

# Overview of the 2025 White Paper on Information and Communications in Japan

Economic Research Office  
 ICT Strategy Policy Division  
 Information and Communications Bureau  
 Ministry of Internal Affairs and Communications

The Special Feature of this year's White Paper on Information and Communications in Japan is titled "Digital Technologies as Spreading 'Social Infrastructure.'" It provides an overview of the expansion of the digital ecosystem, which is functioning as a social infrastructure, the trend of explosive AI progress, and the rise of overseas businesses in the digital field. Based on this, the Special Feature looks ahead to the challenges brought about by digital technologies and the roles that they can play in resolving social issues in Japan.

## Special Feature (Digital Technologies as Spreading "Social Infrastructure")

### Chapter 1 Special Feature (Digital Technologies as Spreading "Social Infrastructure")

#### Section 1 Penetration, Expansion, and Trends of Digital Technologies as "Social Infrastructure"

As digital technologies permeate society and the digital ecosystem expands as an important and essential "social infrastructure" in social life and corporate activities, including social networking service (SNS) platforms and cloud services, major changes are occurring in information gathering, communication, and corporate economic activities.

#### 1. Permeation and Expansion of Digital Technologies in Social Life

##### (1) Internet connection devices

In the past, personal computers were the main devices used to connect to the Internet. However, with the increasing speed of mobile networks, cheaper mobile phone charges, and the diversification of applications available on smartphones, people, including the elderly, are shifting to smartphones.

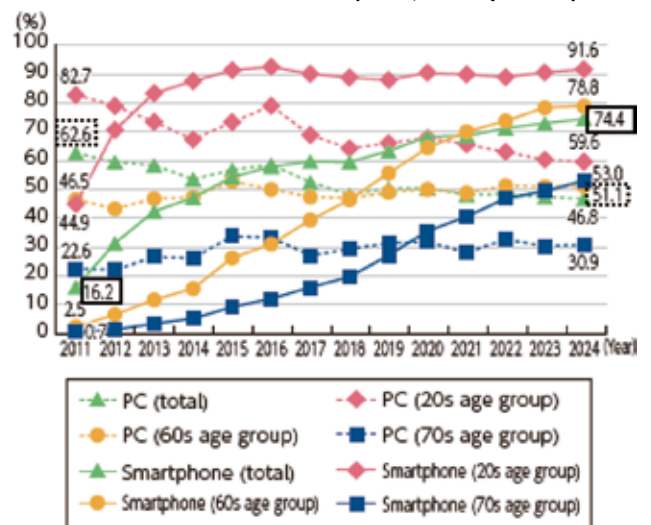
##### (2) Communication tools/SNS

The means of communication have shifted to mobile phones, and LINE has a major presence today. For example, overall LINE usage increased from 55.1% in 2014 to 94.9% in 2024. Even among the elderly, the usage rate among people in their 60s increased from 11.3% in 2014 to 91.1% in 2024.

##### (3) Video sharing and distribution services

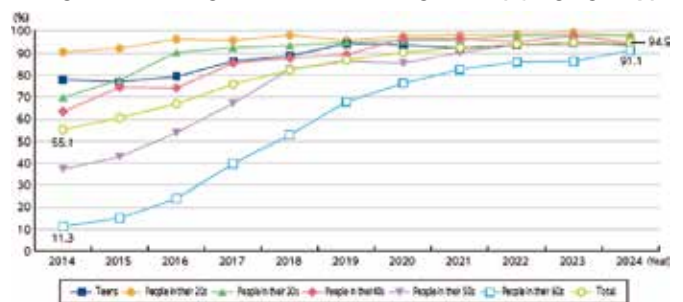
The number of video service users has increased significantly since 2020 as people spent more time at home during the COVID-19 pandemic, and usage rates still remain high. In

Figure 1: Changes in the usage rate of Internet connection devices (PCs\*, smartphones)



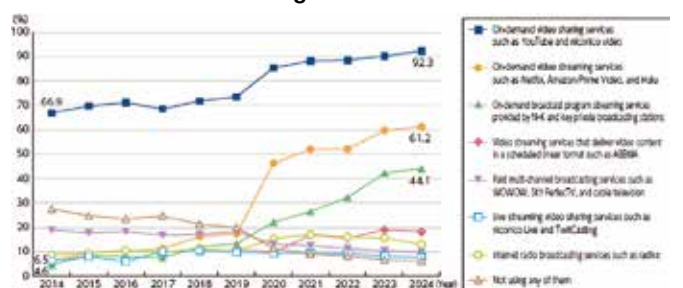
\* Home computer\* was used instead of "PC" before 2016.  
 (Source) Prepared from the MIC "Communication Usage Trend Survey"

