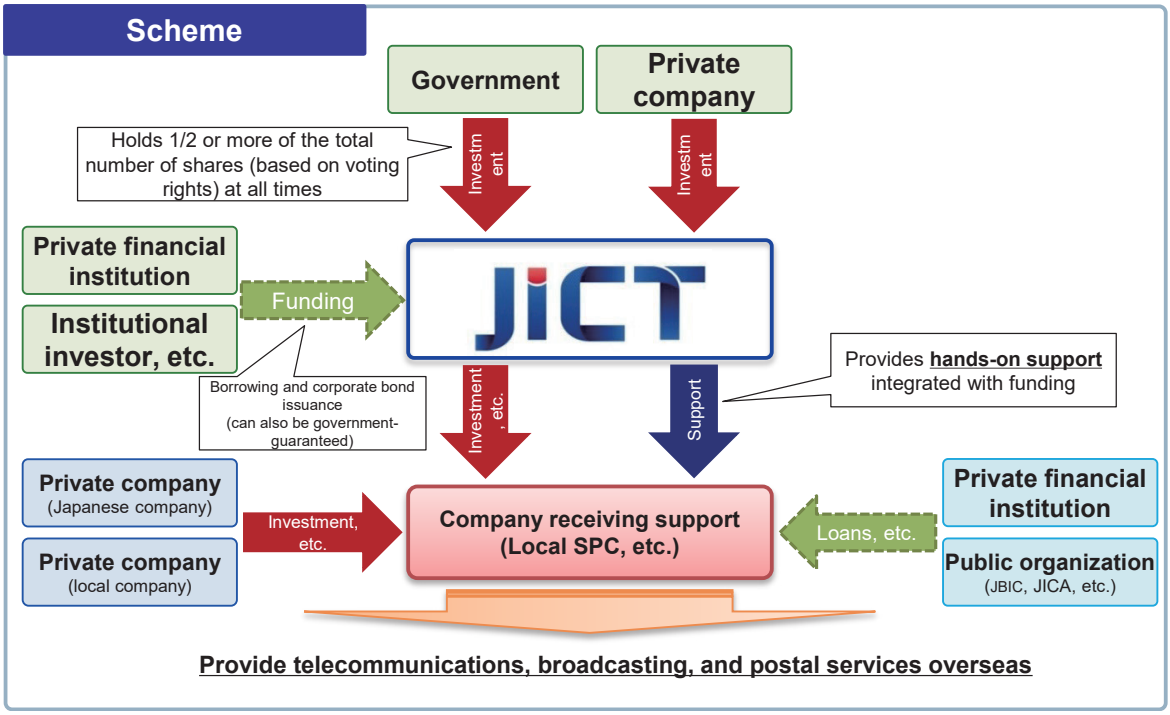


(2) Fund Corporation for the Overseas Development of Japan's ICT and Postal Services (JICT)

The Fund Corporation for the Overseas Development of Japan's ICT and Postal Services (JICT), a public-private fund under the jurisdiction of the MIC, provides investment and hands-on support to those conducting or supporting communication, broadcasting, and postal services overseas **(Figure 2-2-8-2)**. As of the end of March 2024, the JICT has decided to support a cumulative total of approximately 108.7 billion yen in investments and loans.

Furthermore, considering the recent developments in ICT, the needs, and the policy trends of various countries, the support criteria of the JICT were revised in February 2022 (Ministry of Internal Affairs and Communications Notification No. 34 of 2022). This revision allows the JICT to support projects that do not involve the construction of hard infrastructure (ICT service projects) and to make LP investments in funds. This has made it easier to support the overseas expansion of not only large enterprises but also medium-sized, small, and regional companies. In FY2023, three new support decisions were made.

Figure 2-2-8-2 Support through the Fund Corporation for the Overseas Development of Japan's ICT and Postal Services (JICT)



(3) Efforts for overseas expansion in each field

A Core communication infrastructure

Regarding mobile communication networks, in 2021, the Ethiopian government approved the granting of licenses to an international consortium, including Japanese companies, for the country's mobile phone business, and commercial communication services commenced in October 2022. This serves as an opportunity to promote the expansion of digital solutions in Ethiopia and the African region.

In the area of submarine optical cables, the JICT is supporting submarine optical cables projects in Southeast Asia, with a total project cost of approximately 400 million dollars, including support decisions for up to 78 million dollars in investment. Furthermore, Japan has been involved in a project in the Indian Ocean region announced by Prime Minister Modi of India in August 2020, with Japanese companies participating in the project, which was completed in July 2023. Efforts are also being made to improve communication environments in Pacific island countries with the cooperation of interested countries and relevant ministries and agencies. Additionally, Japan has signed a memorandum of cooperation with the European Commission for the establishment of safe, resilient, and sustainable global submarine cable connectivity[1].

Regarding 5G, as the importance of safe and secure 5G network is discussed internationally, efforts are being made to deploy "Open RAN" which is focused on as a technology to realize open and secure network and systems that utilize it for overseas expansion. Surveys on the potential for Open RAN deployment were conducted in Vietnam and the Philippines in FY2022, and in Australia and Indonesia in FY2023.

In the U.K., the test environment for Open RAN and the conformance of RAN devices to the interface specifications defined by the O-RAN Alliance were conducted in FY2022.

In the Philippines, based on the results of the previous year's survey, a demonstration was conducted in FY2023 (FY2023) to verify the usefulness of Open RAN devices.

Regarding data centers, since March 2021, Japanese companies have been participating in projects aimed at improving the telecommunications environment in Uzbekistan, including the development of data centers and other telecommunications infrastructure. Additionally, through the JICT, we have been supporting the development and operation of data centers in India, with a decision made in October 2022 to provide funding of up to 86 million dollars.

The Japanese digital terrestrial television broadcasting standard has been adopted by 20 countries, primarily in Central and South America. In October 2022, Botswana completed the transition to digital broadcasting nationwide, becoming the first country outside Japan to do so. Costa Rica and Chile are also scheduled to complete the transition in January 2023 and April 2024, respectively. Continuous supports for smooth transitions to digital broadcasting will be conducted.

B Utilization models for digital technology

Regarding the utilization in the medical field, we have been receiving orders for smartphone-based telemedicine systems, primarily in the Central and South American region. Since FY2020, we have been working on the dissemination and deployment of endoscopes and diagnostic support systems using medical AI, leveraging high-definition imaging technology in Southeast and Southwest Asian countries. This effort includes conducting demonstrations in local hospitals. In FY2022, we conducted a survey and demonstration in Vietnam.

C Broadcasting content

Our country's broadcasting companies have been collaborating with local governments to produce broadcasting content that showcases the appeal of Japan, and disseminating it through overseas broadcasting stations. They have also been continuously supporting the overseas expansion of broadcast content through international trade fairs, resulting in various effects such as expanding the sales channels for local products and increasing the penetration of Japan's appeal. Furthermore, starting from FY2023, efforts have been made to establish an online platform for disseminating information about Japanese broadcast content to overseas companies. The goal is to increase the overseas sales revenue related to broadcast content by 1.5 times by FY2025 compared to FY2020, aiming to further promote the overseas expansion of broadcast content and strengthen soft power through these initiatives.

D Other areas

(A) Fire prevention

Since the signing of the "Memorandum of Cooperation in the Field of Firefighting between the Ministry of Internal Affairs and Communications of Japan and the Ministry of Public Security of the Socialist Republic of Vietnam" on October 8, 2018, we have been promoting the high quality of Japanese firefighting equipment through exchanges of opinions on preventive policies and standards for firefighting equipment. Additionally, in February 2023, we conducted basic training on fire prevention technology. Moving forward, we will continue to engage with Vietnam and other Southeast Asian countries to promote the overseas expansion of firefighting equipment that meets Japanese standards.

[1] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000155.html

(B) Postal service

Targeting mainly emerging and developing countries in Southeast Asia, Europe, and the Caucasus region, we are promoting the overseas expansion of the Japanese postal infrastructure system through a public-private partnership. This involves understanding the challenges and needs related to improving the quality of postal services and optimizing postal operations, and providing Japanese expertise, experience, technology, and systems to address and realize these needs. To date, we have achieved consulting contracts for operational efficiency and orders for sorting machines and other equipment and systems with entities such as Vietnam Post and Slovenia Post. In recent years, we have expanded our support to new target countries like Slovakia and Azerbaijan for optimizing postal operations, as well as promoting DX and decarbonization in the postal sector, thereby expanding business opportunities for Japanese companies.

(C) Administrative consultation

In the field of administrative consultation, we have been collaborating and cooperating with public ombudsmen from various countries. We have signed memorandums of cooperation on administrative complaint resolution with four countries: Vietnam, Uzbekistan, Iran, and Thailand. Based on these agreements, we have implemented initiatives such as accepting a total of approximately 310 trainees from Vietnam.

3. Contribution to formulation of international rules on the digital economy

(1) Data Free Flow with Trust (DFFT)

Regarding DFFT (Data Free Flow with Trust), an international framework for the realization of DFFT (Institutional Arrangement for Partnership: IAP) was agreed upon at the G7 Digital and Technology Ministers' Meeting held in Gunma-Takasaki in April 2023. The establishment of the IAP was approved at the G7 Summit held in May, and the IAP was established under the OECD in December.

(2) Response to discussions on international rules in cyberspace

A Formulation of international rules in cyberspace

The MIC emphasizes two key points in the formulation of international rules in cyberspace: (1) ensuring the free flow of information, which not only supports democracy but also serves as a source of innovation and an engine for economic growth; and (2) the necessity of a multi-stakeholder framework that includes the participation of all the related stakeholders such as private companies, academia, and civil society, who actually use and manage the internet, to ensure sufficient cybersecurity. Based on these points, the Ministry has been addressing related topics in bilateral dialogues such as the U.S.-Japan Dialogue on Digital Economy (the U.S.-Japan DDE) and the Japan-EU ICT Strategy Workshop, strengthening cooperation with like-minded countries. Additionally, in April 2022, Japan, the U.S., Australia, Canada, the EU, and the UK, along with other willing countries, launched the "Declaration for the Future of the Internet," actively participating in discussions at multilateral meetings.

