

Chapter 6

ICT Policy Directions

Section 1 Promoting Comprehensive Strategy

1. Promoting National Strategies

“The Basic Act on the Advancement of Public and Private Sector Data Utilization” was promulgated and put into effect in December 2016 to let the national government comprehensively and efficiently arrange circumstances for the better use and application of public and private sector data.

In June 2019, the IT Strategic Headquarters established the “New IT Policy Principles for the Digital Age”. This document has two objectives: (i) establish conditions so Japan will survive and flourish in the international competition of the digital age, and (ii) resolve Japan’s challenges through digitalization of all aspects of

society. In the same month, the Cabinet endorsed the “Declaration to be the World’s Most Advanced Digital Nation: A Basic Plan for the Advancement of Public and Private Sector Data Utilization”.

In addition, the Council on Investments for the Future was set up under the Headquarters for Japan’s Economic Revitalization, and the Cabinet endorsed the “Growth Strategy Action Plan” in the same month. It intends to move ahead with such efforts in the ICT field as establishing rules for digital markets, smart public services, and next-generation infrastructure.

2. Promoting MIC’s ICT Comprehensive Strategy

(1) Promotion of Introduction of ICT throughout Society Leading Up to 2020

Since 2014, MIC has been holding meetings of the “Conference on the Promotion of Introduction of ICT in the throughout Society Leading Up to 2020”. The conference has examined how to further advance Japan’s ICT environment leading up to the 2020 Tokyo Olympic Games. It has also studied policies to promote ICT implementation throughout society, with a focus on sustained national growth beyond the 2020 Tokyo Olympics.

In 2015, the conference completed the “Action Plans for introduction of ICT throughout Society leading up to 2020”, and, in 2018, compiled “Recommendations Ahead of the 2020 Tokyo Olympic Games”.

The conference is working on the ICT policies contained in the action plan and recommendations to enhance information distribution to develop awareness in all segments of society, to provide the ICT policies as “mechanisms” that will be used beyond the 2020 Tokyo Olympics as a legacy of the Games, and to bolster public-private collaboration frameworks.

(2) Platform Construction for Economic Structural Reforms toward the Realization of Society 5.0

Attention in Japan and around the world has focused on the many problems surrounding digital platform operators, such as a lack of transparency and fairness in terms and conditions, data oligopolies, personal information security breaches, and illegal or improper acts committed on online platforms.

Given this background, MIC, METI, and the Japan Fair Trade Commission formed the “Study Group on Establishing a Business Environment for Digital Platform Operators” in July 2018, following the Cabinet’s endorsement of the “Growth Strategy 2018” in June 2018. In December 2018, MIC, METI, and the Japan Fair Trade Commission laid down fundamental principles for the establishment of rules to address the rise of platform operator businesses.

In addition, the Cabinet Secretariat set up the “Headquarters for Digital Market Competition” in September 2018, based on the “Growth Strategy Action Plan” endorsed by the Cabinet in June of that year. Meetings of the Digital Market Competition Council, in which the Minister for Internal Affairs and Communications participated as a member, were held under the headquarters to study and deliberate on important matters relevant to digital markets. The council deliberated on the establishment of rules for the digital market. As a result, “the Act on Improved Transparency and Fairness on Designated Digital Platforms” and associated laws were enacted during the 2020 Ordinary Session of the Diet.

(3) Promotion of IoT Use and Data Utilization

a. Promoting IoT Use and Application

MIC, in partnership with the “Advanced IT Architect Human Resource Development Council (AITAC)”, established a platform for human resource development in FY 2017. By undertaking human resources development through the construction and operation of the platform, MIC has clarified the skills in demand and estab-

lished ways of certifying those skills.

MIC promotes regional classes aimed at IoT users, practical seminars and workshops, hackathons and wireless IoT technology demonstrations for young people looking to become developers, and other initiatives. Through these initiatives, MIC is fostering the human resources needed for the IoT era.

b. Arranging Conditions for Open Data Distribution

The “Declaration to be the World’s Most Advanced Digital Nation: A Basic Plan for the Advancement of Public and Private Sector Data Utilization” (endorsed by the Cabinet on June 14, 2019) set a target that 100 percent of local governments would undertake open data initiatives by FY 2020. As of December 2019, however, only 668 of 1,788 local governments (37 percent) had started open data initiatives. Given this problem, MIC began in FY 2018 to provide training to local government personnel to learn the significance of data utilization and systematically acquire knowledge and skills on supplying open data, which is to assist local governments launch open data initiatives.

c. Promoting AI Deployment

MIC launched the “Conference toward an AI Networked Society” in October 2016.

The conference set up the “AI Governance Investigative Committee” to proceed with further examinations of matters of concern organized in the “Draft AI Use and Application Principles”. The conference compiled “Report 2019”, which included the “AI Use and Application Guidelines”, in August 2019.

In addition, the “AI Economy Investigative Committee” was set up to deliberate on advancing social implementation of AI primarily from an economic point of view. The investigative committee compiled a report in May 2019. Based on the report, the investigative committee has been pursuing further study of new social systems and data economic policy for the AI age since December 2019.

(4) Promoting the Use and Application of Individual Number Card

Individual Number cards verify a person’s identity face-to-face using information on the card (name, address, birth date, gender, Individual Number, and facial photo). Moreover, the cards also enable secure and reliable online identity verifications / personal authentications with the use of the public certification service for individuals embedded in the card. Initiatives are promoted to make Individual Number cards into a platform and consolidate them with existing cards and public services, based on the “Digital Government Action Plan” approved by the Cabinet in December 2019. MIC also works to promote the use and application of Individual Number cards by the national and local governments and by the private sector, as a way of improving the convenience of public and private services in various aspects of everyday life.

(5) Promoting the Social Implementation of Personal Data Banks

MIC and METI jointly held meetings of the “Study Group on Accreditation Schema for Information Entrustment Functions” starting in November 2017. The study group examined the conditions required of parties undertaking information entrustment functions, operational schema for accreditation, and other considerations for accreditation systems. It created the “Guidelines on Accreditation of Information Entrustment Functions Ver. 1.0” on voluntary personal data trust bank accreditation mechanisms by private organizations. Based on the guidelines, the Information Technology Federation of Japan, an accreditation organization, decided to accredit the first “personal data trust bank” in June 2019. The study group reconvened in January 2019 and compiled “Guidelines on Accreditation of Information Entrustment Functions Ver. 2.0” in October 2019.

