Section 6 Promoting ICT Usage

1. Summary

(1) Initiatives so far

Since the establishment of the Information Technology Strategic Headquarters and the enactment of the Basic Act on the Formation of an Advanced Information and Telecommunications Network Society (Act No. 144 of 2000)[41] in 2000, Japan has promoted the use of ICT under various national strategies including e-Japan Strategy. Based on these strategies, MIC has promoted the use of ICT in various sectors such as medical care/health and regional revitalization in order to deal with Japan's social/economic challenges including the declining birthrate and aging society and their associated labor shortages, increases in medical/care expenses, and intensified natural disasters.

(2) Future challenges and direction

Since before the COVID-19 pandemic, Japan has been facing serious social issues including aging population with fewer children, and it has been said that it is essential to make the most use of digital technologies to improve productivity and recover the economy. Under the prolonged impact of the COVID-19 pandemic, promotion of ICT usage across society is further increasing in importance.

It is expected that the use of ICT will improve the productivity of corporate activities though replacement of simple works and routine works by machine and creation of higher value added services. In particular, it is thought to help growth of SMEs and other enterprises facing difficulties to secure sufficient labor force.

ICT usage by enterprises can create new business models, such as Personal Data Trust Bank, and both enterprises and citizens can obtain the benefits from the progress of cashless payments and cloud services. In this way, it is expected that ICT usage will contribute to the revitalization of Japan's economy. Because the use of AI by enterprises is expected to bring great benefits broadly to Japan's economy and society, it is required to implement safe, secure and trusted AI in society.

As described in Chapter 3, Section 8, overall, the use of ICT has been progressing, but there are some gaps in Internet usage rate depending on age, geographical and other conditions. In order to realize digitalization that "leaves no one behind," it is necessary to narrow the digital divide caused by age/geographical and other conditions by eliminating anxiety/resistance to digitalization among the public including the elderly, and by advancing initiatives to improve people's ability to use digital technologies, for example.

With the rapid spread of smartphones in recent years, many young people have come to use social media including SNS and online games. It has become essential to improve the "media and information literacy"[42] of the whole of society, including kids, their guardians and teachers, so that young people can safely and securely use smartphones and social media by understanding the risks associated with the use and countermeasures against such risks.

2. Promoting ICT usage that will contribute to solving social/economic problems

(1) Promoting local 5G

i Overview of local 5G

Unlike nationwide 5G services provided by mobile operators, local 5G is a 5G system that can be flexibly constructed by various entities including local enterprises and governments in their building or premise based on individual needs of the community or industry. The use of local 5G is expected in various fields, usage forms and environments to deal with various challenges and create new values.

ii Development demonstrations for realizing local 5G services to solve issues

In order to spread local 5G, since fiscal 2020, MIC has tackled "development demonstrations for realizing local 5G services to solve issues" to implement technical studies on radio wave propagation under a variety of use environments assuming actual use scenes, while at the same time creating solutions using local 5G.

Furthermore, for the purpose of promoting local 5G introduction to various fields including factories, farm land, transportation, medical practice, construction sites and disaster sites, the "Public-private Liaison Conference to Spread Local 5G" consisting of the government offices responsible for the respective fields, groups representing the respective business fields, organizations and other members to promote local 5G was established in January 2021. The Conference functions as a hub connecting entities introducing local 5G to relevant government agencies, common carriers, venders and other members.

iii Promoting 5G development through tax system

With the aim of promoting introduction of safe and reliable 5G and solving various social issues in the communities by using 5G, while at the same time strengthening international competitiveness of Japan's economy, a

[41] This act was abolished by the Basic Act on the Formation of a Digital Society (Act No.35 of 2021).

[42] This is a concept combining media literacy and information literacy, as advocated by UNESCO. The concept includes other various related literacies such as news literacy and digital literacy. This refers to a set of competencies for citizens to share, create, access, search for, understand, evaluate and use information and media contents in every format in critical, ethical and effective ways and by using various tools, with the aim of participating and engaging in personal, professional and social activities.

tax system to promote introduction of 5G was established in fiscal 2020. In the fiscal 2022 tax reform, toward realization of the "Vision for a Digital Garden City Nation," the application time limit of the tax benefits was extended after the review to promote base station development in rural areas. Specifically, the time limit of application of the special measure to allow tax credit or special depreciation for some facilities of national 5G base stations and local 5G was extended to the end of fiscal 2024, after the revision of target equipment and introduction of gradual reduction in tax credit rate from maximum 15% to ensure concentrated development in rural areas in the next 3 years. The special measure to halve the basis of fixed property tax of certain facilities of local 5G for three years after the acquisition was extended to the end of fiscal 2023 after an appropriate review.