Figure 2: Changes in the LINE usage rate (by age group)



(Source) Prepared from the MIC "Survey on Information and Communication Media Usage Time and Information Behavior"

Figure 3: Changes in the usage rate of video and radio services using the Internet



(Source) Prepared from the MIC "Survey on Information and Communication Media Usage Time and Information Behavior"

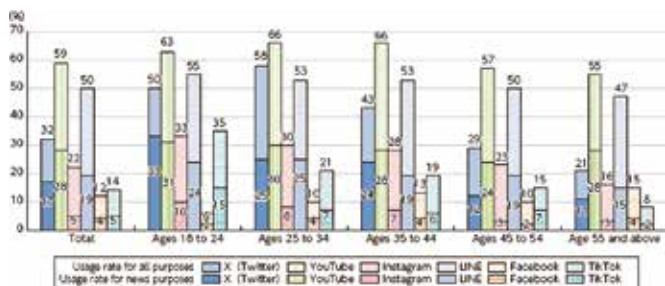
particular, there has been an increase in the number of users of on-demand video sharing services such as YouTube, on-demand video streaming services such as Netflix, and on-demand broadcast program streaming services provided by television stations.

#### (4) Information gathering means

With the expansion of Internet portal sites and news distribution via social media, and the increasing SNS usage rate, the Internet is becoming an important means for people to gather information.

According to a survey conducted in 2024 by an organization affiliated with the University of Oxford in the UK, the usage rate of social media for news purposes in Japan is high for YouTube, X, and LINE. On the other hand, in terms of media reliability, Internet-based media are regarded as less reliable than TV and newspapers for all generations.

■ **Figure 4: Usage rate of social media as a news source (by age group, all respondents in Japan, 2024)**



(Source) Prepared from the Reuters Institute for the Study of Journalism "Digital News Report" (2024)

■ **Figure 5: Reliability of media (by age group, 2024)**

	Television	Newspaper	Internet	Magazine	
Total	58.2%	59.9%	27.0%	15.7%	
Age groups	Teens (N=140)	52.1%	57.9%	24.3%	18.6%
	People in their 20s (N=218)	46.8%	50.0%	28.0%	17.4%
	People in their 30s (N=237)	43.5%	43.0%	29.1%	17.3%
	People in their 40s (N=306)	54.6%	54.9%	31.7%	19.0%
	People in their 50s (N=330)	63.0%	66.4%	33.0%	15.2%
	People in their 60s (N=271)	66.4%	69.4%	22.5%	13.3%
	People in their 70s (N=298)	72.1%	71.1%	18.5%	11.4%

(Source) Prepared from the MIC "Survey on Information and Communication Media Usage Time and Information Behavior"

## 2. Penetration and Expansion of Digital Technologies in Corporate Activities

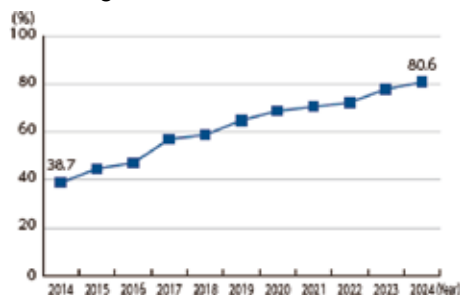
### (1) Cloud services

In corporate activities as well, the penetration and expansion of the digital ecosystem have been remarkable. For instance, the use of cloud services in general by companies has been expanding year by year, and the usage rate of cloud services for companies has doubled over the past decade.

### (2) Customer contact and transactions between businesses

Similarly, this applies to information dissemination from

■ **Figure 6: Changes in the use of cloud services**



(Source) Prepared from the MIC "Communication Usage Trend Survey"  
\* Combined company-wide use and use at some business locations or departments

companies to customers, such as in advertisements. For example, Internet advertising expenditures reached 3.7 trillion yen in 2024, accounting for 47.6% of total advertising expenditures.

## 3. The Importance and Indispensability of Digital Services in Everyday Life and Corporate Activities

### (1) Everyday life

A questionnaire survey of individuals was conducted regarding their usage of digital services, such as, among others, information gathering and dissemination on SNS. In the survey, respondents were asked about the impact of each digital service if the service were suspended, and the possibility of using other services as an alternative. As a result, for a wide range of digital services, a high percentage of respondents said that "although there are alternative services, the suspension of the service would be very inconvenient."