As of April 2020, five companies have received accreditation since the acceptance of accreditation applications began.

Section 2 Developments in Telecommunications Policy

1. Comprehensive Review of Competition Rules in the Telecommunications Business Field

MIC consulted with the Information and Communications Council in August 2018 concerning a “comprehensive Review of competition rules and related matters in the telecommunications business field”. The purpose of the consultation was to examine competition rules and related matters in the telecommunications business field, looking ahead to the period in and around 2030. In response to the consultation, the council set up the “Special Subcommittee on the Comprehensive Review of Competition Rules in the Telecommunications Business Field” (hereinafter referred to as “special subcommittee”) under its Telecommunications Business Policy

Committee.

(1) Directions for Telecommunications Policy Looking Ahead to 2030

The special subcommittee examined measures deemed to be necessary from the perspective of realizing and maintaining the “healthy growth of telecommunications” and the “assurance of the public’s convenience” regarding telecommunications into the future, based on network topologies that will exist in and around 2030. The examinations included revising current rules with a focus on four areas: (i) advancements in commu-

nication network virtualization; (ii) use of equipment belonging to other telecom carriers; (iii) market convergence; and (iv) progress of globalization. The special subcommittee compiled an interim report in August 2019 about the directions of these policy efforts and a final report in December 2019.

MIC submitted to the National Diet in February 2020 a bill to partially amend the Telecommunications Business Act and the Act on Nippon Telegraph and Telephone Corporation, etc. The bill contained provisions to ensure the continued provision of telephone services by NTT East and West and provisions to enhance the effectiveness of the Telecommunications Business Act on telecom carriers outside of Japan that provide communication services to users in Japan. The amended acts were promulgated in May 2020.

Furthermore, the “Study Group on Approaches of Broadband Infrastructure” has been meeting since April 2020 to advance specialized and intensive examinations, primarily from the administrative systems perspective, on making broadband a universal service.

(2) Approaches to Network Neutrality

In October 2018, MIC launched the “Study Group on Network Neutrality”. The study group is examining approaches to ensuring fairness and transparency in network use and cost allocations.

The study group issued an interim report in April 2019. The report clarified user rights pertaining to Internet use and called attention to the importance of content platform operators and many other stakeholders respecting and abiding by these rights. Based on deliberations at the working group level, the study group established the “Guidelines on the Application of the Telecommunications Business Act for Zero-Rating Services” in March 2020, which clarified the application of the Telecommunications Business Act.

(3) Approaches to Address IT Platform Service Issues

The “Study Group on Platform Services” met between

2. Ensuring Fair Competition

(1) Conducting Market Verifications in the Telecommunications Business Field

MIC has carried out market verifications in the telecommunications business field since FY 2016 that unify analyses and verifications of market trends and confirmations of the correctness of telecom carriers’ business practices. These verifications enhance and update the previous “evaluations of competition conditions in the telecommunications business field” and the “system of fair competition reviews to encourage broadband growth”.

Based on the “Annual Plan for Market Verifications in the Telecommunications Business Field” (December 2019), MIC arranged in FY 2019 to (i) analyze market trends in the telecommunications business field, (ii) confirm the correctness of operators’ business practices, and (iii) conduct monitoring based on the “Compre-

October 2018 and February 2020 to examine approaches to ensuring the appropriate handling of user information by platform operators, given that platform operators use large amounts of user information to provide services. The study group issued its final report in February 2020.

The final report indicated that regarding ensuring the proper handling of user information, it is appropriate to take necessary measures so that Telecommunications Business Act regulations, such as the protection of “communications secrecy”, would extend to providers outside of Japan that provide communication services to users in Japan.

(4) Approaches to Ensuring Competitive Environments and Approaches to Consumer Protection Rules in the Mobile Market

Since October 2018, MIC has held meetings of the “Study Group on Competitive Environments in the Mobile Market”. MIC has also held meetings of the “Working Group on Verification of Consumer Protection Rules under the ICT Services Safety and Security Study Group” since October 2018. The two study groups jointly released the “Urgent Recommendation on Adjustments to Mobile Services” in January 2019. The recommendation set out directions for measures that should be taken promptly. These included rectifying excessive term restraints and the complete separation of communication fees and device charges in order to have simple, straightforward fee plans for mobile phones; introducing a notification system for mobile sales agents to ensure appropriate sales agent operations; and banning inappropriate promotions that mislead users. In receipt of the recommendation, MIC introduced a bill to the National Diet in March 2019 to partially amend the Telecommunications Business Act. The amended act was promulgated in May 2019 and went into force in October 2019.

hensive Verification of Competition Rules in the Telecommunications Business Field”. Telecommunications market verifications will be based on the results of these three surveys.

(2) Ensuring Fair Competitive Terms in the Era of IP Networks

MIC began holding meetings of the “Study Group on the Calculation of Interconnection Charges” in March 2017, as the move to IP telecommunication networks progressed. The study group is continuing to deliberate and verify the handling of facilities for NGN intra-prefecture communications, which was listed as a follow-up item in the study group’s third report. It is also moving ahead with examinations into rules on wholesale telecommunications services using designated telecommunications facilities, following the final report on “Comprehensive Verification of Competition Rules in the

Telecommunications Business Field”, which was put together in December 2019.

MIC also reconvened the Study Group on Long-Run Incremental Cost Model in June 2019 to examine LRIC models that could be applied to interconnection charge calculations from FY 2022 onward, with a focus on the period after conversion to IP networks is complete.

(3) Mediation and arbitration by the Telecommunications

Dispute Settlement Commission

The Telecommunications Dispute Settlement Commission is a specialized organization established for the purpose of handling, promptly and fairly, increasingly diverse conflicts in the telecommunication field, where technological innovation and competition are advancing

at a remarkable rate. 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: (i) performing mediation and arbitration to resolve conflicts between carriers and/or other businesses; (ii) deliberating on and releasing reports in response to consultations from the Minister for Internal Affairs and Communications prior to the minister issuing an order or ruling; and (iii) providing recommendations to the Minister for Internal Affairs and Communications regarding improvements to competition rules or other matters as part of the commission’s mediation, arbitration, and consultation responses.

