

# Overview of the 2019 White Paper on Information and Communications in Japan

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## 1. Introduction

The Ministry of Internal Affairs and Communications (MIC) published the 2019 White Paper on Information and Communications in Japan,” on July 9, 2019\*1. This is the first white paper of the new Reiwa Era, with the theme, “The Evolving Digital Economy and the Approaching Society 5.0.” Recently, the attitudes and behavior of people appear to be changing, from wanting to own things, to being happy borrowing and using them when they need them. Regarding work, people are also focusing on taking work through the Internet, as it appears or for limited periods of time in the freelance market, rather than joining an enterprise or other organization.

It is not only economic activity that is changing. People can now reach many people, posting videos, songs, paintings, novels, messages or other works using various sharing sites and social networking services (SNS), and overcoming the bounds of geography and human relationships in the real world.

As such, new social and economic structures and even new ways of life are appearing, and many feel that this is strongly related to the development and spread of the Internet and other information and communication technologies (ICT). This new

economy and the society brought by the development and spread of ICT have come to be called the *digital economy*.

In this, the first information and communication white paper of the Reiwa Era, we examine how this digital economy has evolved (Chapter 1), and its prospects for the future (Chapter 2) (Figure 1).

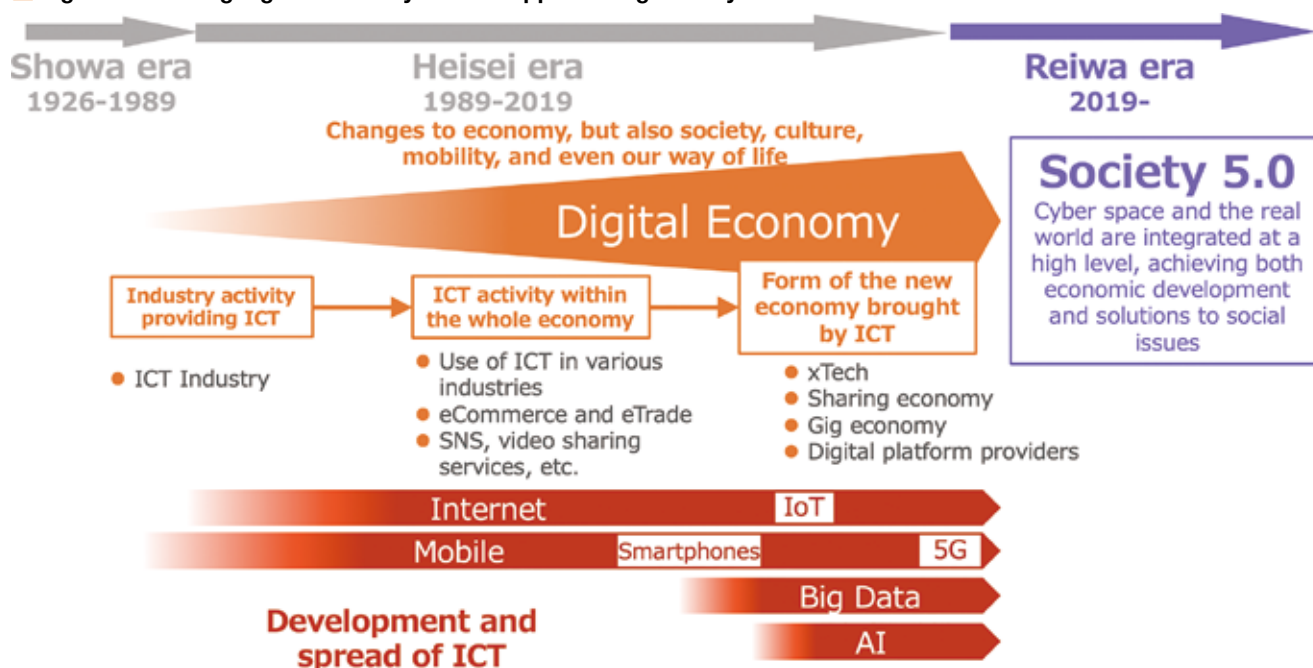
## 2. Chapter 1: How have ICT and the digital economy evolved?