The results are considered to indicate that a wide range of digital services are widely recognized as being high in their "indispensability" and "importance."

### (2) Business activities

Regarding business operations that use cloud services in companies, a questionnaire survey was conducted on the possibility of substituting other services for the operations that currently utilize cloud services. As a result, it was found out that the cloud services used by companies in many fields have a significant impact, such as "it would be difficult to continue business activities without the service" or "the suspension of the service would cause major disruption to business operations." cover a wide range of fields.

This is considered to indicate that cloud services have become an important and indispensable part of today's business activities.

## Section 2 Trends in Explosive AI Progress

### 1. Current Status and Trends in AI Technology Development

#### (1) The intensifying global AI development race

AI comes in many forms, but one of the major recent trends is "generative AI," which generates text, images, videos, etc. In particular, there is growing attention to large language models

(LLMs), which applies deep learning technology.

**(2) Recent trends in AI research and development**

**A. Emergence of reasoning models**

In September 2024, OpenAI announced the development of the “OpenAI o1” series as a reasoning model for solving difficult problems. o1 outperformed OpenAI’s GPT-4o model on numerous evaluation metrics in the fields of science, code generation, and mathematics, areas where conventional generative AI has traditionally faced difficulties.

**B. An open model developed by a Chinese AI startup and its impact on the market**

In January 2025, the Chinese AI startup DeepSeek announced the development of “DeepSeek-R1.” This model is said to achieve performance equivalent to OpenAI’s reasoning model “o1” through various technical innovations. DeepSeek-R1 has garnered particular attention for being made openly available to anyone, being developed by an emerging Chinese startup, and its low development cost.

**C. Development of relatively small language models**

While the competition to develop LLMs is intensifying, attention is also being paid to the development of models that are composed of LLMs with relatively fewer parameters. Small-scale models are relatively lightweight and capable of faster processing, making them advantageous in environments without network connectivity (local environments) or for specific applications. As a result, their development is being actively pursued.

**(3) Trends in AI development and business expansion in Japan**

Considering various evaluation reports on AI, it cannot be said that Japan is highly rated compared with other world-leading countries in terms of its AI research and development capabilities and utilization of AI. For example, according to the 2023 Global AI vibrancy ranking released by Stanford University’s Institute for Human-Centered Artificial Intelligence (HAI) in November 2024, Japan is ranked 9th overall, lagging behind countries such as the U.S., China, and the UK.

**2. Current Status of AI use**

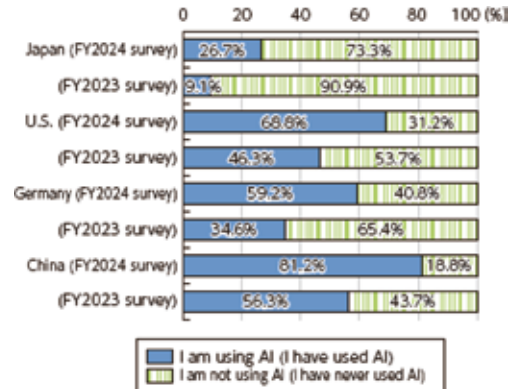
**(1) Current status of AI use among individuals**

In order to understand the current state of AI use among individuals, a questionnaire survey was conducted. In Japan, the percentage of respondents who answered that they “use (or have used in the past)” some kind of generative AI service was 26.7% in the FY2024 survey (the percentage was 9.1% in a survey conducted in FY2023.), indicating that usage has been expanding. However, it remained lower than that of the other countries covered in the FY2024 survey.

In Japan, respondents who did not use generative AI were asked about their reasons for not using it. The most common response was “not necessary for my life or work,” followed by “I don’t know how to use it,” suggesting that the barriers to use are

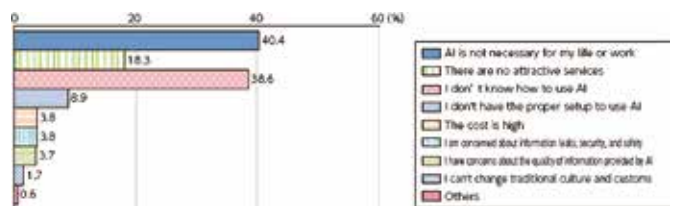
still high.