B Bilateral and multilateral dialogues on cybersecurity

Regarding bilateral government discussions on cybersecurity, the "8th Japan-the U.S. Cyber Dialogue[2]" was held in May 2023, the "5th Japan-India Cyber Dialogue[3]" in September 2023, and the "7th Japan-France Cyber Dialogue[4]" in November 2023. These dialogues included discussions on situational awareness, initiatives in both countries, international cooperation, and capacity-building support, thereby strengthening cooperation with various countries.

In terms of multilateral discussions on cybersecurity, the Japan-ASEAN Cybersecurity Policy Meeting has been a platform for exchanging opinions and information on the status of initiatives in each country and capacity-building support for the ASEAN region. Additionally, under the framework of the so-called Quad (Japan, the U.S., Australia, and India), cooperation on cybersecurity has been agreed upon, and discussions aimed at strengthening cooperation with like-minded countries have been conducted. The "Japan-the U.S.-Australia-India Cybersecurity Partnership: Joint Principles[5]" was announced in the joint statement of the Quad Leaders' Meeting in May 2022.

(3) Promotion of trade liberalization in the ICT sector

From the perspective of complementing the multilateral free trade system centered around the World Trade Organization (WTO) and promoting bilateral economic partnerships, Japan is actively working on concluding Economic Partnership Agreements (EPAs) and Free Trade Agreements (FTAs).

[2] https://www.mofa.go.jp/mofaj/press/release/press4_009685.html
[3] https://www.mofa.go.jp/mofaj/press/release/press4_009785.html
[4] https://www.mofa.go.jp/mofaj/press/release/press5_000160.html
[5] https://www.mofa.go.jp/mofaj/files/100347891.pdf

Specifically, since 2018, Japan has discussed and reached the signing and enforcement of several agreements, including the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the Japan-EU Economic Partnership Agreement (Japan-EU EPA), the Japan-US Digital Trade Agreement, the Japan-UK Comprehensive Economic Partnership Agreement (Japan-UK EPA), and the Regional Comprehensive Economic Partnership (RCEP). Additionally, negotiations for the Japan-China-the Republic of Korea Free Trade Agreement are ongoing. In all EPA negotiations, Japan aims to achieve liberalization commitments exceeding WTO standards in the telecommunications sector, including demands for the removal or relaxation of foreign investment restrictions, negotiations on the establishment of competition-promoting regulations such as interconnection rules, and discussions on cooperation among the signatory countries.

(4) Promotion of strategic international standardization

International standardization in the information and communication sector is a crucial policy issue that leads to the creation of global markets through the unification of standards. Securing strategic initiatives in the formulation of international standards is extremely important from the perspective of enhancing international competitiveness. Therefore, Japan is strategically promoting international standardization activities.

Specifically, Japan is conducting trend surveys on de jure standards[6] and forum standards[7], fostering international standardization personnel, and implementing initiatives to deepen understanding of the importance of standardization activities.

4. Economic security in the digital field

In the MIC, in view of the importance of the economic security in the communication field, such as 5G, initiatives have been undertaken in the digital field. For example, the "Global Digital Connectivity Partnership" (GDCP) launched in April 2021 following the Japan-the U.S. summit, and the "Cooperation Memorandum on 5G Supplier Diversification and Open RAN" signed at the Japan-the U.S.-Australia-India (Quad) summit in May 2022. Building on these, in May 2023 at the Japan-the U.S.-Australia-India summit, a "Open RAN Security Report" was released, demonstrating efforts to ensure the safety and reliability of global digital infrastructure in collaboration with allied countries, including the U.S.

Furthermore, under the Act on the Promotion of Ensuring National Security through Integrated Implementation of Economic Measures established in 2022, four systems were created. Among these, the system related to "Ensuring the Stable Provision of Specific Social Infrastructure Services" completed the establishment of the cabinet order and the ministerial ordinance[8] in November 2023. Under this system, specific operators in the telecommunications, broadcasting, and postal business that meet the designated criteria have been designated. The operation of this system commenced in May 2024.

5. International cooperation in multilateral frameworks

The MIC actively leads international cooperation efforts in the ICT sector through policy discussions within multilateral frameworks such as G7/G20, APEC, APT, ASEAN, ITU, the United Nations, WTO, and OECD. These efforts aim to promote the free flow of information, ensure a safe and secure cyberspace, develop high-quality ICT infrastructure, and contribute to the achievement of the United Nations Sustainable Development Goals (SDGs).

(1) G7/G20

Within the G7 framework, active discussions on policies for the development of the digital economy have been ongoing since the G7 ICT Ministers' Meeting in Takamatsu, Kagawa in April 2016. Similarly, within the G20 framework, which includes countries like China and India, continuous discussions on the digital economy have been taking place. Specifically, at the "G20 Ministerial Meeting on Trade and Digital Economy in Tsukuba, Ibaraki" held in Tsukuba, Ibaraki Prefecture, in June 2019, the G20 agreed for the first time on AI principles based on a "human-centered" approach, which was also endorsed at the G20 Osaka Summit at the leaders' level. The concept of promoting the Data Free Flow with Trust (DFFT) was also supported at the leaders' level and reaffirmed at the G20 Digital Economy Ministers' Meeting (Saudi Arabia) in 2020.

In 2023, Japan chaired the G7, and at the G7 Digital and Tech Ministers' Meeting in Takasaki, Gunma in April, discussions were held on six themes: (1) "Facilitation of Cross-Border Data Flows and Data Free Flow with Trust," (2) "Secure and Resilient Digital Infrastructure," (3) "Internet Governance," (4) "Emerging and Disruptive Technologies in Innovating Society and Economy," (5) "Responsible AI and Global AI Gover-

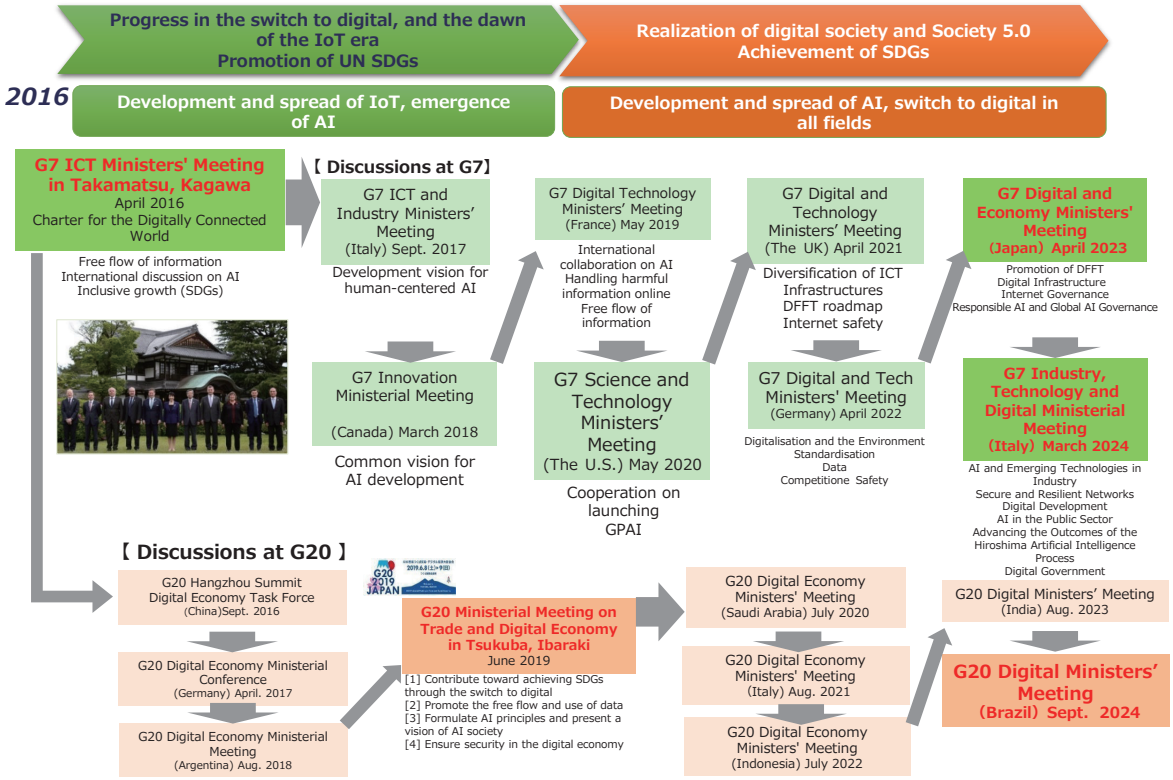
[6] Standards formulated by official international standardization organizations such as the International Telecommunication Union (ITU).
[7] Standards formulated through consensus among multiple companies, universities, and other stakeholders
[8] "Cabinet Order of the Act on the Promotion of Ensuring Security by Taking Integrated Economic Measures" and "Ordinance of the Ministry of Internal Affairs and Communications on Specified Social Infrastructure Operators Based on the Act on the Promotion of Ensuring Security by Taking Integrated Economic Measures."

nance," and (6) "Digital Competition." As a result, the "Ministerial Declaration the G7 Digital and Tech Ministers' Meeting," including five annexes, was adopted, contributing to international discussions on rule-making for the digital economy **(Figure 2-2-8-3)**.

Additionally, the "G7 Hiroshima Leaders' Communiqué" issued in May of the same year, reflecting the outcomes of the G7 Digital and Tech Ministers' Meeting in Takasaki, Gunma, agreed on the importance of global governance for emerging technologies such as AI and the metaverse, support for efforts to materialize DFFT, the need to build safe and resilient digital infrastructure, and addressing the digital divide.