### (1) Development and spread of ICT networks

The Internet began at the beginning and expanded throughout the Heisei Era (1989-2019), and has created new venues and opportunities for communication for people. It has also become important infrastructure supporting wide ranging activity in society and the economy.

The “telephone of the future” that surprised everyone at Expo ’70 in Osaka was a mobile phone. With the spread of smartphones, the mobile phone has now become more than a communication tool. It is the most familiar device in daily life and is able to do perform a wide range of tasks. As mobile communication systems have developed, they are also being used

■ Figure 1: Evolving digital economy and the approaching Society 5.0



\*1 The full text of this white paper is published on the Information and Communication White Paper Web page (<http://www.soumu.go.jp/johotsusintokei/whitepaper/index.html>).

for more than just communication between people. With the rise of the Internet of Things (IoT), they are also connecting objects together. IoT creates and produces value from digital data, and we expect to advance development even further by combining it with artificial intelligence (AI) and 5th generation mobile communications systems (5G).

**(2) ICT industry changes**

After the liberalization of the telecommunications market in Japan in 1985, there was great development generating services that increased convenience for the population, due to vigorous competition among various businesses. In manufacture of ICT

devices, a shadow gradually fell over Japan’s former glory as a nation built on electronics. For example, from 1985 onward, exports of ICT-related devices\*2, which had previously been increasing steadily, began to slow, and by 2000, both production and export had begun to decline. Then in 2013, the value of imports actually surpassed exports (Figure 2). Looking at just communication devices, production has decreased since its peak in 1997, and with the spread of the smartphone, imports have increased sharply since the latter half of 2000s (Figure 3).

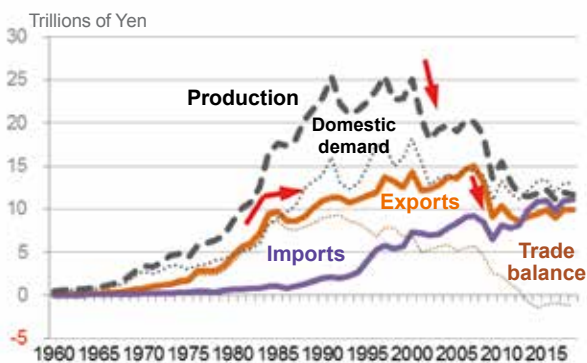
**(3) New trends in ICT**

Japan has also been affected by digital platform providers, mainly from the USA, which are new ICT businesses that have a global presence.

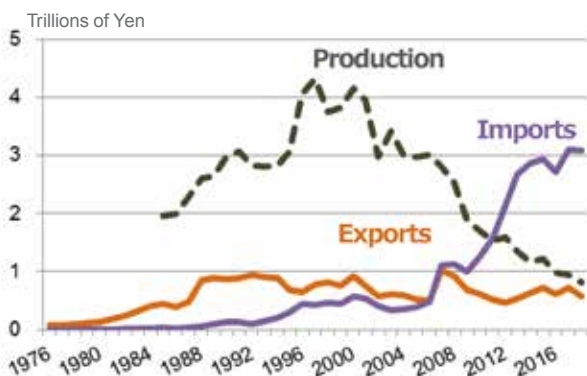
Looking at the overall economy, Japan has been plagued by deflation after the collapse of the economic bubble, and has not yet regained strong growth. We would expect use of ICT to increase productivity in various industries and contribute strongly to economic growth, but even though Internet use has grown in enterprise, the effects of this have not materialized significantly, at least in the GDP statistics of Japan.

On the other hand, in emerging and developing countries, deployment and use of ICT infrastructure is focusing on mobile communication and is advancing rapidly, in leap-frog fashion. Development and deployment of ICT globally is accelerating, with a global value chain that partitions work on a global scale, growing the economies of participating countries.