(2) Promoting telework

i Overview of telework

Telework is a flexible working style to use time and place effectively taking advantage of ICT. It can realize diverse work styles according to the life stage and lifestyle of each person including families with small children, senior citizens, and persons with disabilities and is also effective for ensuring business continuity in times of disaster or pandemic. Because people can work in the place where they wish to live while maintaining income, telework can create flow of people from urban areas to rural areas.

With the spread of COVID-19 since 2020, telework has been widely used to reduce commuting mostly in urban areas. However, telework implementation rate remains low in SMEs and rural areas. Furthermore, because many enterprises introduced telework to prevent infection, the telework implementation rate tends to decrease when declaration of a state of emergency is cancelled.

ii Implementing "Telework Days"

With the aim of easing traffic congestion in the city centers and establishing telework, since 2017, MIC together with relevant government offices has implemented "Telework Days" in summer to call on enterprises and others to implement telework all over Japan. In 2021 when Tokyo Olympic Paralympic Games was held and movement of athletes and people involved was expected, MIC designated the period from July 19 to September 5, which include the period of the games, as "Telework Days" for concentrated implementation of telework.

iii Supporting the spread of telework

In order to increase the incentive for enterprises to introduce telework through selection and publication of advanced cases and collect examples for reference by enterprises considering telework, since 2015 MIC has selected "Top Hundred Telework Pioneers" to publicly recognize enterprises with sufficient record of using telework. Among them, enterprises implementing especially excellent initiatives of telework in terms of management performance, ICT usage and contribution to regional revitalization are awarded with the MIC Minister Award.

With the aim of supporting introduction of telework in SMEs and rural areas where the telework implementation rate remains low, MIC in collaboration with the local chambers of commerce and industry and associations of labor and social security attorneys has established telework support networks across Japan and implements public relation activities in collaboration with regional bureaus of telecommunications and others. In addition, MIC is working to spread better telework by providing free individual consultation by experts (telework managers) for enterprises, etc. considering introduction or improvement of telework. Since fiscal 2022, these supports have been provided integrally with labor-related telework consultation by the Ministry of Health, Labour and Welfare as "one-stop telework support projects."

Furthermore, in order to address information security concerns that are often cited as challenges for telework introduction, MIC formulated "Telework Security Guidelines" and "Telework Security Guide for SMEs (Checklists)" for reference by enterprises, etc. when implementing telework. In fiscal 2021, MIC released their revised editions.

(3) Promoting Smart City vision

Expanding the Projects Related to ICT Town Development initiated in fiscal 2012, MIC has implemented "data-linkage-type smart city promotion projects" since fiscal 2017. The projects promote introduction of data collaboration infrastructure securing interoperability, extensibility and security to enable cross-sectional collaboration with the aim of solving various problems facing cities.

In fiscal 2021, the Cabinet Office and relevant authorities set up the "Joint Review Committee for Projects Related to Smart Cities" to promote Smart Cities in close cooperation with the relevant authorities, and MIC supported the Smart City projects in nine municipalities/groups.

(4) Promoting ICT use in education

In order to further promote the use of ICT in education, MIC in cooperation with MEXT implemented "Smart School Platform Demonstration Project" using data from the "school affairs system" used by teachers and "lesson/learning system" used also by students to examine safe, effective and efficient data linkage methods of the systems from fiscal 2017 to 2019. In fiscal 2020, MIC released "Smart School Platform Technical Specifications" that are the outcome of the project on its website and worked for its adoption. Since fiscal 2021, toward realization of a "digital education platform" that is the basis of information sharing between digital learning systems held by business operators outside of school, MIC has been studying necessary technical specifications (reference models).

In fiscal 2020, MIC constructed the model of a local 5G usage in education. Specifically, MIC built a 5G use environment in schools by installing local 5G base stations and implemented demonstrations taking advan-

tage of ultra-high speed and other 5G features to disseminate use cases.

(5) Promoting ICT usage in the medical field

Japan has plunged into an ultra-aging society. In order to solve problems including increasing medical/care expenses and uneven distribution of medical resources and to enhance medical products/services, it is imperative to promote networking and pioneering ICT usage in the fields of medicine, nursing and health.

To this end, MIC has implemented research projects by Japan Agency for Medical Research and Development (AMED), which include: research on networks necessary for advanced telemedicine and development of data infrastructure using AI/IoT since fiscal 2020; research on networks necessary for advanced telemedicine for two years from fiscal 2020; and research toward practical application of advanced telemedicine networks since fiscal 2022.