In 2024, the G7 Industry, Technology, and Digital Ministrial Meeting (Italy) was held, discussing six themes: (1) "AI and Emerging Technologies in Industry," (2) "Secure and Resilient Networks, Supply Chains, and Key Input Factors," (3) "Digital Development - Growing Together," (4) "AI in the Public Sector," (5) "Advancing the Outcomes of the Hiroshima Artificial Intelligence Process," and (6) "Digital Government." The "G7 Industry, Technology, and Digital Ministerial Declaration," including four annexes, was adopted.

Figure 2-2-8-3 Overview of discussion on ICT and digital policy in G7/G20



(2) Hiroshima AI Process

In light of the rapid development and widespread adoption of generative AI becoming a significant issue for the international community, the "Hiroshima AI Process[9]" was established to discuss international governance concerning generative AI. This process involved intensive discussions among G7 members starting in May 2023, culminating in the "G7 Hiroshima AI Process Digital and Tech Ministers' Meeting" in September of the same year, where interim results were compiled. Subsequently, another G7 Digital and Tech Ministers' Meeting was held in December 2023, under Japan's G7 presidency, to finalize the "Hiroshima AI Process Comprehensive Policy Framework,"[10] the first international policy framework addressing advanced AI systems like generative AI. Additionally, the "Work Plan to advance Hiroshima AI Process" was formulated, outlining future G7 initiatives. These outcomes were endorsed in the G7 Leaders' Statement issued in December. Based on this work plan, efforts will be made to increase the number of supporting countries and expand corporate support for international codes of conduct, further promoting the "Hiroshima AI Process."[11]

Italy, the G7 chair for 2024, has expressed its commitment to continuing the "Hiroshima AI Process." The "G7 Industrial, Technology, and Digital Ministerial Declaration" adopted in March welcomed actions to promote the dissemination, adoption, and application of the Hiroshima AI Process outcomes among key partner coun-

[9] Website of Hiroshima AI Process: https://www.soumu.go.jp/hiroshimaaiprocess/
[10] This policy framework consists of four components: the "OECD Report Towards a Common Understanding of Generative AI by the G7," the "Hiroshima Process International Guidelines for All AI Stakeholders and Organizations Developing Advanced AI Systems," the "Hiroshima Process International Code of Conduct for Organizations Developing Advanced AI Systems," and "Project-Based Cooperation."
[11] Regarding the initiatives on AI guidelines for Business, also refer to Section 6 "Promotion of ICT usage" in Chapter 2, Part 2.

tries and organizations, including developing and emerging economies.

At the OECD Ministerial Council Meeting held in May 2024, a side event titled "Towards Safe, Secure, and Trustworthy AI: Promoting Inclusive AI Governance" was held. Prime Minister Kishida announced the establishment of the "Hiroshima AI Process Friends Group," a voluntary framework of countries supporting the spirit of the Hiroshima AI Process, with participation from 49 countries and regions.

(3) Asia-Pacific Economic Cooperation (APEC)

The Asia-Pacific Economic Cooperation (APEC) is an economic cooperation framework aimed at sustainable development in the Asia-Pacific region, involving major countries and regions within the area. Discussions on telecommunications are primarily conducted through the Telecommunications and Information Working Group (TEL).

Following the adoption of the "Aotearoa Plan of Action" at the 2021 APEC Leaders' Meeting, TEL is currently examining the implementation of "Innovation and Digitalization," one of the economic drivers highlighted in the action plan. The MIC actively contributes to TEL's operations by participating in discussions held twice a year, promoting digital government projects, and disseminating Japan's ICT policies.

(4) Asia-Pacific Telecommunity (APT)

The Asia-Pacific Telecommunity (APT) is an international organization in the Asia-Pacific region established in 1979, focusing on balanced development in telecommunications and information infrastructure. It aims to foster human resources through training and seminars and coordinate regional policies on standardization and wireless communications. Currently, Mr. KONDO Katsunori from the MIC serves as the Secretary-General.

The MIC supports APT activities through contributions, facilitating training programs, and promoting exchanges among ICT engineers and researchers in areas where Japan excels, such as broadband and wireless communications. In FY2023, support was provided for nine training sessions, one international joint research project, and three pilot projects.

(5) Association of South-East Asian Nations (ASEAN)

The Association of South - East Asian Nations (ASEAN) is a regional cooperation organization comprising ten Southeast Asian countries. Its main objectives are to promote economic growth, social and cultural development, ensure political and economic stability, and foster cooperation on regional issues. Policies in the digital field are discussed at the "ASEAN Digital Ministers' Meeting (ADGMIN)."

A Contribution to achieving the goals of the "ASEAN Digital Masterplan 2025"

To achieve the goals set out in the "ASEAN Digital Masterplan 2025," formulated in January 2021, Japan annually proposes the "Japan-ASEAN Digital Work Plan" for cooperation and collaboration in the ICT field over the coming year. This plan is implemented with the approval of the ASEAN side. For example, utilizing the Japan-ASEAN ICT Fund established with contributions from Japan, various joint projects with ASEAN countries are carried out. In FY2023, the "Japan-ASEAN Open RAN Symposium" was held.

B Strengthening cooperation in the field of cybersecurity

Currently, the ASEAN-Japan Cybersecurity Capacity Building Centre (AJCCBC)[12] continuously conducts practical cybersecurity defense exercises (CYDER) and other cybersecurity exercises, both online and in-person, targeting cybersecurity personnel from government agencies and critical infrastructure operators in ASEAN countries. From 2023, under a new project framework, activities will continue until 2027, with efforts to enhance exercise content.

Additionally, the MIC regularly holds Japan-ASEAN Information Security Workshops for ISP operators in ASEAN countries to promote information sharing and strengthen cooperation frameworks among stakeholders. A meeting was held in March 2024 to maintain and develop cooperative and collaborative relationships in the field of cybersecurity between Japan and ASEAN countries.

C 50th Anniversary of Japan-ASEAN Relations

The year 2023 marks the 50th anniversary of Japan-ASEAN friendship and cooperation, a significant milestone that calls for further strengthening of Japan-ASEAN relations and presents an excellent opportunity to expand Japan's digital technology in the ASEAN region. The MIC, based on the "Japan-ASEAN Digital Work Plan 2023" approved at the Japan-ASEAN Digital Ministers' Meeting (February 2023, Philippines), utilized the Japan-ASEAN ICT Fund to hold the "Japan-ASEAN Open RAN Symposium" as part of the 50th-anniversary projects. This support was aligned with the digital policy goals of the ASEAN region, contributing to the deepening of Japan-ASEAN relations and bilateral relations with ASEAN countries. Additionally, at the Japan-ASEAN 50th Anniversary Special Summit held in Tokyo in December 2023, a Joint Vision Statement on Japan-ASEAN

[12] AJCCBC: https://ajccbc.ncsa.or.th/

Friendship and Cooperation was adopted, which included support for access to innovations such as Open RAN in ASEAN member countries.

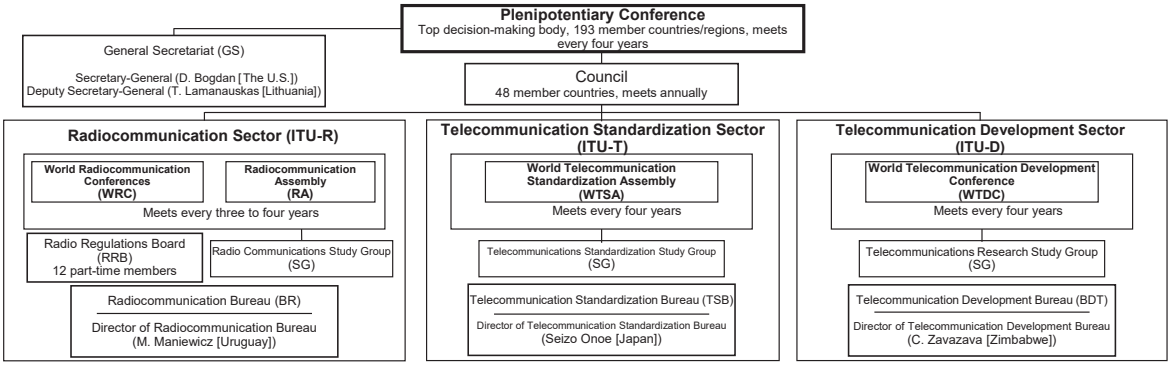
(6) International Telecommunication Union (ITU)

The International Telecommunication Union (ITU), headquartered in Geneva, Switzerland, is a specialized agency of the United Nations (UN) with 193 member countries and regions. Its mission is to promote international cooperation for the improvement and rational use of telecommunications, enhance the efficiency of telecommunication operations, and promote the development and efficient operation of technical means to increase the use and dissemination of telecommunications. The ITU is composed of the following three sectors, which engage in activities such as frequency allocation, telecommunication technology standardization, and support for the development of telecommunications in developing countries **(Figure 2-2-8-4)**.

(1) Radiocommunication Sector (ITU-R)
(2) Telecommunication StandardizatioSn Sector (ITU-T)
(3) Telecommunication Development Sector (ITU-D)

In September 2022, elections were held at the Plenipotentiary Conference, and Mr. ONOE Seizo from Japan (former Chief Standardization Strategy Officer of Nippon Telegraph and Telephone Corporation) was elected as the Director of the Telecommunication Standardization Bureau. He assumed office in January 2023 (the term is four years, with a maximum of two terms).