■ **Figure 2: Trends in production/import/export/etc. of ICT related devices**



■ **Figure 3: Trends in production/import/export of communication devices**



**3. Chapter 2: What is needed to utilize the value of Society 5.0?**

**(1) Characteristics of the digital economy**

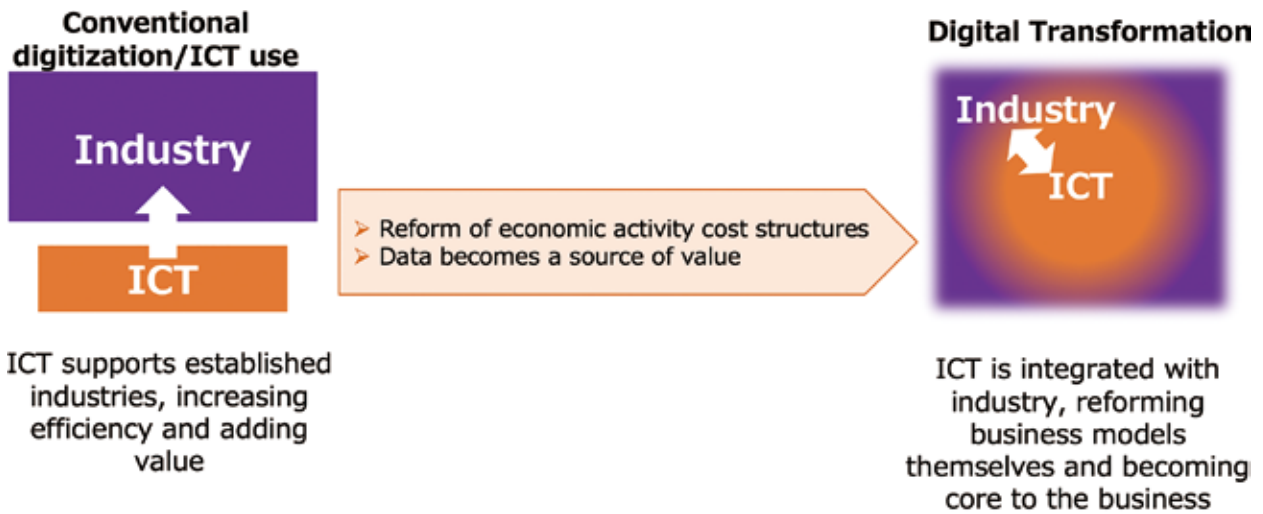
In the digital economy, data is a source for value creation, and ICT is changing cost structures, which are fundamental to economic activity. In particular, markets are expanding, which facilitates activities that overcome the constraints of time and place, and markets are also segmenting, which facilitates the formation of niche markets that overcome constraints of scale. The new cost structures accompanying ICT are also forcing relationships between companies, and between people and companies to be restructured.

**(2) Digital transformation**

Under such conditions, ICT enterprises with new business models suited to the new cost structures are appearing in all kinds

\*2 Consumer electronics, industrial electrical devices, electronic components and devices

■ Figure 4: Differences between conventional digitization/ICT use and digital transformation



of industries. This is making conventional business models no longer viable, and causing a so-called *digital disruption*. To deal with these changes, the traditional players in all kinds of industries need to undergo a digital transformation, bringing ICT into the core of their businesses, integrating with it, and reforming their business models (Figure 4).

### (3) Society brought by evolution of the digital economy

As countries around the world have continued introducing ICT, and since the financial crisis in 2008, all developed countries have experienced stagnation in GDP growth. As such, technology pessimism has appeared, skeptical of the effects of ICT on economic growth. As free services and the sharing economy spread, discussion is also growing around issues such as whether GDP is an effective index, and whether such services can be counted as technology, have value, or can be captured in the GDP.

Further, ICT is affecting employment and distribution for the middle class, particularly in developed countries, and this is being perceived as contributing to disparity within these countries.

However, important technologies emerging in the past, such as steam engines or electricity, also had effects that required comprehensive reform, and there was a time lag between the appearance of technology and appearance of these effects. With ICT as well, the digital economy will evolve through comprehensive reforms, leading to Society 5.0, contributing to sustainable development goals (SDGs) in various fields such as medicine, education and agriculture, and with the potential to go beyond simple economic development, to realize solutions to societal issues.