**Figure 7: Experience using generative AI services (by country)**



(Source) MIC (2025) “Survey on the latest trends in ICT, R&D, and digital utilization in Japan and other countries”

**Figure 8: Reasons for not using text generation AI services**

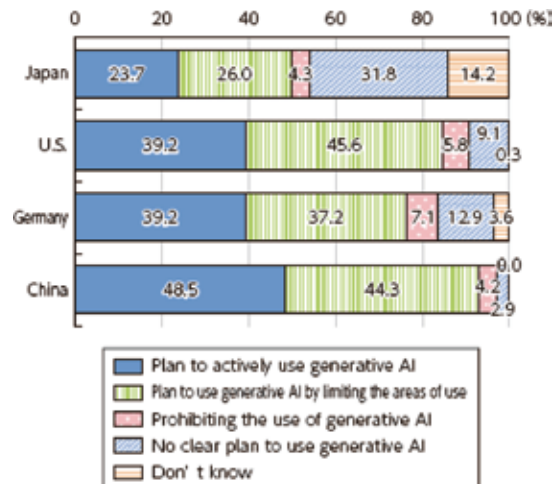


(Source) MIC (2025) “Survey on the latest trends in ICT, R&D, and digital utilization in Japan and other countries”

**(2) Current status of AI use among companies**

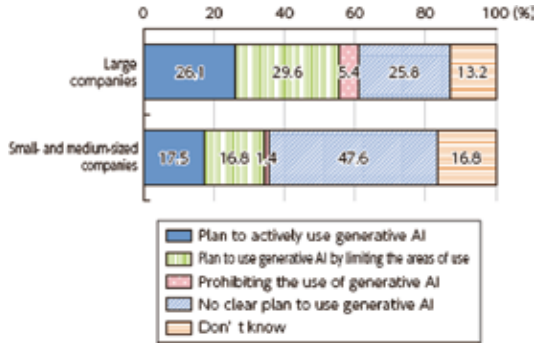
Based on a survey conducted in four countries, namely Japan, the U.S., Germany, and China, the current status of AI use in companies was summarized.

**Figure 9: Status of policy formulation for using generative AI (by country)**



(Source) MIC (2025) “Survey on the latest trends in ICT, R&D, and digital utilization in Japan and other countries”

**Figure 10: Status of policy formulation for using generative AI (by company size (Japan))**



(Source) MIC (2025) "Survey on the latest trends in ICT, R&D, and digital utilization in Japan and other countries"

Respondents were asked about the policy for using generative AI at their companies. The percentage of companies in Japan that reported having a policy for generative AI use was 49.7% in the FY 2024 survey, an increase from 42.7% in the FY2023 survey. On the other hand, compared with the other countries surveyed, Japan continues to show a lower tendency to use generative AI.

In addition, when looking at the situation in Japan by company size, the majority of small and medium-sized companies responded that they have "not clearly formulated a policy for using generative AI," accounting for about half of the total.

When respondents were asked about their thoughts on the impact that promoting the use of generative AI would have on their company, the most common answer in Japan was that it would "improve business efficiency and alleviate labor shortage." In the other three countries, respondents tended to cite business expansion, acquisition of new customers, and new innovations.

### Section 3 Foreign Business Operators' Rise in the Digital Field and the Current Situation in Japan

#### 1. The Rise of Overseas Big Tech Companies

##### (1) The growth of platform operators and its background

Overseas big tech companies, including digital platform operators, have a strong presence in providing SNS, cloud services, and other services that are forming the new digital infrastructure of society.

The rise of giant digital platform operators is driven by characteristics that can be explained by various economic concepts, such as "network effects," "low marginal costs," and the resulting "economies of scale." These characteristics are more likely to manifest in the digital market, and the market structure makes it easier for businesses that take the lead by using mechanisms that effectively utilize these characteristics to establish an overwhelming competitive advantage.

##### (2) Growing influence of big tech companies across fields

Big tech companies are expanding their influence across all layers of the digital industry through technological innovation

and market expansion, operating across multiple fields. These companies initially started out by providing applications and services for users, but they have gradually expanded and become more involved in the physical infrastructure layer. Today, big tech companies are strengthening their influence across many areas, from digital industries such as cloud services, data centers, and communications infrastructure to power infrastructure. They are also taking the lead in new technological innovations such as generative AI.

#### 2. The Presence of Foreign Business Operators in the Digital Market and the Current State of Japan's Competitiveness

##### (1) Trends in the share of Japanese companies in the global and domestic digital markets

Regarding cloud services, in the IaaS and PaaS market in Japan, three companies - Amazon Web Services, Microsoft, and Google - are significantly expanding their market share.