Figure 2-2-8-4 Organizations in ITU



* As of April 2023

A Initiatives in ITU-R

In ITU-R, activities are conducted to ensure the effective, efficient, economical, and fair use of radio frequencies by all radiocommunication services. This includes conducting studies on frequency usage and developing standards related to radiocommunication. Among these activities, the Radiocommunication Assembly (RA), which approves draft recommendations submitted by various Study Groups (SGs) and deliberates on issues and structures for the next study period, and the World Radiocommunication Conferences (WRC), which aim to revise the Radio Regulations governing international frequency allocation, are the largest meetings held by ITU-R every 3-4 years. The MIC has actively contributed to these discussions. At RA-23, held in Dubai, the UAE, in November 2023, draft recommendations, including those providing an overall picture of the capabilities and use cases required for the next-generation mobile phone systems expected to be realized around 2030, were approved.

B Initiatives in ITU-T

ITU-T conducts technical studies necessary for the formulation of international standards related to communication network technologies and operational methods.

The World Telecommunication Standardization Assembly (WTSA), the highest decision-making meeting of ITU-T, is held every four years, with the next WTSA-24 scheduled to be held in New Delhi, India, from October 15 to October 24, 2024. The Telecommunication Standardization Advisory Group (TSAG), which advises on WTSA resolutions and the standardization activities of various ITU-T Study Groups (SGs), held two meetings in FY2023. At the third meeting of this study period, held in January 2024, Japan submitted a contribution to integrate SG9 (Broadband cable and TV) and SG16 (Multimedia and related digital technologies) to improve the efficiency of ITU-T's standardization activities, which was approved, and work towards the reorganization of SGs at WTSA-24 was advanced.

C Initiatives in ITU-D

ITU-D provides support for the development of the information and communication technology (ICT) sector in developing countries.

The World Telecommunication Development Conference (WTDC), the highest decision-making meeting of ITU-D, is held every four years, with the most recent

WTDC-22 held in Kigali, Rwanda, in June 2022[13]. During the current study period (2022-2025), activities such as the implementation of ICT development support projects and ICT human resource development are being promoted based on the strategic goals and action plans adopted at WTDC-22. Specific projects include the Connect2Recover initiative, which has been ongoing since 2022 in cooperation with the ITU and the MIC to strengthen digital infrastructure and resilience[14]. Additionally, from 2023, various projects aimed at providing technical support and entrepreneurship support through the Innovation and Entrepreneurship Alliance and strengthening ICT infrastructure resilience and cybersecurity human resource development in the Asia-Pacific region are being supported.

(7) United Nations

A United Nations General Assembly Second Committee, Economic and Social Council (ECOSOC)

The United Nations General Assembly Second Committee, which deals with economics and finance, focuses on discussions related to the promotion of inclusive global digital cooperation and issues such as the public nature of the internet, primarily through the "Commission on Science and Technology for Development" (CSTD) established within the Economic and Social Council (ECOSOC). Japan contributes to the advancement of international discussions on information and communication fields, including internet governance, through its participation in the annual CSTD meetings.

B Internet Governance Forum (IGF)

The Internet Governance Forum (IGF) is one of the most important international conferences in the field of internet policy, where governments, private sector, technical and academic communities, and civil society engage in dialogue on various public policy issues related to the internet on an equal footing.

In October 2023, Japan hosted the 18th meeting at the Kyoto International Conference Center in Kyoto, with a record number of over 6,000 local participants attending the meeting. During the opening ceremony, Prime Minister Kishida emphasized the importance of the internet as the foundation of democratic society and expressed strong support and commitment to "multi-stakeholder approach discussions" to maximize the benefits of the internet and address its negative aspects.

Additionally, during a special AI session following the opening ceremony, Japan shared the Hiroshima AI Process, which it leads, with the international community. In his keynote speech, Prime Minister Kishida emphasized "leading international rule-making to ensure that the entire international community, including the Global South, can enjoy the benefits of trustworthy and secure AI and achieve further economic growth and improvements in living environments". Furthermore, Minister of Internal Affairs and Communications Suzuki introduced the status of discussions on "International Guiding Principles and Code of Conduct for AI Developers" and expressed the intention to continue seeking opinions from various stakeholders. Through this session, voices of support and expectations for the Hiroshima AI Process were received from panelists representing multi-stakeholders, including governments, industries, international organizations, and academia from countries beyond the G7.

In addition, the MIC hosted 10 sessions covering diverse themes for discussions (themes of each session: Beyond 5G, HAPS (High Altitude Platform Station), Resilience, Security, Metaverse, AI, Disinformation, DFI (Declaration for the Future of the Internet), O-RAN, WSIS (World Summit on the Information Society)).

Furthermore, an exhibition area called the "IGF Village" was set up during the IGF, with 72 companies and organizations from around the world participating. Japan had 25 companies and organizations, including telecommunications companies and research institutions, showcasing remote robots and measures against manga piracy, actively promoting Japan's technological capabilities and initiatives through interactions with participants from various countries who visited the booths.

(8) World Trade Organization (WTO)

In the field of telecommunications, progress has not been observed since the basic telecommunications negotiations agreed upon in 1997, due to the stagnation of the Doha Round negotiations that began in 2001. However, in light of the increasing attention to electronic commerce, which handles data flows on the Internet, a group of like-minded countries initiated electronic commerce negotiations at the WTO in 2019. Japan, along with Australia and Singapore, has taken the lead as co-chair in these discussions.

(9) Organisation for Economic Co-operation and Development (OECD)

The Digital Policy Committee (DPC, former Committee on Digital Economy Policy (CDEP)) of the Organisation for Economic Co-operation and Development (OECD) has been conducting pioneering discussions in the field of ICT. The MIC actively contributes to policy discussions at the OECD by providing personnel and financial support to the OECD Secretariat, as well as appointing the chair of the DPC (from January 2020) and

[13] The event, originally scheduled to be held in 2021, was postponed by one year due to the global spread of COVID-19.
[14] Originally, the main focus of support was on the low internet connectivity rates in the African region, but the project has expanded to include support from countries in the Asia-Pacific islands, Central and South America, Europe, and worldwide.

vice-chairs of various working groups from the ministry.

The DPC has been working on initiatives related to AI since 2016, outlining principles that those involved in AI should share and the issues that governments should address. In May 2019, the first intergovernmental agreement on AI, the "Council Recommendation on AI," was adopted and made public. Subsequently, proactive initiatives have been undertaken, such as the launch of the online platform "OECD.AI" for AI policy (February 2020) and the establishment of the AI Governance Working Group (AIGO) (May 2022).

In December 2022, a ministerial meeting on the digital economy was held in Gran Canaria, Spain, where a ministerial declaration on "A Reliable, Sustainable, and Inclusive Digital Future" was adopted, outlining the challenges and directions for DFFT, trustworthy AI, and the development of next-generation infrastructure.

In March 2023, the 4th OECD Global Forum on Digital Security for Prosperity, co-hosted by the MIC and the OECD, was held in Paris, France. It focused on three themes: digital security for IoT products, digital security for AI, and the exchange between policy makers and technologists[15].

In May 2024, the Meeting of the OECD Council at Ministerial Level (MCM) was held in Paris, France, with Japan, celebrating its 60th anniversary as an OECD member, serving as the chair country. Discussions were held in the MCM, taking into account the achievements of the "Hiroshima AI Process," and the ministerial declaration expressed the support of the OECD member countries for its achievements and the cooperation in advancing practical efforts, as well as the revision of the "Council Recommendation on AI."

(10) GPAI

The Global Partnership on Artificial Intelligence (GPAI) is an international public-private partnership organization established to realize the development and utilization of "Responsible AI" based on a human-centric approach. The launch of GPAI was proposed at the Biarritz Summit (France) in 2019, and after the G7 Science and Technology Ministers' Meeting in May 2020 agreed on G7 cooperation for its establishment, it was officially founded in June of the same year.

In November 2022, Japan hosted the GPAI Summit 2022 and served as the chair country for one year starting from that month. At the Ministerial Council, under the initiative of Japan as the chair country, the first-ever ministerial declaration at a GPAI Summit was adopted. This declaration included agreements among countries on promoting AI based on human-centric values, opposing the illegal and irresponsible use of AI, and contributing to a sustainable, resilient, and peaceful society.

In December 2023, the GPAI Summit 2023 was held in India, and at the Ministerial Council, it was approved to establish the first GPAI Expert Support Center in the Asian region in Tokyo.

(11) ICANN

For internet resources such as IP addresses and domain names, which are essential for internet use, it is crucial to manage and coordinate them globally to prevent duplicate allocations. Currently, the international management and coordination of these internet resources are carried out by ICANN (Internet Corporation for Assigned Names and Numbers), a non-profit organization established in 1998. ICANN is responsible for the allocation of IP addresses, coordination of domain names, operation and deployment of the root server system, and the formulation of policies related to these activities.

The MIC actively participates and contributes to discussions in ICANN's Governmental Advisory Committee, which includes participation from national governments and international organizations. For example, regarding the DNS Abuse, the MIC has submitted opinions on proposed amendments to the Registrar Accreditation Agreement (RAA) between ICANN and registrars and has raised the need for ongoing discussions within ICANN to mitigate illegal activities on the Internet.

6. International cooperation in bilateral relationships

(1) Policy cooperation with the U.S.

Following the "the U.S.-Japan Competitiveness and Resilience (CoRe) Partnership"[16] issued after the the U.S.-Japan Summit on April 16, 2021, the "Global Digital Connectivity Partnership (GDCP)"[17] was launched in May of the same year to promote secure connectivity and a vibrant digital economy **(Figure 2-2-8-5)**.

The MIC, in cooperation with relevant ministries and agencies, has been continuously holding the "the U.S.-Japan Dialogue on Digital Economy (the U.S.-Japan DDE)"[18] with the U.S. Department of State since 2010. Since the launch of the GDCP, the the U.S.-Japan DDE has been positioned as a framework for promoting the GDCP.