3. Ensuring Safe and Reliable Telecommunications Infrastructure

(1) Approaches to Establishing and Operating Systems for Technical Standards on Telecommunications Facilities

a. Establishment of Systems for Technical Standards on Telecommunications Facilities to Address the Growth of the IoT

The Subcommittee on IP Network Facilities, under the Department of Information and Communications Technology of the Information and Communications Council, began examining “technical requirements for telecommunications facilities to address the growth of the IoT” in December 2017. The purpose of the examinations is to ensure network conditions in which various IoT services can be used securely and stably.

For the third examination period from June 2019 to March 2020, the subcommittee’s main examination items were (i) approaches to technical standards and other matters to address the full-scale deployment of software-based communication networks and communication network virtualization, and (ii) methods of maintaining and managing disaster-resilient communications infrastructure.

The subcommittee compiled the results of its examinations on these matters in its third report in March 2020. In the same month, MIC received a partial reply from the Information and Communications Council.

b. Assurance of Communication Services in Disasters

MIC launched the “Liaison Committee on Securing Communications Services in the Event of Disaster” in October 2018, jointly with telecom carriers, to verify the functioning of cooperative frameworks in normal times and to develop the capability to respond appropriately in times of disasters.

The national government launched the “Team to Verify for Typhoons No. 15 and No. 19 of 2019 and Other Disasters” in October 2019 as a venue for discussions across ministry and agency boundaries. The team concluded an interim report in January 2020, which included recommendations to extend the duration of emergency power supplies to mobile phone base stations and other facilities. The Subcommittee on IP Network Facilities, under the Department of Information and Communications Technology of the Information and Communi-

cations Council, examined specific system amendments to carry out the recommendations.

c. Analysis and Verification of Telecommunication Accident Reports

MIC has been holding meetings of the “Telecommunication Accident Verification Council” since 2015 to make effective use of various measures to prevent the reoccurrence of accidents by verifying accident reports. The council summarized the results of its verifications of telecommunication accidents that occurred in FY 2018 and issued the “Report on Verifications of Telecommunication Accidents in FY 2018” in August 2019.

(2) Ensuring the Proper Use of Telecommunication Numbers

a. Establishment of New Systems Related to the Fair and Efficient Use and Appropriate Management of Telecommunication Numbers

Based on a reply by the Information and Communications Council regarding “approaches to the smooth transition of fixed-line telephone networks” (September 2017), the Telecommunications Business Act was amended in May 2018. Based on the amended act, MIC enacted a telecommunication numbering plan and related regulations in May 2019, which set up a new system that allocates numbers to carriers with certain usage requirements to ensure both the fair and efficient use of numbers and the smooth provision of telephone services.

b. Examinations of Telecommunication Numbers for the IoT Era (Examinations of 020 Numbers, IMSI, and Other Matters)

MIC began holding meetings of the “Study Group on Telecommunication Numbers for the IoT Era” in December 2018. The study group released the “Research Report on Telecommunication Numbers for the IoT Era” in July 2019.

Based on the report’s findings, MIC amended its notifications on telecommunications numbers in December 2019 concerning (i) adding digits to 020 numbers to prevent the depletion of 020 numbers, and (ii) adding a digit to the network (carrier) code in IMSI numbers that begin with a 441 international country code to ensure a sufficient number of carriers that can be designated by

IMSI codes.

4. Developing Safe and Secure Environments for Use of Telecommunications Services

(1) Promotion of Consumer Assistance Policies

The Act Partially Amending the Telecommunications Business Act went into force in May 2015. One purpose of the act was to further enhance and strengthen consumer protection rules. MIC also formulated the “Basic Policy on Supervision of User Protection Regulations in the Telecommunications Business” to implement consumer protection rules appropriately and ensure the effectiveness of consumer protection systems. Furthermore, the ministry holds the “Regular Meeting for Monitoring of the Implementation Status of Consumer Protection Rules” with the participation of experts and related trade associations to share and evaluate the implementation status of consumer protection rules among

related parties.

(2) Development of Internet Usage Environments for Young People

“The Act Partially Amending the Act on Development of an Environment that Provides Safe and Secure Internet Use for Young People” went into force in February 2018. As for the status of initiatives by related parties after the amendment, the “Task Force on the Establishment of Safe and Secure Internet Usage Environments for Young People” drafted and published “Issues and Measures to Promote the Use of Content Filters for Young People” in August 2019.

Section 3 Developments in Radio Policy

1. Promoting Effective Radio Spectrum Use

MIC held “Roundtable Meetings on Effective Use of Radio and Growth Strategy” starting in November 2017 and issued a report in August 2018. The Act on Partially Amending the Radio Act, which was tabled in the National Diet in February 2019 and went into force in May

2019, established provisions to promote the use of existing frequencies and provisions pertaining to frequency allocation procedures that account for the economic value of the frequencies.

2. Radio Usage Advancement and Diversification Initiatives

(1) 5G Mobile Communication Systems

To implement 5G systems by 2020, MIC promoted efforts in three areas: (i) promotion of R&D and comprehensive demonstration experiments; (ii) enhancement of international collaboration and cooperation; and (iii) delineation of 5G frequencies and establishment of technical requirements for 5G systems.

(2) Promotion of ITS Systems

In addition to pushing ahead with efforts to expand and deploy 5G, MIC is advancing technical examinations of frequency sharing and other matters required to introduce new V2X communications in the 5 GHz band and working toward the realization of an autonomous driving society. The Second Term of the Strategic Innovation Promotion Program (SIP) by the Cabinet Office’s Council for Science, Technology and Innovation is focused on “autonomous driving and the extension of systems and services”. MIC’s main initiative in this area is to research and develop technology that collects dynamic information obtained from various information sources,

consolidates the information to determine real-time traffic conditions, and sends information within the necessary range to autonomous vehicles. This technology will allow autonomous vehicles to ascertain a birds-eye view of surrounding traffic conditions, which is an important part of realizing safe and secure autonomous driving.

(3) Promotion of Public Safety LTE

MIC’s “Roundtable Meetings on Effective Use of Radio and Growth Strategy”, which was launched in November 2017, studied the implementation of “Public Safety LTE (PS-LTE)” networks in Japan that can be used jointly by public agencies in the interest of using frequencies allocated for public use more effectively. Based on the report compiled in August 2018, the Ministry arranged the participation of related ministries and agencies, and studied functional requirements necessary for PS-LTE and technical requirements for PS-LTE in FY 2019.

