総務省

Digital Infrastructure Development Plan 2030

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Digital Infrastructure Development Plan 2030

- In order to cope with the diversification and complexity of regional and social issues and to maintain Japan's growth potential under a declining population, **it is essential to fully utilize digital technologies, such as generative AI**, and **digital infrastructure must be developed to support this**.
- Preparing for future disasters, etc., **enhancing the strength and flexibility of communications infrastructure is another issue**.
- In order to address these issues**, the "Digital Infrastructure Development Plan 2030" has been formulated** to promote the development of Japan's digital infrastructure in an integrated and efficient manner by **identifying the policies and specific measures for the development of digital infrastructure that will be necessary by around 2030**.

Direction for realization

Regional development
Improve the lives of residents through data utilization, etc.

National Resilience
Secure communication capabilities through multi-layered infrastructure development and decentralized locations

Strengthening international competitiveness
Ensure autonomy of core technologies and systems, leading to capture of global markets.

Promote necessary initiatives in nine priority areas linked to the following three pillars

Approach to infrastructure development

● Develop infrastructure in anticipation of future demand ● Ensure options with a variety of providers and systems
● Develop infrastructure flexibly in response to local needs

1 Promote new digital infrastructure development in the age of AI

(1) Integrated development of data centers and submarine cables, (2) All-optical networks (APN), (3) Next-generation information and communications infrastructure (Beyond 5G) and quantum key distribution

2 Establish a network environment that supports the use of new digital infrastructure and digital technologies

(1) Optical fiber, (2) Mobile networks, (3) Non-terrestrial networks (NTN)

3 Issues that should be considered and addressed across the board, beyond specific digital infrastructure areas

(1) Strengthen communications infrastructure, (2) Promote infrastructure development and solution creation/dissemination in an integrated manner, (3) Division of roles between the public and private sectors

Promote new digital infrastructure development in the age of AI

Data centers and submarine cables	All-optical networks (APN)	Next-generation info-communication infrastructure and quantum key distribution

Development policies

- Promote AI use in rural areas by encouraging regional decentralization through efficient development of data centers and submarine cables with the Watt-Bit collaboration
- Distribute data centers to areas with spare power capacity by using APN technology to meet the current demand for data centers by around 2030
- Promote further decentralization with workload shifting in mind, and develop an environment where advanced AI services are provided by around 2035 at the latest

- Position it as the next-generation core infrastructure;
  establish the necessary technology; and begin full-scale deployment
- Establish APN interconnection technology by FY2028, and make APNs available across multiple operators at a variety of user locations in metropolitan areas by around 2030

- Promote R&D and social implementation toward the full-scale introduction around 2030 of a low-latency, high-reliability, low-power-consumption, next-generation info-communication infrastructure, centered on APN technology, which is the digital infrastructure that supports an AI society
- Aim to realize the social implementation of quantum key distribution around 2030; and strengthen international collaboration

Specific initiatives

(1) Promote integrated development of digital infrastructure through the Watt-Bit collaboration

Support regional distribution of data centers and submarine cables, as well as APN development in data centers, etc.

(2) Examine technologies that contribute to further regional decentralization

・Implement technology demonstrations that contribute to data center regional decentralization, etc.

(1) Establish interconnection and collaboration technologies among multiple businesses

Establish a common infrastructure technology that enables APNs operated by multiple operators to be interconnected and linked

(2) Establish an environment to verify use cases, etc.

・Gradually develop testbeds to verify use cases, etc.
・Promote demonstrations of APN connections between data centers

(1) Accelerate the realization of next-generation info-communication infrastructure (Beyond 5G)

Provide integrated support for R&D of wired and wireless technologies needed to realize Beyond 5G

(2) Promote social implementation of quantum key distribution

・Create use cases by expanding and upgrading the quantum key distribution testbeds
・Promote R&D of innovative quantum communication technologies

Establish networks that support the use of new digital infrastructure and digital technologies

Optical fiber

Development policies

- Complete the development of underserved areas as a physical foundation for enjoying the benefits of digital technology, and maintain the networks already in place by all political means
- Aim to achieve a 99.9% nationwide household coverage rate by the end of FY2027
- Assist municipalities that wish to transfer public facilities to the private sector so that they can ensure early and smooth transitions

Specific initiatives

(1) Eliminate underdeveloped fiber-optic networks

Promote optical fiber installation in municipalities that want it

(2) Support maintenance and management of optical fiber

- Operationalize the grants for broadband services Establish a system in line with the assigned responsibility to provide final protection
- Enhance support for the transition of public facilities to the private sector

(3) Utilize regional councils, etc.