The 14th the U.S.-Japan DDE public-private and intergovernmental meetings were held in a hybrid format

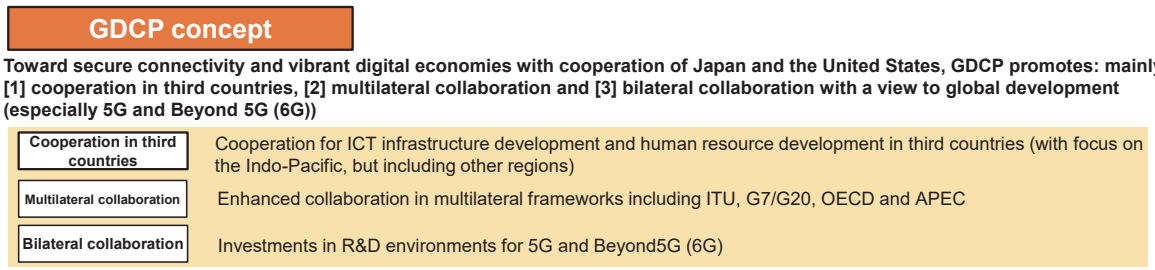
[15] https://www.oecd.org/digital/global-forum-digital-security/
[16] https://www.mofa.go.jp/mofaj/na/na1/us/page1_000951.html
[17] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000119
[18] In the joint statement issued at the "13th the U.S.-Japan Policy Cooperation Dialogue on the Internet Economy" held on March 6 and 7, 2023, it was decided to rename the meeting to the "the U.S.-Japan Dialogue on Digital Economy."

(both in-person and online) on February 6 and 7, 2024. During these meetings, a wide range of topics were discussed, including 5G and Beyond 5G (6G), AI governance, Cross-Border Privacy Rules (CBPR), cooperation on government access, international cooperation, and cooperation within the United Nations. As a result of these discussions, a "Joint Statement from the 14th the U.S.-Japan Dialogue on Digital Economy" was published[19].

At the the U.S.-Japan Summit held in April 2024, a joint statement by the leaders and a fact sheet were published[20], confirming further collaboration between the U.S. and Japan in the field of information and communication.

In May 2024, the 8th GDCP Expert-Level Working Group was held, where opinions were exchanged on further promoting the U.S.-Japan cooperation with third countries.

Figure 2-2-8-5 Global Digital Connectivity Partnership (GDCP)



(2) Cooperation with Europe

A Cooperation with the European Union (EU)

The MIC has been holding the "Japan-EU ICT Policy Dialogue" (the most recent one was the 29th in February 2024) as a platform for exchanging information and opinions on ICT policies, and "Japan-EU ICT Strategy Workshop" (the most recent one was the 13th in April 2022) to promote collaboration and cooperation between the public and private sectors in digital field, with the Directorate-General for Communications Networks, Content and Technology of the European Commission.

During the 29th Japan-EU ICT Policy Dialogue, discussions were held on topics such as 5G/Beyond 5G (6G), cybersecurity, online platforms, AI, and submarine cables.

Furthermore, in May 2022, the Japan-EU Digital Partnership was established between Japan and the EU. On the Japanese side, the Digital Agency, the MIC, and the METI are the main participants, while on the EU side, the Directorate-General for Communications Networks, Content and Technology of the European Commission takes the lead. This partnership addresses joint priorities in the digital field between Japan and the EU. At the 2nd Ministerial Meeting held in April 2024, discussions were conducted on 5G/Beyond 5G (6G), AI, and submarine cables, among other topics. As a result of this meeting, a joint statement[21] was issued.

B Bilateral cooperation with European countries

(A) The UK

In May 2022, the MIC, along with the Digital Agency and the METI, established the Japan-UK Digital Group to address joint priority areas in the digital field. The first meeting was held in October of the same year. Subsequently, in December, a ministerial-level meeting was conducted to accelerate cooperation between Japan and the UK, leading to the launch of the Japan-UK Digital Partnership. The 2nd ministerial-level meeting was held in January 2024, resulting in the issuance of a document[22] outlining the progress and future direction of initiatives in the aforementioned areas.

(B) Germany

In March 2023, a "Japan-Germany Inter-Governmental Consultations" on economic security was held in Tokyo, with a participation of the Japanese and German leaders, along with relevant ministers including the Minister of Internal Affairs and Communications, where a joint statement was announced, emphasizing the importance of protecting critical infrastructure, including communication infrastructure.

Additionally, in April 2023, the MIC and the Federal Ministry for Digital and Transport signed a memorandum of cooperation on ICT[23], agreeing to promote collaboration in areas such as building open and secure communication infrastructure for 5G network development and deployment, promoting Beyond 5G/6G, and cooperation in the field of AI.

Furthermore, to deepen mutual understanding in the policy aspects of the information and communication field and promote cooperation between Japan and Ger-

[19] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000172.html
[20] https://www.mofa.go.jp/mofaj/na/na1/us/pageit_000001_00501.html
[21] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000175.html
[22] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000167.html
[23] https://www.soumu.go.jp/menu_news/s-news/01tsushin08_02000152.html

many, the MIC has been holding the "Japan-Germany ICT Policy Dialogue" with the Federal Ministry for Digital and Transport.

The 7th meeting was held in June 2023, where discussions on various topics, including Open RAN, progress in research and development towards Beyond 5G, AI, illegal and harmful information (defamation, disinformation, etc.) and the utilization of ICT in smart cities and the metaverse, took place.

Moreover, joint research and development cooperation for the advancement of 5G has been ongoing with the Federal Ministry for Economic Affairs and Climate Action since FY2022. In May 2023, a letter of intent on Beyond 5G/6G and future communication technologies[24] was signed with the Federal Ministry of Education and Research.

(C) France

The MIC has been holding the "Japan-France ICT Consultations" with the Ministry for the Economy, Finance, and the industrial and digital Sovereignty of the French Republic to facilitate information sharing on important themes in the ICT field. The most recent meeting was the 22nd session in November 2023.

(3) Cooperation with Asian-Pacific countries

The MIC is engaged in cooperation with information and communication authorities of Asian-Pacific countries in the field of ICT, including communication infrastructure development and the utilization of ICT.

A The Republic of Korea

In December 2023, the MIC held the "Japan-the Republic of KoreaICT Policy Dialogue" with the Ministry of Science and ICT of the Republic of Korea. The dialogue aimed to exchange views on mutual interests in the field of ICT, such as AI and Open RAN, and agreed to hold regular dialogues in the future.

B India

In May 2022, the MIC and the Ministry of Communications of India held the 7th Japan-India Joint Working Group meeting online to share the progress of initiatives in the field of ICT, such as 5G/Beyond 5G and Open RAN, and exchanged views on future cooperation between Japan and India. In August 2023, a sub-group meeting on Open RAN, with the participation of Japanese and Indian companies, was held to facilitate specific cooperation.

C Southeast Asian countries

With the Philippines, a memorandum of cooperation regarding ICT cooperation, including the construction of Open RAN and support for building 5G networks, was signed in February 2023. Additionally, during the Japan-US-Philippines Summit in April 2024, a "Joint Vision Statement by Japan, the Philippines, and the United States" was announced, confirming the strengthening of cooperation in the field of information and communication, including cooperation related to Open RAN.

With Indonesia, a memorandum of cooperation in the field of information and communication technology was signed in October 2023, adding the construction of Open RAN as a new area of cooperation and agreeing to further deepen cooperation in 5G, AI, and big data.

With Cambodia, a joint record of discussions on future cooperation in the digital field was exchanged in December 2023, aiming to further promote cooperation between the two countries for the development of the digital economy and society.

With Malaysia, a memorandum of cooperation regarding information and communication cooperation was signed in November 2023, agreeing to further strengthen cooperation in the field of information and communication, including 5G security and future advanced networks. In March 2024, the "Japan-Malaysia" ICT Joint Working Group meeting was held to share the progress of initiatives in the fields of ICT, broadcasting, and cybersecurity, and exchange views on future cooperation between the two countries. In conjunction with the working group, the Japan-Malaysia ICT Collaboration Conference was held, providing an opportunity to introduce the initiatives of Japanese and Malaysian companies to both governments and share the latest efforts in broadcasting and ICT.

D Australia

Following a joint statement in July 2022, the "Japan-Australia Telecommunications Resilience Policy Dialogue" was established. This framework involves the MIC from Japan, and the Department of Home Affairs, and the Department of Infrastructure, Transport, Regional Development and Communications and the Arts from Australia. The dialogue aims to regularly share information and hold discussions on information and communication fields, including Open RAN, 5G, submarine optical cables, and satellite communications, and to consider the implementation of joint projects as needed. The dialogue also aims to achieve "Free and Open Indo-Pacific" (FOIP) by ensuring and improving digital connectivity in the Indo-Pacific region.

The second meeting of this policy dialogue was held in April 2024, where information sharing and exchange

[24] https://www.soumu.go.jp/menu_news/s-news/01tsushin04_02000145.html

of views on initiatives in the field of information and communication, such as Open RAN, Beyond 5G (6G), submarine cables, cybersecurity, and inter-operator roaming during emergencies, took place. Both countries agreed to continue collaborating on common policy issues in the future.

(4) Cooperation with countries in Central and South America

In Central and South America, the adoption of Japan's terrestrial digital broadcasting standard (ISDB-T) was implemented in Brazil in 2006, and the Japan standard has been adopted in 14 countries. Currently, support is provided for efforts towards the cessation of analog broadcasting in each country, as well as assistance in the introduction of disaster prevention ICT utilizing the Emergency Warning Broadcast System (EWBS), a feature of the Japan standard, in countries such as Costa Rica and El Salvador.

Furthermore, seminars on 5G have been conducted in various Central and South American countries, emphasizing the importance of establishing open and secure 5G networks. Support is also provided for the deployment of Japanese companies with advanced technology in this field in Central and South America. In FY2023, a demonstration of the 5G environment using Open RAN was conducted in Peru.