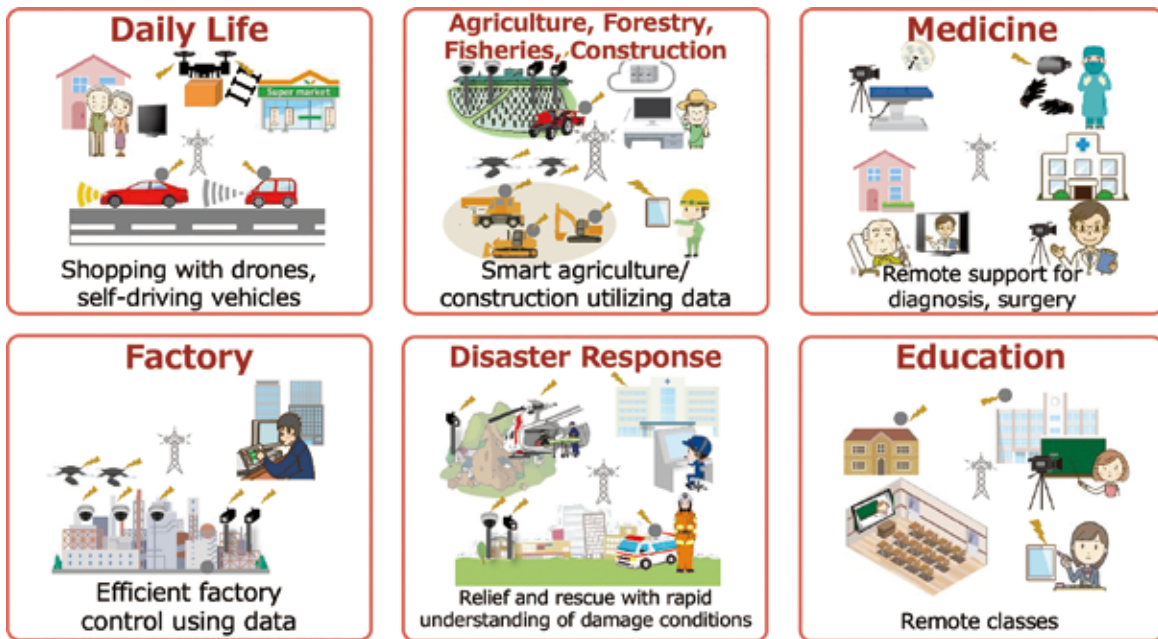
### (4) Necessary reforms

The sorts of reforms needed in Japan due to the effects of

■ Figure 5: Transition of the placement of ICT



■ Figure 6: Resolving issues in remote areas through use of 5G



ICT must be considered. In industry, ICT must be considered as more than just a means of improving efficiency; rather, it must be seen as something that produces new value, and systems must be transformed accordingly (Figure 5). This requires shedding closed innovations and letting M&As and other open innovations proceed. In particular, this may require changes to the very ecosystem surrounding startup enterprises in Japan, in which M&A activity by large corporations has tended to be oriented toward reaching an IPO. It will be important to restructure relationships between enterprises, and between people and enterprises, according to the digital economy, including this point. On the other hand, for these reforms to advance, people-related reforms such as recurrent education and reforming work styles will also be important.

As the digital economy advances, it will bring some fluctuation to existing relationships, and this can provide opportunity for regional interests. In order to exploit such opportunities, remote areas will need to advance their own digital transformations. It will be particularly important for them to complete their 5G infrastructure, advance their utilization of data, and cultivate new collaborative partnerships (Figure 6).

It will also be necessary to prepare for even further changes, questioning things that have been taken as self-evident till now, starting with principles of capitalism that have been established since the industrial revolution. As part of this, we can expect that systems will need to be reexamined constantly in order to utilize the effects of ICT reforms.

**(5) New relationships between people and ICT**

Japan also suffered several large disasters during the Heisei Era. Special mention must also be made of how technologies such

as the Internet and mobile phones have changed transmission of information during times of disaster. The torrential rainstorms of July 2018 have suggested the possible need for detailed information of conditions in individual areas in times of disaster. Another lesson is that, beyond simply conveying information, there is an important connection between conveying the information and taking concrete action.

Finally, technology has historically extended humanity, enhancing what people can do. In the same way, ICT and new technologies such as AI will expand what people can do in their daily lives and work. This will also lead to building new relationships between people and ICT (Figure 7).

■ Figure 7: Extending humanity through ICT