Mobile networks

Development policies

- Expand the use of high-quality telecommunication services with 5G-only experience

(Sub-6[*1] deployment rate: 95% at the end of FY2030
70,000 millimeter wave base stations at the end of FY2030
5G SA[*2] In principle, all base stations will support SA)

- Ensure communications environments that cover non-residential areas

(Highways and national roads coverage: 99% at the end of FY2030)

- Ensure good radio wave usage environments to fully utilize 5G features

*1 Frequencies above 3.6 and below 6 GHz will be allocated for 5G.
*2 Abbreviation for 5G Stand Alone By using a dedicated 5G core network, this method can provide services that take advantage of 5G features.

Specific initiatives

(1) Expand the use of high-quality communication services that take advantage of 5G features

Promote the development of mobile networks, such as 5G base stations, based on development goals

(2) Ensure communications environments in non-residential areas

- Consider systems to promote the use of portable base stations, etc., and promote their development
- Examine how to secure communications in the future

(3) Reinforce the system for monitoring radio waves

Non-terrestrial networks

Development policies

- Realize a stable environment for satellite communications, especially high-speed, high-capacity satellite communications using low Earth orbit satellites (satellite constellations)
- Accelerate implementation of HAPS[*3] in Japan, aiming for 2026. Establish an environment by around 2030 in which multiple devices are used to provide services that can be provided promptly in target areas in the event of natural disasters, etc.

*3 Abbreviation for High Altitude Platform Stations. These are unmanned aerial vehicles flying in the stratosphere equipped with mobile phone base stations.

Specific initiatives

(1) Promote advanced satellite communication services

- Establish necessary systems for the smooth introduction of satellite communication services in Japan
- Provide support for improving the autonomy of low Earth orbit satellites (satellite constellations)

(2) Support the domestic introduction of HAPS

- Promote institutional development for domestic introduction in 2026
- Continuously support technological development, etc. aimed at expanding social implementation, etc.

Cross-sectional issues

Strengthen the communications infrastructure

Policies for initiatives

- Aim to attain a certain level of disaster independence in communication systems by around 2030 in preparation for future large-scale disasters, such as a Nankai Trough earthquake and a Tokyo metropolitan earthquake, which are expected to occur in the future
- Strengthen cyber security measures through public-private partnerships in normal times in order to ensure the safety and reliability of info-communication networks that support cyberspace

Specific initiatives

(1) Promote strengthening the communications infrastructure

- Promote measures to strengthen cell phone base stations
- Promote initiatives related to data centers and NTNs that will contribute to a more resilient society

(2) Reinforce disaster recovery systems

Plan a study and trial implementation of the Communications Recovery Support Team (tentative name)

(3) Ensure cybersecurity

- Promote comprehensive IoT security measures
- Secure and train cybersecurity personnel

Promote infrastructure development and solution creation/dissemination in an integrated manner

Policies for initiatives

- It is necessary to develop suitable digital infrastructure in accordance with the characteristics, as well as to promote the use of solutions that are convenient for users
- By around 2035, promote initiatives to solve local issues using digital technology, including AI, by leveraging the digital infrastructure developed across the country

Specific initiatives

(1) Promote projects to solve regional issues with a view to deployment in the whole region

- Promote projects to solve regional issues in collaboration with related ministries and agencies
- Match region-specific needs with effective solutions, etc.

(2) Secure the communication environment in preparation for the social implementation of automated driving

- Establish an environment for verification in cooperation with projects that promote automated driving and for the early adoption of 5.9 GHz band V2X communications

(3) Conduct model demonstrations to expand the use of edge AI

Division of roles between the public and private sectors

Basic concept

- In promoting the development of digital infrastructure, the government sets the direction and goals for development, and the private sector takes the initiative in developing and investing in infrastructure to support its services. In addition, there are cases where both sectors work together to develop infrastructure, and the basic approach regarding this will be outlined.