Additionally, to promote the use of Japan's advanced ICT to address social issues in each country, recent efforts include conducting demonstrations of agricultural ICT solutions in Brazil, utilizing IoT data and AI to streamline the work of agricultural producers. Furthermore, demonstrations of disaster prevention solutions utilizing local 5G with Open RAN have also been carried out.

(5) Cooperation with other regions

A Cooperation with African regions

Cooperation in the ICT sector with African countries has progressed, starting with the adoption of the Japanese standard for terrestrial digital broadcasting in Botswana (adopted in 2013, fully digitized in October 2022) and Angola (adopted in 2019). In August 2022, the 8th Tokyo International Conference on African Development (TICAD8) was held in Tunisia. The MIC hosted an online seminar on DX and an online exhibition to promote Japanese companies as official side events. As a result of the conference, the "TICAD8 Tunis Declaration," which includes cooperation between Japan and Africa in the ICT field, was adopted. In May 2023, a Memorandum of Cooperation (MoC) in the fields of ICT and postal services was signed with the Ministry of Communications and Information Technology of Egypt. In February 2024, a MoC in the field of ICT was signed with the Ministry of Information, Communications, and the Digital Economy of Kenya.

Since FY2019, various demonstration projects have been conducted to address social issues in Africa and support the expansion of Japanese companies. These projects include communication infrastructure (Kenya, Senegal), agricultural ICT (Ethiopia, Botswana), medical ICT (Egypt, Ghana, Kenya, Democratic Republic of Congo), remote education (Senegal, Rwanda), and smart cities (Egypt).

B Cooperation with Middle Eastern regions

The MIC has been strengthening its cooperative relationship with Saudi Arabia. Based on the "Japan-Saudi Vision 2030" (2017) and the MoC on ICT cooperation signed with the Ministry of Communications and Information Technology of Saudi Arabia (2019), various initiatives have been undertaken. These include dispatching a public-private mission to Saudi Arabia (October 2018), holding ICT public-private workshops (January 2022), and participating in LEAP, the largest technology exhibition in the Middle East, with a Japanese booth and local public-private workshops (March 2024). These efforts aim to build cooperative relationships between companies from both countries and support the deployment of Japanese technologies. Additionally, demonstration projects utilizing VR technology for ICT healthcare were conducted in FY2021, and projects related to perinatal remote healthcare were conducted in FY2022.

Taking the opportunity of the 70th anniversary of diplomatic relations with Israel, a MoC in the fields of telecommunications technology and postal services was signed with the Ministry of Communications of Israel in April 2023.

Section 9 Promotion of postal administration

1. Summary

(1) Initiatives so far

Since the establishment of postal services in 1871, the postal network that has been developed nationwide in Japan had over 24,000 offices before the privatization on October 1, 2007. Even after privatization, postal offices are intended to be established for widespread use throughout the country.

The MIC is working to ensure the provision of universal services by postal offices and to utilize them as bases for public services in local communities.

(2) Future challenges and directions

In our country, the social environment has undergone significant changes, including an aging population, concentration of population in urban areas, frequent natural disasters, and the overall digitalization of society including the online processing of administrative procedures. Particularly in rural areas, the importance of postal offices as public infrastructure remaining in the community has increased due to the withdrawal of public enterprises fulfilling essential roles in daily life and the closure of local government branch offices providing administrative services.

Therefore, it is important for the Japan Post Group to ensure its performance as a private enterprise while maintaining the postal office network and universal services in the medium to long term. It is also crucial for postal offices and the services they provide to contribute to the improvement of convenience for citizens and users, as well as to the local community.

The MIC continues to ensure the sound management of the Japan Post Group and fair and free competition, while also securing the stable provision of universal services by postal offices. Additionally, it is necessary to promote the improvement of convenience for citizens and users and the contribution to local communities through diverse and flexible service development and operational efficiency, while also responding to the advancement of digitalization in the new era, by effectively utilizing the network of approximately 24,000 postal offices.

2. Promotion of postal administration

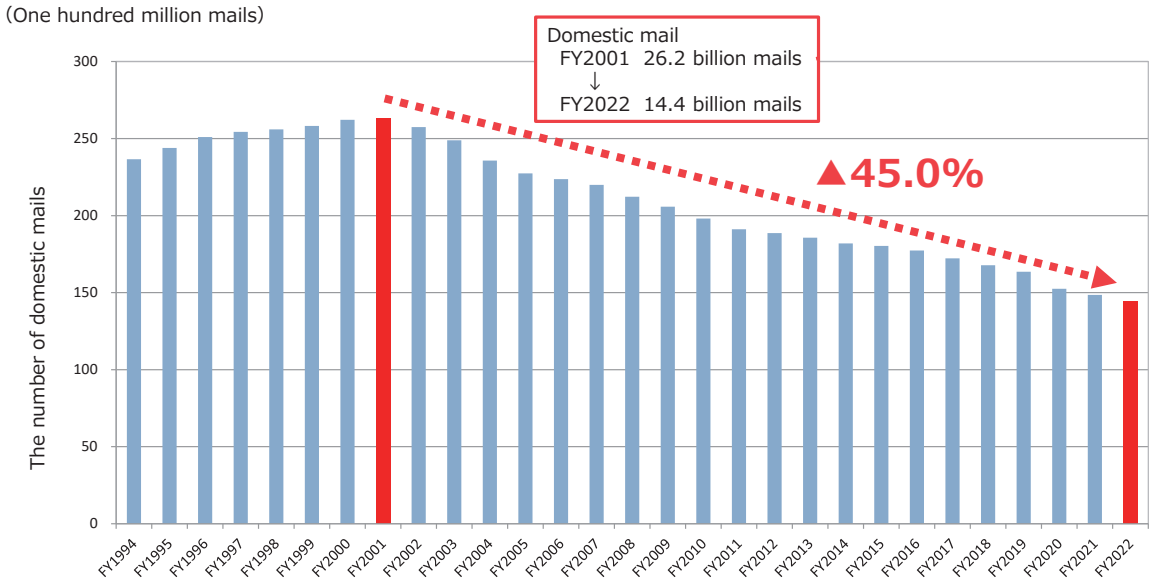
(1) Ensuring universal service in postal business

A Review of postal rates

The volume of postal items has been decreasing annually since the peak in FY2001 due to the widespread use of the internet, social media, the advancement of web-based billing for various invoices, and a decline in personal communication, resulting in a reduction of approximately 45% for domestic mail by FY2022 **(Figure 2-2-9-1)**. This decline in postal items, coupled with the impact of soaring fuel and other price increases, led to a deficit of 21.1 billion yen in the operating profit and loss of Japan Post's postal business for FY2022, marking the first deficit since privatization. Japan Post has been working on expanding postal usage and improving operational efficiency, and will continue to promote further efforts. However, it is anticipated that the significant decrease in postal items will continue, making the outlook for the operating profit and loss of the postal business extremely challenging.

In light of this situation, the MIC has initiated the necessary procedures for amending the Ordinance for Enforcement of the Postal Act (Ministry of Internal Affairs and Communications Ordinance No. 5 of 2003) to set the upper limit for the rates of standard postal items weighing 25g or less. It is expected that postal rate revisions will be implemented in the future after Japan Post has taken sufficient measures to ensure widespread awareness and preparedness.

Figure 2-2-9-1 The trend of the number of postal items



B Grant and contribution system to support the maintenance of the postal network

In June 2018, a grant and contribution system was established to support the maintenance of the postal network and ensure the stable provision of universal postal services. The system began operation in April 2019. The Independent Administrative Institution Postal Savings and Postal Life Insurance Management Organization (hereinafter referred to as the "Postal Management and Support Organization") is responsible for the disbursement of grants and the collection of contributions. For FY2024, the amount of grants to Japan Post is approximately 303 billion yen, with contributions amounting to approximately 246.7 billion yen from Japan Post Bank and approximately 56.3 billion yen from Japan Post Insurance.

(2) Contribution of post offices to local communities

A Contribution of post offices to local communities in the digital society

In our country, the aging population and declining birth rates, coupled with the spread of the COVID-19, have further exacerbated the exhaustion of local communities. As a result, there is increasing anticipation for the contribution of post offices, which are present throughout the country, to local communities. In this context, it is important to determine the role of post offices in contributing to local communities by leveraging the benefits of digitalization to overcome geographical and time constraints, as well as utilizing their usefulness as local hubs. In October 2022, the MIC consulted the Information and Communications Council on the contribution of post offices to local communities in the digital society, and discussions began in the Postal Policy Division of the same council. The division deliberated on various points, including (1) the collaboration between local public infrastructure and post offices, (2) the contribution of post offices to local communities through DX and data utilization, and (3) the role of post boxes (mailboxes) in the contribution of post offices to local communities. Subsequently, a preliminary report on the contribution of post offices to local communities was compiled in May 2024, and a public comment was conducted from May 3 to June 6, 2024. The preliminary report proposed strategies for furthering the contribution of post offices to local communities, such as "the Realization of Post Offices as "Community Hubs" in the region" and "the Utilization of Data Held by Post Offices". Particularly in regions where maintaining an independent local economy has become difficult, it is desirable to realize and promote "Community Hubs" at post offices, where some of the public services provided by local governments, organizations, and companies are offered, as well as to utilize a variety of functions and digital technologies to promote the revitalization of the regional economy and society through new collaborations with private enterprises and organizations. Additionally, the report outlined the role of post offices in realizing "Community Hubs" and the approach to the cost burden of stakeholders, and called for the MIC and the Japan Post Group to conduct studies toward the realization of "Community Hubs."