Furthermore, in order to promote use of PHR[43] by private business operators, MIC together with MHLW and METI studied the requirements to be observed by private PHR business operators, and compiled and released "Basic Guidelines for the Management of Health and Other Personal Data by Private-sector PHR Business Operators" in April 2021 (partially amended in April 2022).

(6) Developing disaster prevention information systems

Japan is one of the world's top nations in terms of natural disasters and has sustained severe social/economic damage each time it was hit by a large-scale natural disaster. As large-scale natural disasters including Nankai Trough earthquakes are anticipated in the future, it is important to alleviate human and physical damages from disasters by efficiently using ICT.

i Developing disaster resistant communication networks for firefighting and disaster prevention

Collection and communication of information pertaining to damage situations requires a communication network that can secure communication in times of disaster. For this purpose, communication networks connecting the state, the Fire and Disaster Management Agency (FDMA), local governments, residents and others have been constructed. The networks consist of: (1) Central Disaster Management Radio Communications Network collecting and conveying information within the government, (2) Fire Defense Disaster Prevention Radio Network connecting FDMA and prefectures, (3) Prefectural disaster management radio communications system connecting the prefecture and municipalities, (4) municipal disaster management radio communications system connecting the municipality and residents, and (5) satellite communication network connecting the state and local governments, and local governments to local governments. Regarding the satellite communication network, MIC is promoting measures to introduce high-performance and inexpensive next-generation systems.

ii Deploying mobile communication devices for disaster management

In order to secure communications in afflicted areas when communication by mobile phone, etc. is shut down, MIC lends mobile communication devices for disaster management to local governments and others. As of April 2022, 317 satellite cell phones, 280 MCA radios and 1065 simplicity radios are deployed in Regional Bureaus of Telecommunications, etc., across the country. Use of these devices is expected to complement communications of information essential for a series of activities from collection and circulation of disaster information during the initial response to prompt and smooth operation of emergency restoration activities.

iii Securing means of emergency communication at times of disaster

In preparation for situations where it is difficult to use telecommunication services through a public telecommunication network at times of disaster, ICT units (attaché case type) developed by MIC have been deployed in Regional Bureaus of Telecommunications nationwide since fiscal 2016. A system has been established to help securing of necessary means of communication by lending the units at the request of local governments and other disaster prevention organizations.

iv Stable operation of Nationwide Instantaneous Alert System (J-Alert)

FDMA has established J-Alert, a system to instantaneously transmit information on situations requiring immediate response, which include ballistic missile information, earthquake early warning and tsunami warning from the government to residents through emergency alert mails to mobile phones and the municipal emergency radio system. In order to transmit emergency information promptly and surely through J-Alert, MIC improves its operations by fixing bugs, and enhances its functions, which include multiplexing of information transmission means linked to J-Alert.

v Promoting use of L-Alert

MIC is promoting the use of L-Alert, which is a common platform for unified transmission of disaster information including evacuation orders issued by local governments to diverse media including a large number of broadcast stations and internet business operators. Fukuoka prefecture started to use L-Alert in April 2019 completing the use in all 47 prefectures in Japan. It has spread across the country to play a part as disaster information infrastructure.

For further promotion of spread and use of L-Alert, MIC tackled demonstration to map disaster information provided through L-Alert to help visitors and other people who are not familiar with the region to understand the area subject to the evacuation order, etc. easily. In addition, MIC has provided training on L-Alert for local

[43] Abbreviation for Personal Health Record and generally refers to lifelong personal health/medical information (e.g., health examination results, vaccination/medication history, inspection results, vital signs checked by the person). Its accurate grasp as electronic record and use for health promotion by the person is expected.

government officers and other users.

(7) Promoting the use of personal number card/public personal authentication services

In the process of coping with the COVID-19 pandemic, various challenges of digitalization have become apparent, which has increased the need to enhance the convenience of the individual number cards essential in a digital society. In the "Toward Drastic improvement of the individual number system and national/local digital infrastructure (national/local digitalization guidelines)" of the Digital Government Action Plan (Cabinet Decision on December 25, 2020), it was decided to consider mounting of an individual card function (digital certificate) on smartphones.

In response, MIC started to hold "The Study Group on Smartphones with Individual Number Card Functionality" consisting of external experts and other members in November 2020. The study group compiled the second report on the direction of future initiatives for smartphones with individual number card functionality in April 2022. Specific studies and construction will be carried out by the Digital Agency.