3. Establishment of Radio Usage Environments

MIC promotes efforts to establish conditions for safe and secure radio usage. Regarding the impact of radio

waves on humans, safety standards have been set on the strength of radio waves in the Radio Act and related

Regulations based on radio protection guidelines. Given that devices receiving and transmitting radio frequencies over 6 GHz will be used in close proximity to human bodies, including 5G, and in receipt of a reply from the Information and Communications Council, MIC amended the Ordinance Regulating Radio Equipment and other relevant legislation in May 2019.

MIC works to inform citizens about the safety of radio

signals used in 5G and other systems through telephone consultations, information sessions, and leaflets.

Demand has emerged for the adoption of broadband power line communications (PLC) in recent years. MIC received a partial reply from the Information and Communications Council on “technical requirements pertaining to the enhanced usage of broadband power line communications” in July 2019.

Section 4 Developments in Broadcasting Policy

1. Various Issues concerning Broadcasting Policy

MIC has held meetings of the “Study Group on Various Issues over Broadcasting”, a roundtable meeting with the Minister for Internal Affairs and Communications, since November 2015. The study group’s purpose is to study issues pertaining to broadcasting, given the changing landscape around viewers, such as recent technology advances and the proliferation of broadband.

The study group’s “second report” determined it was reasonable and valid to a certain degree to start NHK’s sequential simultaneous online delivery of all program-

ming as a supplement to its broadcasts on the premise of NHK’s ability to continue to maintain the trust of citizens and viewers. Based on the report, MIC tabled a bill in the National Diet to partially amend the Broadcasting Act in March 2019. The bill went into force in May 2019.

In response to the enforcement of the law, NHK began trials of “NHK Plus”, a simultaneous online streaming service, in March 2020 and launched the full service in April 2020.

2. Advancement of Broadcast Services

(1) Promotion of 4K / 8K Broadcasting

a. What are 4K and 8K?

4K and 8K broadcasts are currently being promoted as part of the advancement of broadcast services. 4K broadcasts deliver four times the number of pixels as current HDTV, and 8K broadcasts deliver 16 times the number of pixels. Broadcasts in 4K/8K provide viewers with ultra-high-definition images with heightened realism and three-dimensionality.

b. 4K / 8K Broadcasting Initiatives

i. Initiatives by MIC

In line with the 4K/8K Roadmap, MIC established systems in FY 2016 for the approval of broadcasters in preparation for the start of new 4K and 8K satellite broadcasts. In January 2017, MIC authorized 19 programs from 11 companies, including NHK and the five key private broadcast networks, to be broadcast from the BS and 110 East Longitude CS satellites. MIC also created a subsidy program to support the study of technical requirements for satellite broadcast reception equipment and 4K / 8K broadcast program relay equipment. The subsidy program also assists conversions to optical transmission links.

ii. Initiatives by Businesses

“Cable 4K” is the cable TV industry’s first community channel of “4K broadcasts compiled from around the country”. Thirty-nine companies initially started providing the service, and as of March 1, 2020, 72 companies are providing the service. The “4K/8K Broadcast Promotion Liaison Council” was launched in April 2017 for MIC and related organizations and businesses in the broadcasting industry, the device manufacturing industry, and the consumer electronics sales industry to work together to publicize and raise awareness of 4K/8K broadcasts. In December 2018, the “New 4K/8K Satellite Broadcast Launch Ceremony” was held, with new 4K/8K satellite broadcasts launched on 17 channels by nine broadcasters.

iii. Initiatives to Promote the Advancement of Terrestrial Broadcasts

MIC is involved in various R&D programs aiming to establish core technologies needed to realize advanced terrestrial television broadcasts, such as 4K and 8K ultra-high-definition broadcasts. Since FY 2019, MIC has embarked on efforts toward establishing technical standards for advanced terrestrial television broadcasts based on the R&D outcomes.

3. Improving the Resilience of Broadcast Networks

In order to aid broadcasters, local governments, and other organizations working to improve the resilience of broadcast networks, MIC is carrying out “broadcast network establishment assistance projects (terrestrial basic broadcast network establishment projects, regional cable TV network establishment projects, and disaster in-

formation broadcasting and transmission system establishment projects)” from general funds in its FY 2020 budget. The ministry is also using radio usage fee funds to run “projects assisting the elimination of poor reception areas for commercial radio” and “projects assisting the enhanced disaster resilience of terrestrial basic

broadcasts”.

Section 5 Promoting Cybersecurity Measures

1. Examinations of Action Plans for Cybersecurity Measures

(1) Efforts by the Government

The Cybersecurity Strategic Headquarters was newly established under the Cabinet to lead the government’s cybersecurity policy in January 2015, based on the Basic Act on Cybersecurity.

After examinations by the headquarters, the Cabinet approved the “Cybersecurity Strategy” in September 2015. Later, in July 2018, the Cabinet approved the new “Cybersecurity Strategy”, as the government focused on preparations for major international events such as the 2020 Tokyo Olympic and Paralympic Games.

(2) Efforts by MIC (Cybersecurity Task Force)

MIC set up the “Cybersecurity Task Force”, consist-

ing of security experts, in January 2017. The task force issued the “Matters for Prompt Implementation to Strengthen Japan’s Cybersecurity [Urgent Recommendation]” in January 2020 that arranged matters to be implemented promptly from the short-term perspective of addressing the 2020 Tokyo Olympic Games. The task force made necessary revisions regarding “IoT and 5G Security Comprehensive Measures” and released “IoT/5G Security Comprehensive Measures 2020” in July 2020, while accounting for further discussions from short-term and longer-term viewpoints, the urgent recommendation’s details, and handling COVID-19 infections.

2. Enhancing Cybersecurity Measures

(1) Initiatives Pertaining to IoT

In order to take measures for vulnerable IoT devices, such as those with deficient password protection, MIC submitted to the National Diet a bill to partially amend the Telecommunications Business Act and the Act on the National Institute of Information and Communications Technology, National Research and Development Agency in March 2018. The amended laws were promulgated in May 2018 and went into force in November 2018.

Based on the amended laws, MIC and NICT, in cooperation with Internet service providers (ISPs), launched the “National Operation Towards IoT Clean Environment (NOTICE)” project in February 2019. In tandem with NOTICE, MIC, NICT, ICT-ISAC, and ISPs, working in partnership, started a program in June 2019 through which ISPs notify users of IoT devices that have been infected with malware.