B Utilization promotion as an administrative service window

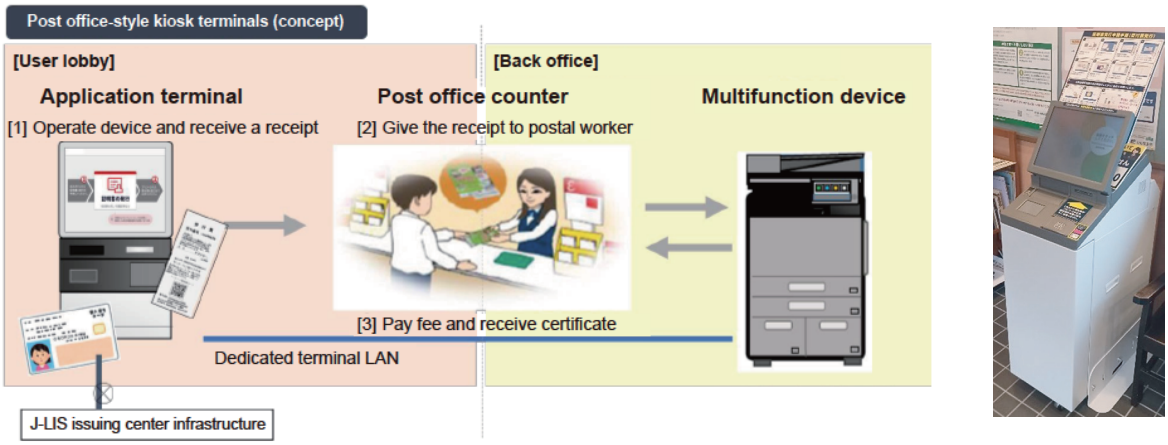
Post offices handle various local government office tasks, such as issuing copies of resident registers and other public certificates. As mentioned earlier, the importance of post offices as remaining public infrastructure in regions has increased as local government branch offices providing administrative services have

been abolished. In June 2023, Act on Handling of Certain Services of Local Governments at Postal Offices (Act No. 120 of 2001) was amended, expanding the specific affairs that post offices can undertake from local public entities to include new tasks such as accepting applications for the issuance of My Number cards.

The MIC conducted a demonstration of the development of "Post Office-type My Number Card Usage Terminals" (post office kiosk terminals), which can digitally issue certificates, as part of the FY2021 supplementary budget **(Figure 2-2-9-2)**. As a result of the "Subsidy for the Installation of Certificate Issuance Service Terminals" in FY2022 second supplementary budget, support was provided for the introduction of certificate issuance service terminals, including the post office kiosk terminals, mainly in municipalities without convenience stores, resulting in their introduction in 20 local governments and 36 post offices (post office kiosk terminals were introduced in 15 local governments and 28 post offices.).

Furthermore, to enhance resident services using My Number cards, local governments have been implementing special grant tax measures (at a rate of 0.7) from FY2023 to cover the expenses of introducing certificate issuance services at post offices and other locations.

Figure 2-2-9-2 Post office kiosk terminals



C Collaboration between post offices and the public infrastructure of local communities

The MIC has been conducting demonstrations under the "Post Office Activation Promotion Project (Post Office × Local Public Entities × ICT)" from FY2019 to FY2021 to promote the utilization of the strengths of post offices and to address various regional issues and improve user convenience. In January 2022, the "Post Office Monitoring Service using Smart Speakers," developed through these demonstrations, was launched as a service for local governments by Japan Post. By May 1, 2024, this service had been entrusted by a total of 18 local governments.

Additionally, from FY2022, the MIC has been conducting demonstrations under the "Promotion Project for Collaboration between Post Offices and Public Regional Infrastructure" **(Figure 2-2-9-3)** to promote the resolution of regional issues by leveraging the power of digital technology through collaboration between post offices, which have bases throughout the country, and local public entities and other public infrastructure in the region. In FY2023, demonstration projects were conducted, including the utilization of data held or acquired by Japan Post in the local community (Nagaoka City, Niigata Prefecture), the first implementation of online medical consultations at post offices nationwide in response to the revision of the system by the Ministry of Health, Labour and Welfare (Nanao City, Ishikawa Prefecture), the provision of information on disaster victims by post offices during disasters (Atami City, Shizuoka Prefecture), and the use of post office monitoring services for disaster prevention using digital technology (Yusuhara Town, Kochi Prefecture), to understand the issues and expansion of implementation **(Figure 2-2-9-4)**[1]. In FY2024, based on the challenges and insights obtained from these demonstration projects, it is planned to further disseminate and expand the results nationwide and conduct demonstration projects such as smart water meter reading using postal delivery vehicles and the provision of necessary services in the region by utilizing post offices as "Community Hubs," continuing to create model cases for solving regional issues through collaboration between post offices and the public infrastructure of local communities.

[1] Promotion Project for Collaboration between Post Offices and Public Regional Infrastructure: https://www.soumu.go.jp/yusei/kasseika.html

Figure 2-2-9-3 Promotion Project for Collaboration between Post Offices and Public Regional Infrastructure

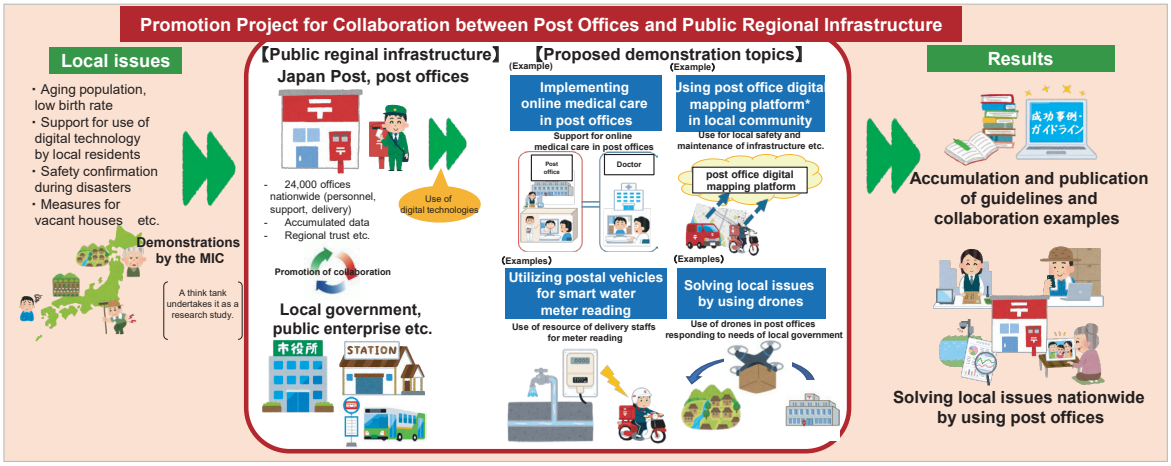


Figure 2-2-9-4 Regional demonstration

Implementing online medical care In post office (Nanao City, Ishikawa Prefecture))

Using postal office monitoring service for disaster prevention by use of digital technologies (Yusuhara Town, Kochi Prefecture)

(3) Utilization of data acquired and held by post offices

The MIC is promoting the effective use of data acquired and held by post offices while ensuring the appropriate handling of the secrecy of correspondence, the secrets of others known through postal items, and personal information. Since December 2022, the ministry has been holding the "Post Office Data Utilization Advisory Board" to obtain advice from experts and others for the implementation of initiatives by Japan Post and the MIC. As a specific initiative for the utilization of post office data, in January 2024, during the Noto Peninsula Earthquake in the same year, the MIC closely collaborated with Ishikawa Prefecture, Japan Post, and relevant ministries and agencies. As a result, Japan Post improved the accuracy of the list of persons whose safety was unknown by comparing it with resident data held by Japan Post and sent notifications to those who had moved out of the disaster area based on the information from change of address notifications to ensure that administrative information reached the affected individuals. Additionally, since June 2023, when a bar association inquired with Japan Post about the new address information of the opposing party in cases where it was difficult to ascertain the new address of the opposing party without changing the resident register (limited to cases where the bar association did not find any connection to domestic violence, stalking, or child abuse), Japan Post provided the new address information of the opposing party to the bar association. The Ministry will continue to work on the utilization of post office data, taking into account the needs of public institutions and others.

(4) Response to new initiatives by Japan Post Insurance and Japan Post Bank

In May 2023, the MIC and the Financial Services Agency granted approval to Japan Post Insurance for the "Ownership of an Investment Subsidiary" based on the Postal Services Privatization Act. Additionally, in October 2023, Japan Post Insurance submitted a notification[2] based on the Postal Services Privatization Act regarding the "Underwriting of Ordinary Whole Life Insurance with a Single Premium Payment Option." This ordinary

[2] In June 2021, following the sale of more than half of its shares in Japan Post, Kanpo Life transitioned from a licensing system for new business to a notification system.

whole life insurance has been available at Japan Post Insurance and post offices nationwide since January 2024.

Japan Post Bank is promoting a new corporate business (Σ Business) that supports the growth of local businesses with growth aspirations by providing capital funds, thereby contributing to the revitalization of the regional economy from a medium- to long-term perspective. In February 2024, the MIC and the Financial Service Agency received an application from Japan Post Bank for approval based on the Postal Services Privatization Act to own a subsidiary engaged in investment management operations and a specialized investment company under its umbrella, with the aim of advancing private equity investment management and operations in this business. Approval was granted in May 2024.