3. Promoting data distribution/use and new businesses

(1) Social implementation of the Personal Data Trust Bank

In order to promote appropriate use of personal data including private information, MIC and METI compiled the "Guidelines on Accreditation of Information Trust Function version 1.0" regarding voluntary certification of personal data trust bank by private organizations, etc. in June 2018. The guidelines focus on use of data originating from individual users and consist of (1) accreditation criteria, (2) entries of model agreement, and (3) accreditation scheme. Based on the guidelines, the Information Technology Federation of Japan that is an accreditation organization decided the first "data trust bank" accreditation in June 2018. "Data trust bank" accreditation was made for seven companies in total by February 2022.

Later, the guidelines were reviewed. In August 2021, revision was made regarding the issues that came to surface in the process of operation of the scheme, which include handling of health/medical information and selection of third party recipients. The result was released as the "Guidelines on Accreditation Scheme of Information Trust Functions version 2.1." In April 2022, MIC released "Draft Guidelines on Certification of Information Trust Functions version 2.2" and "Draft Summary of Discussion on Handling of Data Profiling by Personal Data Trust Banks" based on the 2020 and 2021 Act on Protection of Personal Information and discussions on the ideal state of profiling rules at personal data trust banks.

(2) Promoting cashless payment

The "Follow-up on Growth Strategy" (Cabinet Decision in June 2019) decided to promote cashless payment toward the goal of doubling the percentage of cashless payment to about 40% by June 2025.

Among cashless payment means, code payment has a challenge of troublesome operation for shops introducing multiple services among many services. To address this issue, Payments Japan established as an organization to promote cashless payment by concerned bodies and business operators (its observers include MIC and METI) formulated "the Guideline for Unified Technical Specification of Code Payment" in March 2019 and the unified code based on the guideline was named JPQR. Since then, code payment has been promoted with focus on restaurants, retail stores, barber shops/beauty salons, taxis and other industries highly compatible with JPQR, and municipality counters handling fees for issuing various documents including resident cards. By the end of fiscal 2021, about 13,000 shops in total had introduced JPQR.

In fiscal 2021, MIC implemented a demonstration project for shops in communities to independently use cashless payment/purchase data and conducted studies toward formulation of guidelines.

(3) Promoting introduction of cloud services

With the spread of cloud services including ASP, SaaS, PaaS and IaaS, it has become necessary to create an environment for users to obtain sufficient information for comparison, assessment and selection of cloud services. To this end, MIC formulated and released "Information Disclosure Guidelines for Safety and Reliability of Cloud Services" in 2011 (partially revised in 2022). An example of using the guidelines in the private sector is the establishment by the Japan Cloud Industry Association (ASPIC) of a certification system by sector for information disclosure by cloud service providers.

In addition, MIC is working for dissemination of good practices of cloud service in collaboration with industry groups.

(4) Discovery/fostering of ICT ventures

Since the majority of the world's top 10 enterprises in market capitalization are start-up ICT companies, it is imperative for Japan to create and foster ICT venture companies that are sources of innovations. Toward discovery and fostering of ICT ventures, MIC and NICT in collaboration with universities, technical colleges, local governments, chambers of commerce and industry and other partners, are working to discover young talents and enterprises nationwide, provide mentoring to them and hold "Entrepreneurs' Koshien" and "Entrepreneurs' EXPO" where business plans are presented by students and venture companies who won local district primaries.

(5) Promoting the spread of AI

It is expected that linking of AI with other AI, information systems, etc. via the internet (AI networking) will drastically increase both benefits and risks, while broad-

ly spreading them without being limited by space.

"Conference toward AI Network Society" launched by MIC in October 2016 studies social, economic, ethical and legal issues for promotion of AI networking. The conference compiled and released "Draft AI R&D GUIDELINES for International Discussions"[44] summarizing the matters to be noted in AI development in July 2017 and "AI Utilization Guidelines"[45] summarizing the matters to be noted in AI utilization in August 2019. Later, the conference released reports compiling ambitious initiatives regarding AI by enterprises in 2020 and 2021[46] and continues to work toward promotion of "social implementation of safe, secure and trusted AI."

In addition, MIC has actively participated in international discussions on AI at G7, OECD and other international conferences. In particular, Japan will chair the next Global Partnership on AI (GPAI) scheduled around the end of 2022. GPAI is an international initiative established in June 2020 to guide the responsible and "human-centric" development and use of AI. MIC continues to disseminate information at various opportunities and actively contribute to international discussions.