As of March 2020, 50 ISPs had joined these programs, and a survey was made of the approximately 110 million domestic IPv4 addresses managed by these ISPs.

Furthermore, MIC revised the Ordinance Concerning Terminal Facilities, etc. in March 2019 and enforced the revisions in April 2020 to add security measures to technical standards on IoT devices. This move was taken as a measure to prevent the malicious use in cyber

attacks of password setting deficiencies and other security vulnerabilities in IoT devices to be produced in the future.

(2) Initiatives Pertaining to Human Resources Development

MIC has been actively promoting initiatives (CYDER, Cyber Colosseo, and SecHack365) at the NICT’s “National Cyber Training Center” since April 2017 to develop cybersecurity personnel with practical skills and capabilities to combat skillful and complex cyber attacks.

(3) Initiatives to Encourage Implementation of Security Measures by Private Companies and Organizations

MIC began holding meetings of the “Information Disclosure Subcommittee” under the Cybersecurity Task Force in December 2017. The subcommittee summarized issues concerning disclosure by private enterprises of information on their security measures and examined policies necessary for the broad take-up of security measure disclosures among companies.

Based on the subcommittee’s report, MIC started establishing reference handbooks for companies embarking on disclosing information about their cybersecurity measures. In June 2019, the ministry released the “Handbook on Disclosures of Information on Cybersecurity Measures”.

Section 6 Promoting ICT Use and Application

1. Promoting ICT Application in Education, Medicine, and Other Fields

(1) Promotion of ICT Use and Application in the Field of Education

MIC, in cooperation with MEXT, ran the “Smart School Platform Demonstration Project” from FY 2017

to FY 2019. In FY 2020, MIC is actively promoting the widespread adoption of the “Smart School Platform Technical Specifications”, the outcome of the demonstration project, in schools across the country.

(2) Promotion of ICT Use and Application in the Fields of Medicine, Nursing, and Health

a. Promoting Networking in the Fields of Medicine, Nursing, and Health

MIC conducted demonstration projects in FY 2019 aimed at constructing a diagnostic assistance model that makes use of medical prescription data.

MIC carried out demonstration projects and other activities aiding the construction of telemedicine models that include the doctor-to-doctor (DtoD) field.

b. Promoting Research into Using and Applying Cutting-Edge ICT in the Fields of Medicine, Nursing, and Health

MIC developed a health examination assistance system using artificial intelligence (AI) trained using high-definition images over a three-year period from FY 2017 to FY 2019 through a research project led by AMED. MIC also conducted a “project promoting research into health guidance systems using AI”. Starting from FY 2020, the ministry will conduct research into networks and technologies necessary to realize advanced telemedicine and develop related data platforms using AI and the IoT.

(3) Promoting Telework

MIC encourages the fostering and transforming of mindsets toward telework through such initiatives as “Telework Days” and “Telework Month”. In addition, the ministry holds seminars for companies and gathers and introduces prior cases of telework adoption, so that companies and organizations can solve telework issues by gaining knowledge on telework adoption and referring to prior cases.

MIC held seminars for companies in 13 locations across the country in FY 2019. The seminars presented the most recent teleworking trends, labor management considerations, and information security considerations

as well as cases of companies that have adopted telework. MIC names and publicizes certain companies adopting and using telework as “Pioneers in Teleworking” and the “100 Pioneers in Teleworking”. It also hands out “Minister of Internal Affairs and Communications Awards” to recognize especially outstanding initiatives among the 100 Pioneers in Teleworking. In FY 2019, MIC selected 11 companies as Pioneers in Teleworking and 32 companies as 100 Pioneers in Teleworking. In addition, four companies, including SMEs, received Minister of Internal Affairs and Communications Awards.

MIC has also established and issued the “Telework Security Guidelines”, a guide that dispels the concerns of companies and organizations about telework information security and aids them in adopting and using telework with reassurance. Furthermore, in light of the expansion of telework adoption even among SMEs as a measure to prevent the spread of COVID-19 infections, MIC set up a counselling system where companies can consult with security experts during and after telework adoption.

Through the establishment of telework support systems (telework support networks) in conjunction with SME assistance organizations, MIC is establishing support centers in local regions where SMEs can receive more direct support, holding consultation meetings and seminars in local areas, and taking other measures to promote telework adoption and use.

“*Furusato* (Hometown) Teleworking” consists of working arrangements in which jobs normally done in urban settings are performed at local satellite offices and other regional locations via teleworking. In FY 2020, as part of the “project promoting regional IoT implementation and shared use”, MIC is aiding the establishment of satellite offices to create telework environments that will help resolve regional issues.

2. Local Development Using ICT Infrastructure

(1) Town Development Using ICT

MIC promotes the construction of “data-driven smart cities”. As of FY 2019, MIC has assisted smart city projects by 14 municipalities and organizations.

The Cabinet Office, MIC, MLIT, and others at the Integrated Innovation Strategy Promotion Council jointly set up a study council in March 2019 for the construction of an architecture for more vigorous promotion of coordination among government smart city projects and data connectivity between different fields. Furthermore, the government set up the “Smart City Public-Private Partnership Platform” in August 2019 to accelerate smart city initiatives by bringing together related ministries and agencies and public and private actors.

(2) Comprehensive Support for Regional IoT Implementation and Shared Use

Ahead of the coming era in which AI, the IoT, and other technologies will reach a truly practical level, MIC began holding meetings of the “Regional IoT Implementation Promotion Task Force” in September 2016. The

ministry created “comprehensive support for regional IoT implementation”, which provides selectable support levels according to the status of a region and the development stage of implementation initiatives. This comprehensive support includes establishing a “comprehensive promotion framework” that brings together local governments, private companies, and other organizations in a variety of forms, and the “Regional IoT Implementation Promotion Projects”, which provides assistance to local governments engaged in IoT implementation. For FY 2020, MIC is providing “comprehensive support for regional IoT implementation and shared use”, which encourages shared use to lower adoption costs and increase the benefits from AI, the IoT, and other technologies to local governments.