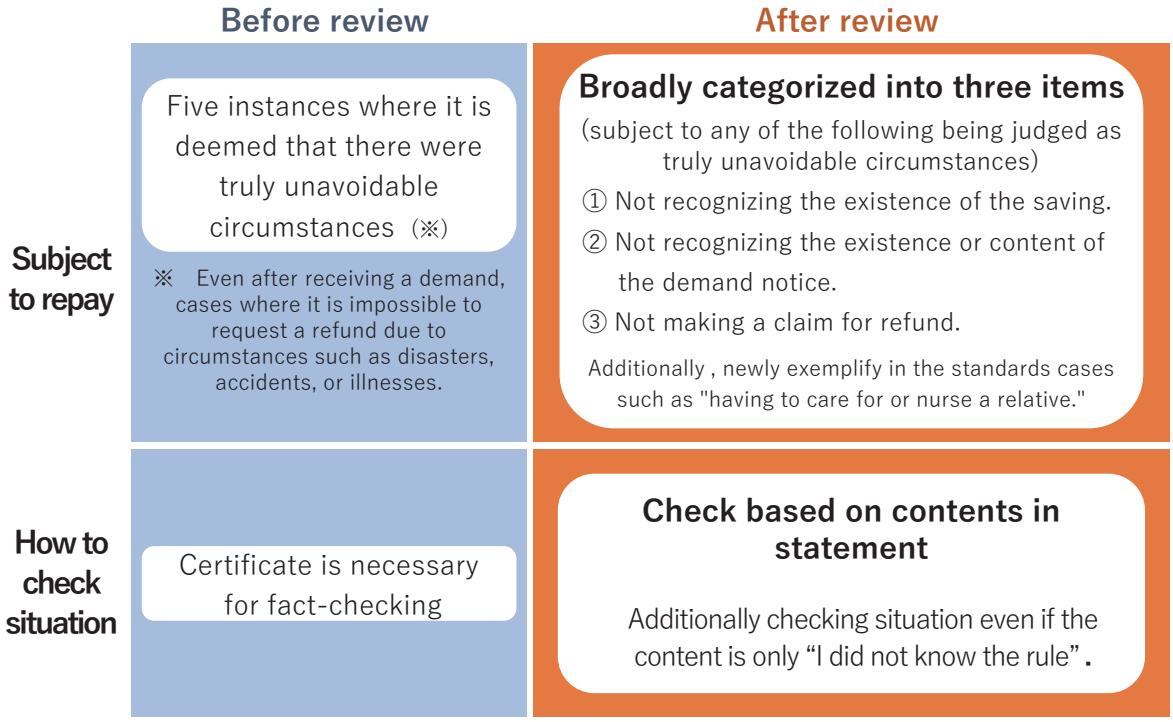
(5) Review of operations at the Organization for Postal Savings, Postal Life Insurance and Post Office Network for the refund of fixed-term postal savings deposited before postal privatization

The Postal Management and Support Organization, Postal Life Insurance and Post Office Network, which inherited fixed-term postal savings deposited before postal privatization, has been implementing operations to respond to refund claims for savings that have been treated as rights extinguished[3] under certain criteria. If it is determined that there were truly unavoidable circumstances for not making a refund claim after notification, the organization has been responding to such claims.

Given that this operation has been in place for over ten years, the MIC requested the organization in September 2023 to review its operations to make the process less burdensome for claimants, including ensuring that the confirmation of circumstances is conducted in a manner that is more considerate of depositors[4].

Subsequently, the organization announced a review of its operational criteria on December 20, 2023, and began implementing the new criteria in January 2024. Under the new criteria, the method of confirming truly unavoidable circumstances has been revised, and responses are now based on the content of the claim form rather than requiring the submission of certificates as a general rule **(Figure 2-2-9-5)**.

Figure 2-2-9-5 Points of review of operations at the Postal Management and Support Organization



[3] According to the provisions of the former Postal Savings Act (Act No. 144 of 1947), which is deemed to be in effect, if 20 years have passed since the maturity date and no claim for repayment is made within two months after a reminder is issued, the depositor's rights are considered to be extinguished.

[4] Request for review of the handling of refunds for fixed-term postal savings deposited before the privatization of postal services: https://www.soumu.go.jp/menu_news/s-news/01ryutsu16_02000066.html

3. Promotion of postal administration in the international field

(1) Response to the Universal Postal Union (UPU)

The Universal Postal Union (UPU), a specialized agency of the United Nations, was established in 1874 with the aim of developing the global postal network and services, thereby contributing to international cooperation in cultural, social, and economic fields by improving the convenience of international mail. The UPU will celebrate its 150th anniversary in 2024. In recent years, despite the challenging situation where the total volume of international mail has not recovered post the COVID-19 pandemic, the UPU is increasingly expected to play a significant role in the development of international logistics by formulating appropriate international postal frameworks in response to the expansion of cross-border e-commerce.

In this context, since January 2022, Mr. METOKI Masahiko from Japan has been serving as the Director-General of the UPU (term: one term of four years, with a maximum of two terms), and it is expected that he will lead various initiatives within the UPU.

The MIC is actively supporting Director-General Metoki's leadership and aims to further contribute to the UPU. Based on the Memorandum of Cooperation with the UPU, MIC supports the implementation of cooperation projects among UPU member countries, such as efforts to build a disaster-resilient postal network, initiatives for the economic and social utilization of the postal network, and climate change measures through the construction of an environmentally friendly postal network. In June 2023, the Memorandum of Cooperation was updated to expand the implementation projects, including strengthening collaboration with external organizations.

Additionally, as part of the cooperation projects, in October 2023, Japan provided support to the postal sector in Morocco affected by an earthquake through contributions to the UPU's Emergency Solidarity Fund (ESF[5]). Through such support, Japan aims to contribute to the further development of the global postal network and services and actively participate in the formulation of fair and open rules for international mail within the UPU.

In October 2023, the 4th Extraordinary Congress was held in Riyadh, Saudi Arabia. Under the leadership of Director-General Metoki, discussions were held on expanding the involvement and collaboration of more diverse postal stakeholders (including private operators) in the postal sector, and the increase in the annual budget ceiling was realized. Japan actively participated in these deliberations, contributed to consensus-building, and, as the chair of the First Committee, summarized the committee's discussions and reported the results to the plenary session of the Congress, significantly contributing to the operation of the Congress.

Furthermore, the UPU has established a close relationship with the World Customs Organization (WCO). In June 2023, the WCO-UPU Global Conference, co-hosted by the UPU and WCO, was held in Tokyo. In light of the expansion of cross-border e-commerce, discussions were held among postal operators and customs authorities from various countries on how to enhance cooperation between postal services and customs to ensure the proper and smooth flow of international mail, including the use of Electronic Advanced Data (EAD) and other digital technologies for advanced border inspections. The MIC announced that projects to promote cooperation between postal services and customs in various countries would be implemented through voluntary contributions to the UPU and contributed to the formulation of the "Joint Declaration (Tokyo Declaration)," which is the outcome of the discussions.

(2) Support for overseas deployment of Japanese postal infrastructure

The MIC is promoting the overseas deployment of the Japanese postal infrastructure system as part of the government's "Infrastructure System Overseas Promotion Strategy 2025[6]" (June 2022 Supplement) and the "Ministry of Internal Affairs and Communications Overseas Promotion Action Plan 2025[7]" (July 2022). This initiative aims to provide emerging and developing countries with Japan's excellent postal-related technologies, systems, and operational know-how to support the improvement of postal service quality and the optimization of postal operations in the recipient countries. While the focus has primarily been on Asia, in recent years, efforts have been made to expand into new regions such as Europe and the Caucasus. By acquiring peripheral businesses such as equipment used in sorting centers, understanding the needs and challenges related to the overall postal business in the recipient countries, and exploring new business opportunities in areas such as e-commerce, digital transformation, and greening, the initiative encourages the entry of Japanese companies with relevant technologies and expertise.

In FY2023, pilot projects were conducted to promote DX in Vietnam Post, to introduce electric vehicles for collection and delivery in Indonesia Post for the purpose of decarbonization, and to optimize operations at a new sorting center in Azerbaijan Post. The MIC will continue to deepen cooperation projects with various countries and, through active participation in international postal conferences and basic research on the postal situation in various countries, will build relationships with postal operators in other countries and promote the overseas deployment of the Japanese postal infrastructure system.

[5] The fund was established by the Universal Postal Union (UPU) to provide emergency assistance to member countries affected by disasters or other crises.
[6] Infrastructure System Overseas Promotion Strategy 2025 (June 2022 Supplement): https://www.kantei.go.jp/jp/singi/keikyou/dai54/infra.pdf
[7] Ministry of Internal Affairs and Communications Overseas Promotion Action Plan 2025 (July 2022): https://www.soumu.go.jp/main_content/000842643.pdf

(3) Global Postal Strategy Task Force

In recent years, governments and postal operators of major countries have been addressing common challenges such as the stable provision of universal postal services. Additionally, they are also required to respond to new challenges such as digital transformation, sustainability, economic security, and other emerging issues. Furthermore, various business entities are strategically and proactively utilizing platforms such as the Universal Postal Union (UPU) to explore new business opportunities in the postal, logistics, and financial sectors in the post-pandemic era.

In this context, Japan is also working to promote service provision that benefits users and to strengthen collaboration among domestic and international stakeholders for the strategic overseas expansion of Japan's strong postal infrastructure. To this end, the "Global Postal Strategy Task Force" has been convened since December 2023, with plans to compile immediate strategies and specific policies by this summer, addressing both international initiatives such as the overseas expansion of Japan's postal infrastructure and international cooperation through the UPU, as well as domestic initiatives including maintaining universal postal services, promoting digital transformation, and enhancing regional contributions within Japan Post's postal business.

4. Trends in correspondence delivery

Under the Act on Correspondence Delivery by Private Business Operators (Act No. 99 of 2002), private operators are also allowed to engage in the letter delivery business. As of the end of FY2023, 596 operators have entered the specified letter delivery business, which provides services that do not interfere with the provision of universal postal services. These services include a circulating collection and delivery service that meets customer needs by circulating a fixed route and sequentially collecting and delivering letters at each point, an express delivery service for relatively short distances or within limited areas, and a telegram-like service that delivers messages such as congratulations or condolences along with decorated paper.

The MIC is promoting understanding of the purpose and system of the letter delivery business and is raising awareness about the definition of letters and the letter delivery system to ensure that letters are sent appropriately.