4. Creating Environments Where Everyone Can Enjoy the Convenience of ICT

In order to realize digitalization that "leaves no one behind" by bridging the digital divide due to disabilities or age, MIC is actively promoting various measures for barrier-free information, while at the same time working to improve the information literacy of youth.

(1) Supporting R&D for barrier-free information

With the aim of bridging the digital divide due to disabilities or age, MIC provides subsidies to promote barrier-free information in the communication and broadcasting sectors. Specifically, "R&D on technologies to bridge the digital divide" program provides necessary funds to enterprises conducting R&D on technologies regarding communication/broadcasting services for people with disabilities and the elderly. The subsidy was granted to 4 entities in fiscal 2021.

Furthermore, 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 (Act No. 54 of 1993) MIC through NICT provides "subsidies for promotion of provision/development of barrier-free information communication/broadcasting" to enterprises providing or developing communication/broadcasting services for disabled persons. The subsidy was provided to five entities in fiscal 2021.

(2) Providing phone relay service as public infrastructure

"Telephone relay service" refers to a service where sign language interpreters mediate in communications between persons with hearing impairment (persons having difficulty communicating due to a disability of hearing, language functions, phonetic functions) and persons without hearing impairment by interpreting sign language/letters of persons with hearing impairment and making phone calls accordingly.

In order to ensure proper provision of "phone relay service," the Act on Facilitation of the Use of Telephones for the Persons with Hearing Impairments, etc. (Act No,53 of 2020) was enforced in December 2020, and the service as public infrastructure was started in July 2021 by The Nippon Foundation Telecommunication Relay Service that is designated as a telephone relay service providing body.

(3) Improving accessibility of the websites of public organizations

In order to facilitate the use of public institution websites by everyone, including the elderly and persons with disabilities, MIC formulated "Guidelines for operation of public websites for everyone (2016 edition)" in April 2016 to support accessibility improvement of websites of the national and local governments and other public organizations. In fiscal 2021, MIC implemented a questionnaire survey on the current status of website accessibility at public organizations and a survey on JIS correspondence status of their websites.

(4) Supporting digital use by the elderly and other people

In order to bridge the digital divide and create an environment where everyone can obtain the benefits of digitalization with the advancement of digitalization across society, MIC is tackling "Project on Digital Utilization Support for Users." The project supports the elderly and other people having concerns about using digital technology through advice and consultation on online administrative procedures using smartphone, etc. in workshops. In fiscal 2021, a workshop was held at more than 2,000 locations, many of which are mobile phone shops. (See Column 3 for detail.)

(5) Improving media and information literacy among youth

i Dissemination and awareness raising activities

MIC cooperates with "ICT Conference for High School Students" that aims to help improvement of the internet environment for youth by providing high school students with opportunities to think about the desirable ways of ICT utilization, listen to opinions of other people, discuss, form and present their opinions. MIC also implements "e-net Caravan," which is a lecture on demand for dissemination and awareness raising for safe internet use by youth, and develops "Case Study of the Internet Trouble."

In the broadcasting sector, MIC is working to improve media literacy of youth by: dissemination and awareness raising by lending the learning materials for elementary,

[44] Draft AI R&D GUIDELINES for International Discussions https://www.soumu.go.jp/main_content/000499625.pdf
[45] AI Utilization Guidelines https://www.soumu.go.jp/main_content/000809595.pdf
[46] "Report 2020" https://www.soumu.go.jp/menu_news/s-news/01iicp01_02000091.html
"Report 2021" https://www.soumu.go.jp/menu_news/s-news/01iicp01_02000097.html

junior-high and high school students, which MIC has developed, and opening a website "media literacy in the broadcasting sector" to develop and post online teaching materials and lesson packages for teachers (guidance plan, lesson report, worksheet, etc.).

ii Implementing tests to evaluate internet literacy of youth

MIC developed the Internet Literacy Assessment indicator for Students (ILAS) to evaluate online literacy of youth in fiscal 2011. Every year since fiscal 2012, MIC has implemented the ILAS test for high school first years and equivalents nationwide to assess online literacy of youth, along with a questionnaire survey on actual use of smartphones and other information and communication equipment.

iii Promoting spread of Community ICT Clubs

MIC is working to spread "Community ICT Clubs" that provide children with opportunities to learn programming and other ICT skills in the community, while at the same time contributing to the development of human resources of the community by taking up local challenges as a theme. Specifically, MIC posted information on the activities conducted by Community ICT Clubs in various places across the country under the past demonstration projects (fiscal 2018 and 2019), and built a national network consisting of "Community ICT Clubs" implementing bodies.