(3) Promotion of the Establishment of Free Public Wi-Fi Environments

MIC established the “Wi-Fi Environment Development Plan Contributing to Disaster Prevention” in December 2016 and updates the plan annually. To push Wi-

Fi environment development carried out by ordinary local governments and joint public-private ventures to reach the plan's targets, MIC has been running a "project that assists the development of public Wi-Fi environments" since FY 2017.

(4) Contribution to Building Recovery Communities through ICT Infrastructure Establishment and the Restoration of ICT Infrastructure

MIC is conducting the "ICT Infrastructure Establishment Project for Recovery Community Building" in FY 2020, as a "project to advance the use of ICT in regions affected by disasters". The project assists local governments that are establishing ICT infrastructure together with new community building toward recovery.

(5) Promotion of Cashless Payments through the Deployment of JPQR, a Unified Standard for QR Code Payments

The "Follow-up on the Growth Strategy", a June 2019

Cabinet decision, set as one of its aims the promotion of cashless payments and set the target of doubling the percentage of cashless payments to around 40 percent by the end of June 2025.

The "Payments Japan Association" of related organizations and businesses was established in July 2018 to promote cashless payments. (MIC, METI, and other government bodies participate as observers.) The association studied the standardization of QR code payments and other forms of payments and set out the "Guidelines for Unified Standard Code-Payment Technologies" in March 2019. MIC, in partnership with the association and METI, conducted demonstration projects of the unified JPQR standard based on the guidelines in small retail stores in four prefectures starting in August 2019.

Regarding payment data, MIC is implementing projects in FY 2020 to construct models that use and apply payment data and purchase data in order to create incentives for the use of cashless payments in local regions.

3. Creating Environments Where Everyone Can Enjoy Convenience through ICT

(1) Promoting Support for ICT Use and Application by Older and Disabled People

MIC runs the "Research and Development of Technology Project for Bridging the Digital Divide", which subsidizes the funds companies require to conduct R&D into technologies for communication and broadcasting services designed for older and disabled people. Furthermore, MIC, through NICT, runs a "subsidy program that promotes the development and provision of communication and broadcasting services that offer information barrier-free". The subsidy program is based on 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. Under the program, MIC subsidizes the funds companies require to develop and provide communication and broadcasting services designed for people with physical challenges.

MIC is examining arrangements of "digital application supporters" who are available in communities for older people and others to consult with and learn how to use ICT devices and services.

(2) Promoting the Expansion of Broadcasts for the Vision and Hearing Challenged

MIC established in February 2018 the "Guidelines concerning Information Accessibility in the Broadcasting Field", which set expansion targets for FY 2018 and beyond, so that people with vision and hearing impairments can readily obtain information via television broadcasts.

(3) Promoting the Expansion of Community ICT Clubs

MIC ran demonstration projects of "Community ICT

Clubs" from FY 2018 to FY 2019 (40 organizations over two years) as places where children, students, working adults, handicapped people, older people, and others can enjoy learning programming and other ICT usage skills together in their communities. Based on the Community ICT Club operational knowledge gained through the demonstration projects, MIC released guidelines as reference materials for operating Community ICT Clubs in July 2019.

(4) Raising ICT Literacy Levels

a. Promoting e-Net Caravans

MIC holds "e-Net Caravans" - a series of rotating classes given across the country to guardians, teachers, children, and students - for the purpose of increasing public awareness about safe use of the Internet by children. Working in partnership with MEXT, companies in the ICT sector, and other companies and organizations, e-Net Caravans were held at 2,660 locations nationwide in FY 2019.

b. Raising Internet Literacy Levels of Young People

In view of the importance of measures to raise the Internet literacy levels of young people and to promote the measures effectively, MIC developed the "Internet Literacy Assessment Indicator for Students (ILAS)" in FY 2011 as a test to visualize Internet literacy levels among young people. The ministry has been administering the test to measure the Internet literacy levels of young people each year to first-year high school students across Japan since FY 2012 together with a survey on their use of smartphones and ICT devices.

4. Deploying Cloud Services

The "Nationwide SME Cloud Implementation

Awards" were launched in 2019, with CLOUDIL as the

secretariat and an executive committee comprising the Japan Chamber of Commerce and Industry, the Central Federation of Societies of Commerce and Industry, the National Federation of Small Business Associations, and other related organizations. MIC is a co-sponsor of the

awards. The purpose of the awards is to collect and showcase examples of regional SMEs implementing cloud services resulting in higher revenues and more efficient business operations.

Section 7 Promoting ICT Research and Development

1. Promoting Research and Development Strategies

The “Integrated Innovation Strategy 2019”, a June 11, 2019 Cabinet decision, listed AI, quantum technology, and other technologies as fields where initiatives should be further strengthened. The Cabinet endorsed the “AI Strategy 2019” on the same date. Furthermore, the final report on “Quantum Technology Innovation Strategies” was completed on January 21, 2020.

The Subcommittee on Technology Strategy, under the Department of Information and Communications Technology of the Information and Communications Council, is examining “approaches for new ICT strategies” including technical issues in the ICT field that the country should place priority on, social implementation policies, and other related measures.

2. Enhancing Research and Development to Realize Cutting-Edge ICT in All Aspects of Society

(1) Promoting R&D into Innovative Optical Network Technologies

It is noted that data traffic volumes will explode in 2020 and beyond and that the communication capacities of networks everywhere are being stretched to their limits. In preparation for this situation, MIC has since FY 2018 been establishing innovative optical transmission technologies, such as multicore-fiber transmission technology and signal processing technology for five-terabit-per-second class optical transmissions. The ministry is also conducting R&D into base technologies for high-efficiency optical access networks that can efficiently accommodate demand for diversifying communication services.

(2) R&D into AI-Based Auto-Optimizing Control Technologies for Networks

MIC has been researching and developing “dynamic control technology for network functions through data connectivity” since FY 2019. The technology dynamically controls network functions according to the status of the network and services. The goal is to advance “AI networking”, in which AI systems are connected to other AI systems via networks.

(3) Promotion of R&D and Social Implementation of Multilingual Translation Technologies

MIC established the “Global Communications Plan” in 2014. The plan has advanced efforts to promote unencumbered global exchanges by removing the world’s “language barriers” through the use of NICT multilingual voice-based translation technology.

Specific efforts include the establishment of AI-learning computers (GPGPUs) to introduce deep-learning translation at NICT in order to improve the accuracy of translations and voice recognition and to expand the number of supported languages. During FY 2019, NICT

achieved a practical level of accuracy for translating short, sequential sentences among 12 languages.

