

Part 1 Research Capacity of Japan – Realization of a Science and Technology Nation –

<Current State of Research Capacity of Japan>

The creation of science, technology, and innovation is the source for the future development of Japan and human society. Japan has achieved world-class results in many fields related to science, technology, and innovation, such as the invention of the blue light-emitting diode that led to the practical application of LED lighting, and the establishment of human iPS cells that led to the practical application of regenerative medicine.

The paper index, which is a major indicator of research capacity, is continuing to decline for Japan in international comparison, and there are concerns about the decline in research capacity. In international comparison, twenty years ago, Japan's number of papers ranked No. 2 following the United States (average of 1997 to 1999) but it ranks 4th today (average of 2017 to 2019), while the number of papers attracting attention (adjusted top 10% papers) which was 4th 20 years ago is now 10th.

<Pillars of the Kishida Cabinet's Growth Strategy – Science, Technology, and Innovation –>

Under the leadership of Prime Minister Kishida, the government is aiming to realize a “New Form of Capitalism” based on the concept of a “virtuous cycle of growth and distribution.” It is extremely important to aim for growth, and the government will do our best to achieve growth, and at the same time ensure that the fruits of growth are distributed well in order to reach the next stage of growth. The government will fully mobilize all policies to achieve both “growth, as well as distribution.”

With regard to the growth strategy to achieve a “new form of capitalism,” Prime Minister Kishida stated in his policy speech in October 2021 that “the first pillar of my growth strategy is realizing a science and technology nation,” while the distribution strategy is based on “taking drastic measures to reinforce the investment in human resources.”

To realize a “new form of capitalism” and make Japan a “science and technology nation,” the government will promote human resource development in the fields of science and technology, the University Endowment Fund for building world-class research universities, bold investments in advanced science and technology, and thorough support for startups.

<Amendments to the Basic Act on Science, Technology and Innovation>

The rapid development of science and technology such as ICT, AI, and genome-editing technology, has closely linked science, technology, and innovation (STI) to human beings and society. In order to face the complex modern-day challenges, it is necessary to promote STI utilizing the “Convergence Knowledge (So-Go-Chi)” by including the “knowledge” in the humanities and social sciences in which human beings and society are the subject of the research. Against this backdrop, the Basic Act on Science and Technology was revised in 2020 to include “creation of innovation” as one of the pillars of the Basic Act, and the humanities and social sciences (referred to as the “humanities” in the Act), which had not been covered by the Act, were included in the scope subject to the Act.

<The 6th Science, Technology and Innovation Basic Plan>

In Japan, the Science, Technology, and Innovation Basic Plan (hereinafter referred to as the "Basic Plan") is formulated every five years based on the Basic Act on Science, Technology and Innovation. In April 2021, the current 6th Basic Plan was launched. The Plan stipulates that Japan will continue to create knowledge with diversity and excellence, and restore the world's highest level of research capabilities in order to realize Society 5.0.

<Structure of Part 1 of this White Paper>

Part 1 of this White Paper comprises of Chapter 1, which analyzes Japan's current state of research capacity and the challenges faced in research; Chapter 2, which provides an overview of recent science, technology, and innovation policies; and Chapters 3 and 4, which introduce the latest initiatives toward the realization of a science and technology nation.

Keyword**What is Society 5.0?**

Society 5.0, which is a concept proposed in the Basic Plan as a future society for which Japan should aim, is defined as "a human-centered society in which economic development and the resolution of social issues are compatible with each other through a highly integrated system of cyber space and physical space," and as "a society that is sustainable and resilient against threats and unpredictable and uncertain situations, that ensures the safety and security of the people, and that individual to realize diverse well-being." (Refer to frontispiece)



MEXT officials explain three important points of "Society 5.0," the future society for which Japan should aim

A video on Society 5.0: The 2021 Edition of the White Paper on Science, Technology and Innovation - Staff Commentary -
URL: <https://www.youtube.com/watch?v=ggS9VQLsMrQ>

Keyword**What is Convergence Knowledge (So-Go-Chi)?**

To bring "revitalization of knowledge" that creates new value by bringing together diverse "knowledge" including "knowledge" in the natural sciences and "knowledge" in the humanities and social sciences. In order to use Convergence Knowledge (So-Go-Chi), it is important to take an approach that brings "revitalization of knowledge," such as by bringing together diverse knowledge by transgressing the "norms" of organization you belong to and without being limited by the boundaries of your area of expertise, and creating new value and new ways of seeing and perceiving things by spending sufficient time discussing issues and organically utilizing "knowledge." (See Chapter 4, Section 4)