In terms of video sharing services and SNS in Japan, the usage rate of YouTube exceeded 80% in 2024, and the usage rates of services provided by foreign business operators, such as X, Instagram, and TikTok, are increasing year by year.

When it comes to digital devices, foreign business operators also accounted for a large proportion of the Japanese smartphone market share in 2024, with Apple at 59%, followed by Google at 10%.

##### (2) Trends in the balance of services of digital-related items

In the services account in the balance of payments statistics, the Bank of Japan Review titled "Globalization of Services Trade as Seen in Balance of Payments Statistics" classified certain items related to digital services. Among these items, an examination of the trends in the balances of (1) computer services, (2) copyright royalties, and (3) professional and business consulting services shows that the deficit has been rapidly increasing in recent years, drawing attention as the so-called "digital deficit." It should be noted, however, that this includes balance of payments related to services other than the digital field.

**Figure 11: Changes in the digital-related services balance**



(Source) Prepared from "Balance of Payments Statistics" by the Ministry of Finance

##### (3) Trends in trade statistics for ICT goods

Based on trade statistics from the Ministry of Finance, the

difference between the amount of ICT goods exported from Japan and the amount imported into Japan shows that the deficit has been increasing in recent years, reaching approximately 3.4 trillion yen in 2024. Looking at the breakdown by item, the largest surplus in 2024 was recorded in “other electronic components,” followed by “integrated circuits.” On the other hand, the largest deficit was recorded in “mobile phones,” and the deficit has been expanding in recent years. Parts and materials tend to have larger surpluses, while final products tend to have larger deficits.

## Chapter 2 Challenges Brought about by Advancing Digital Technologies

### Section 1 Securing a Reliable Digital Infrastructure that Supports a Digital Society

In Japan, where the population is aging and the economy continues to stagnate, there is a need to use advancing digital technologies, including AI, to advance solutions to social issues. Digital infrastructure supporting these technologies increasingly needs to be developed in a way that responds to the growing demand for communications, computing resources, and electricity, which comes with the expanded use of digital technologies, and the escalating risks of severe disasters. Furthermore, given the current destabilizing global situation and the increasing dependence on overseas countries in the digital field, concerns have been raised about excessive dependence on overseas countries from the perspective of maintaining stable economic and social activities and ensuring cybersecurity.

### Section 2 New Challenges Accompanying the Advancement of AI

While likely to bring convenience to our social and economic lives, AI may also pose a wide range of risks. For this reason, it is important to simultaneously promote innovation and address these risks.

As previously suggested by the report’s findings, Japan is lagging behind the world’s advanced AI countries in terms of technology, industry, and usage.

From the perspectives of Japan’s economic growth, addressing social challenges, and economic security, etc., it is becoming increasingly important to promote technology development, securing human resources, and the social implementation related to AI within Japan. At the same time, efforts to establish rules both domestically and internationally, manage risks, and foster international collaboration are also becoming increasingly important.

### Section 3 Responses to dis-/mis-information on the Internet

As the survey mentioned in the previous part suggests, the Internet is becoming an important means for people to collect information. In particular, SNS is thought to be increasing its presence as social infrastructure for information gathering,

dissemination, and communication.

In this context, problems surrounding the distribution of information in the digital space, such as the distribution and spread of dis-/mis-information on the Internet, defamation, and other information that infringes on the rights of others, are also becoming more serious.

To address these issues, it is necessary to proactively take comprehensive measures, including institutional actions, support for the development of countermeasure technologies, and the improvement of ICT literacy, while taking into account international trends and giving full consideration to freedom of expression.

### Section 4 Cybersecurity

Cyberattacks are becoming more complex and sophisticated against the backdrop of a destabilizing and tense global situation, and the expansion of digital use is leading to increased system complexity and a broadening of the Internet attack surface. As a result, security risks are on the rise.

As society becomes more dependent on digital infrastructure, the scale and scope of damage caused by a cyber incident are expected to expand further, posing serious security concerns.

Ensuring cybersecurity in the digital space requires that stakeholders enhance their capabilities and work together. It is important for all stakeholders to take comprehensive measures, including government responses, public-private collaboration, international cooperation, technological measures, and the improvement of citizens’ digital literacy.

## Cover Art



**The Pride of Tokyo's  
Twelve Months: April,  
Wisteria at Kameido**

Tsukioka Yoshitoshi  
(1839-1892)

Source: National Diet Library,  
NDL Image Bank  
(<https://ndlsearch.ndl.go.jp/imagebank>)