Ordinary multilingual voice-based translation technologies require the speaker’s language to be preset before translating. NICT, however, developed a function that automatically recognizes the other party’s language. The organization implemented the function in October 2019 with auto-recognition of eight languages.

The “Multilingual Voice-Based Translation Platform” was constructed in April 2019. The platform was established to lay the groundwork so private companies and others providing translation services can access NICT-developed multilingual voice-based translation technology more easily and conveniently and thereby promote the social implementation of this technology.

MIC established the “Global Communication Plan 2025” in March 2020. The plan will promote R&D and other activities toward further advancement of multilingual translation technologies with the aim of realizing AI-based “simultaneous interpretation” by 2025 and ensuring its social implementation.

(4) R&D into Quantum ICT

NICT is conducting R&D into quantum cryptography that cannot be deciphered with computers and into quantum communications technology based on quantum signal processing that extracts information from weak optical signals. In the area of quantum communications technology, NICT in FY 2019 implemented a new method that can share keys that are secure according to information theory at high speeds among multiple legitimate recipients. It successfully demonstrated the sharing of a group key at 8 Mbps along an unobstructed transmission channel between NICT and the University of Electro-Communications (a distance of 7.8 kilometers).

(5) Promoting R&D into Advanced Dialogue Agent Technologies

MIC has been moving ahead with R&D and demonstration experiments since FY 2018 of advanced dialogue agent technologies. Advanced dialogue agents can hold considerate and empathetic conversations that reflect the Japanese omotenashi view of personal relations, recognized worldwide. This type of dialogue had been hard to realize with the previous “instruction execution” type of dialogue technologies. In FY 2019, the ministry released the core elements of the dialogue platform it had developed as open source, as a means of fostering a development community that will promote the use and

application of advanced dialogue technology.

(6) Promotion of Wireless Factories

MIC is engaged with R&D and international standardization of technologies providing optimized control of wireless communications in factories and other confined spaces, is pursuing international collaborations between Japan and Germany with the aim of the international deployment of the R&D outcomes, and is involved in personnel training in order to raise wireless usage literacy levels.

3. Assistance for Creating Innovation Using Competitive Funding

Competitive funding is a type of R&D funding that involves the solicitation of a broad range of R&D themes. Submitted themes deserving of funding are selected based on evaluations by a panel of experts and R&D funds are allotted to the researchers. MIC operates several competitive funding schemes for R&D in the ICT field, such as the “Strategic Information and Communications R&D Promotion Programme (SCOPE)”.

(1) Strategic Information and Communications R&D Promotion Programme (SCOPE)

Under the SCOPE competitive funding scheme, MIC seeks a broad range of novel R&D themes in the ICT field from universities, national R&D agencies, private

companies, local government research institutes, and other organizations. After a screening process by outside experts, the ministry commissions promising R&D themes. Since FY 2002, MIC has provided financial support to over 1,000 R&D themes.

(2) Innovation Program

MIC runs the “Innovation Program” to support attempts to solve technological problems that may become the seeds of disruptive innovations in the ICT field. In FY 2019, the program received 14,488 submissions. In the Disruptive Challenges category, nine entrants who passed through the final screening process began bold ventures to tackle technological problems.

4. Promoting Public Implementation of R&D Findings

(1) Application of ICT to Disaster Response

MIC has been engaged in R&D measures toward the implementation of disaster-resilient ICT since FY 2011, based on experiences during the Great East Japan earthquake. Industry-academic-government cooperative frameworks, especially the Resilient ICT Research Council, comprising MIC, NICT, universities, and private companies, are moving forward with the dissemination and deployment of R&D outcomes.

(2) Construction and Use of a Testbed to Accelerate the Social Implementation of Research Findings

NICT in FY 2019 examined future considerations (usage scenarios, functions, performance, etc.) for a new-generation network testbed that would aid demonstrations of cutting-edge ICT. (The testbed would consist of a wide area network and a distributed or clustered computing platform.)

5. Other Research and Development Programs

(1) Space Communications Technologies

MIC launched the “Forum on Future Visions of Space Use” in February 2018. The forum set up the “Task Force on Space Development” in August 2018, recognizing space as a new business frontier, to study, from a more expert perspective, new ICT-related core technologies needed to solve current social issues. The task force compiled a report on June 7, 2019.

(2) Future ICT Base Technologies

MIC and NICT conduct research and development into base technologies with the aim of realizing new ultra-high-speed wireless communication methodologies and sensing systems that make use of undeveloped extremely high frequency bands, such as millimeter waves and terahertz waves.

Section 8 Promoting International Strategies for ICT

1. Prioritized Promotion Themes for International Policy

MIC takes actions to support the overseas deployment of Japanese technology in the ICT field for the purposes

of bolstering the international competitiveness of our ICT industry and of promoting solutions to global

issues through the application of ICT.

Under the direction of the Minister for Internal Affairs and Communications, the “MIC Overseas Deployment Action Plan 2020” was established in April 2020. The action plan sets out a basic policy on overseas deployment promotion measures as well as plans for specific actions. The action plan establishes the “Five Principles for Overseas Deployment by MIC”, which adds the principles of “promotion of Data Free Flow with Trust (DFFT)”, “implementation of the Free and Open Indo-Pacific (FOIP) Strategy”, and “mobilization of policy re-

sources” to the previous “promotion of the SDGs” and “strengthening global competitiveness” principles.

The ministry promotes international rulemaking for cyber space, encourages international cooperation in the area of cybersecurity, seeks trade liberalization in the ICT sector within EPA and FTA frameworks, and strategically responds to international standardization. Through such efforts, the ministry facilitates conditions for overseas deployment of Japanese ICT and lays the groundwork for the promotion of the free flow of information.

2. Initiatives in International Frameworks

MIC is involved in policy consultations at such multi-lateral frameworks as the G7/G20, APEC, APT, ASEAN, ITU, the United Nations, WTO, and OECD and takes an active lead in the promotion of the free flow of information, the creation of safe and secure cyber spaces, the development of high-quality ICT infrastructure, and contributions to the achievement of the UN Sustainable Development Goals (SDGs).

MIC, MOFA, and METI held the “G20 Ibaraki-Tsukuba Ministerial Meeting on Trade and Digital Economy”

in Tsukuba, Ibaraki, on June 8 and 9, 2019. At the meeting, Mr. Masatoshi Ishida, Minister for Internal Affairs and Communications, serving as co-chair with Mr. Taro Kono, Minister for Foreign Affairs, and Mr. Hiroshige Seko, Minister of Economy, Trade and Industry, guided discussions on such matters as the promotion of the SDGs, the advancement of data free flow with trust (DFFT), examinations of AI principles, and a new common recognition of security in the digital economy.

Section 9 Promoting Public Administration and Disaster Prevention through ICT

1. Promoting Local e-Government

(1) Standardization of Local Government Information Systems and Operational Processes

MIC promotes the standardization and collaboration of local government information systems in the interest of avoiding duplicate investments and establishing platforms for the digitalization of administration. Specifically, the “Study Group on Standardization of Local Government Systems and Other Matters” is examining the standardization of resident record systems. The study group plans to prepare a standards specification and other materials by the summer of 2020.

(2) Promoting the Introduction of Innovative Big Data Processing Technologies

MIC promotes the adoption of innovative big data processing technologies such as AI and RPA in order to upgrade local government operations and increase their efficiency as well as to improve resident services. The ministry has engaged in development and demonstration experiments of these technologies and arranged conditions under which local governments can make confident use of AI. In addition, MIC has provided assistance to 78 local governments to defray the initial costs of deploying RPA.

(3) Cloud-Based Information Systems and Security Measures for Local Governments

MIC launched the “Study Group on Revisions to Information Security Policy Guidelines for Local Governments” in 2019 to dramatically strengthen the informa-

tion security measures of local governments in light of the demands of a new age: namely, the “Cloud-by-Default Principle”, the transition to online administrative procedures, work-style reforms, and the increase in cyber attacks. The study group released on May 22, 2020 “Revisions to Local Government Information Security Measures”, which compiled matters pertaining to the revision of local government information security measures.

(4) Enhancing of Infrastructure to Achieve Citizen-Centered e-Government and More Efficient Administrative Procedures

The Basic Resident Registration Network System (Juki-Net) has operated stably for over 15 years since it went into operation in August 2002. The system has assumed a pivotal role in improving convenience to residents, as a platform for e-government and local e-government, and, since October 2015, as the platform for the Individual Number System.

Municipalities began issuing Individual Number cards in January 2016. Residents can obtain various forms of ID and certificates at convenience stores and other retail outlets using their Individual Number cards (convenience store issuance). Convenience store issuance has been implemented in 748 municipalities as of April 1, 2020.

The Japan Agency for Local Authority Information Systems provides a public certification service for individuals, based on the “Act on Certification Business of Local Government Information System Mechanisms

Pertaining to Electronic Signatures”, in order to improve convenience to residents and to streamline and optimize administration management. Applications and other procedures that can be performed using the public certification service for individuals include national tax declarations and real estate registration applications. As of April 1, 2020, the service works with procedures for eight ministries, agencies, and offices at the national

government level and procedures for all prefectures and municipalities at the local government level. The scope of the public personal authentication service, which had been limited to administrative bodies, was expanded to include private businesses in January 2016. As of March 31, 2020, 14 private businesses had received authorization from the Minister for Internal Affairs and Communications.

2. Promoting Informatization in the Disaster Preparedness Field

(1) Establishment of Resilient Fire and Disaster Prevention Communication Networks

There are five major fire and disaster prevention communication networks connecting the national government, the Fire and Disaster Management Agency, local governments, residents, and other organizations: (i) the central disaster prevention wireless network for information collection and transmission within the national government; (ii) the fire and disaster prevention radio system linking the Fire and Disaster Management Agency and prefectures; (iii) the prefectural disaster prevention radio system linking prefectures and municipalities; (iv) the municipal disaster prevention radio system linking municipalities and residents; and (v) the satellite communication network linking the national government and local governments or linking local governments together.

(2) Deployment of Mobile Communication Equipment for Disaster Responses

MIC lends out mobile communication equipment for disaster responses (as of April 2020, 300 satellite phones, 280 MCA radios, and 900 convenience radios have been deployed to Regional Bureaus of Telecommunications and other organizations nationwide) to local governments and other agencies to ensure they have means of communication in disaster-affected zones when mobile phone and other communication networks are disrupted.

(3) Assurance of Emergency Communication Means during Disasters

In preparation for disasters and other emergency situations in which telecommunication services provided over public communication networks are difficult to access, MIC started sequentially deploying MIC-developed ICT units (attach? case-type units) to Regional Bureaus of Telecommunications and other organizations in FY 2016. The ministry has also established systems to ensure local governments and other agencies have necessary communication means, such as lending out ICT units in response to requests from disaster-response authorities at local governments and other agencies.

(4) Stable Operation of the Nationwide Instantaneous Alarm System (J-Alert)

MIC’s Fire and Disaster Management Agency has developed the “National Instantaneous Alarm System (J-Alert)”. J-Alert instantaneously transmits, from the national government to residents, information on events requiring immediate action such as ballistic missile information, earthquake early warnings, and tsunami warnings. The alerts are distributed as early-warning email messages sent to mobile phones and other devices as well as via municipal disaster prevention radio systems and other communication means.

Section 10 Developments in Postal Service Administration

1. Promoting Postal Service Administration

MIC examines policies and appropriate system implementations to ensure the stable provision of universal postal services now and into the future. Furthermore, to have post offices function as safe and secure bases for

citizens’ lives, the ministry encourages the deployment of new, customer-oriented services and the improvement of post office convenience.

2. Promoting Postal Service Administration in the International Field

MIC promotes the international deployment of Japanese-style postal infrastructure systems as part of the government’s “Infrastructure System Export Strategy”. The initiative provides Japan’s superb knowledge and technology in the area of postal operations to primarily emerging and developing countries to assist countries with modernization and advancement of their postal operations. Under this initiative, MIC not only provides

cooperation on postal operations themselves but also encourages the entry of Japanese companies with relevant knowledge by proposing new businesses and services to the partner country that utilize postal networks and post offices.

3. Promoting the Correspondence Delivery Business

As of March 31, 2020, 548 operators had entered the specified correspondence delivery business. Specified correspondence delivery businesses offer only limited

correspondence delivery services that do not undermine the provision of universal postal mail services.