Integrated Innovation Strategy2021 (Summary) (Tentative Translation)

- After the formulation of the Sixth Science, Technology and Innovation Basic Plan, there have been major changes both at home and abroad in (1) competition for technological supremacy among countries and (2) measures to deal with the climate change issue.
- Responding to changes in social conditions both at home and abroad, Realization of science, technology, and innovation policies to be implemented over the next year with the aim of realizing a sustainable and resilient society that ensures the safety and security of the people and a society in which the diverse well-being of individuals can be realized.

Current situation in the 6th Basic Plan (2021.3)

Changes in situation in Japan and overseas (Technology Battle, Carbon Neutrality, DX)
○ The beginning of the restructuring of the world order and intensifying competition for hegemony among nations centered on science, technology and innovation
○ Realization of global agenda threats such as the climate crisis
○ IT Platformers' monopolization of information and unevenly distributed huge wealth

Spread of the novel coronavirus disease (COVID-19)
○ Major changes in the international community
· Speedy social reform to prevent the spread of infection and maintain economic activities
· Reviewing the sustainability and resilience of national economies with imminent supply chain interruptions
○ Drastically changing domestic life
· Changes to new lifestyles, including telework and distance education

Further changes

Progress of efforts toward a post-Covid-19 world such as vaccinations

Further changes in the domestic and international situation

Further radicalization of competition for technological hegemony
○ The United States and China set targets for increasing science and technology investment based on technology competition.
· The United States: The Biden administration announced that it would increase scientific and technological investment in the quantum technology fields, etc. from 0.7% to 2% of GDP.
· China sets self-reliance in science and technology as a pillar of its national development strategy, and announces an average annual increase of more than 7% in R&D expenditures for society as a whole.
○ Economic security issues such as securing emerging technologies and supply chains including semiconductors are important issues for the nation.

Progress in concrete efforts to address the climate change
○ Global agenda such as climate change recognized as a real crisis
○ The most important issue in each country and region is how to deal with the climate change issue.
· Japan: Achieving carbon neutrality by 2050
  Revised GHG emissions reduction targets for FY2030 (46% reduction from FY2013, and continue strenuous efforts in its challenge to meet the lofty goal of reduction by 50%)
· The United States: Returning to the Paris Agreement and holding a climate summit
· Europe: Economic recovery through green investment

High-priority Measures: The 6th Basic Plan (Implementation of Society5.0)

① Transformation to a sustainable and resilient society that secures the safety and security of the people

(1) Creating new value through the fusion of cyberspace and physical space
- Launch of services and industrial development from the viewpoint of citizens through the establishment of the Digitl Agency and a comprehensive data strategy
- Beyond 5G (start of fund utilization), development and manufacturing location of advanced semiconductor technology, and promotion of optimal locations for next-generation data centers

(2) Promoting social change and discontinuous innovation to overcome global challenges
- R&D of innovative environment technologies including energy conservation, renewable energy, and nuclear power to achieve carbon neutrality, creation of discontinuous innovation (utilization of the Green Innovation Fund, etc.)
- Accelerating the three transitions of "decarbonized society", "circular economy", and "decentralized society" through initiatives based on the Regional Decarbonization Roadmap and the Green Food System Strategy

(3) Building a resilient, safe and secure society
- R&D to respond to threats such as natural disasters (automatic connection of SIP4D to local governments), aging infrastructure (data cooperation), and cyber attacks (construction and operation of integrated intellectual and human resources development infrastructure of cybersecurity), social implementation
- Ensuring comprehensive security, including the establishment of safety and security think tank functions, the creation of a strong support project for the practical application of advanced and important technologies to strengthen economic security, and countermeasures against technology leakages

(4) Formation of innovation ecosystems as a foundation for creating new industries based on value co-creation
- Strengthen systems centered on hub cities to support startups, strengthen the ability to create ventures originating from universities, and increase government procurement from startups under the new SBIR system.

(5) Urban and regional development that will be the foundation for the next generation (development of smart cities)
- Designation of Super Cities, horizontal development of smart cities in each field including city OS social implementation (100 communities by 2025), lifestyle and greening, creation of markets utilizing international standards, etc.

(6) Promoting R&D and social implementation to resolve various social issues and utilizing the convergence of knowledge
- Examination of a strategy for the convergence of knowledge, extraction and analysis of important science and technology areas, and addition of important standard areas
- Drastic enhancement of moonshot R&D Program by examining candidates for next SIP issues and strengthening international cooperation, etc.
- Ensuring research integrity autonomously by revising guidelines for competitive research funds projects

② Strengthening research capabilities as a source of value creation by pioneering the frontier of knowledge

(1) Reconstruction of the environment that generates diverse and outstanding research
- Steady implementation of strengthened support for doctoral students in FY2020
- Promotion of emergent research support projects, improvement of the research environment for young and other researchers by establishing a certification system for URAs and improving treatment for research assistants, and improving career prospects of female researchers
- Formulation of strategies for international development of science and technology, including support measures for international brain circulation and environmental improvement

(2) Construction of a new research system (promotion of open science and data-driven research, etc.)
- Establishment of a system to manage research data obtained with public funds and utilize experiment data, observation data, etc., through the retrieval of summary information (metadata)
- Development of research facilities, equipment, and instruments, promotion of shared use, and development of infrastructure and environment for data-driven research in various research fields

(3) Promoting university reform and enhancing functions for strategic management
- Plan to expand the University Endowment Fund to the scale of 10 trillion yen by the end of this fiscal year. Plan the Basic Approach to Investment Policy by around the summer of 2021, and start operation by the end of FY2021
- Summarize the selection requirements for world-class research universities and submit a new legal framework to the next ordinary Diet session to establish a new legal framework.
- Formulate a promotion package for regional universities and promote the development of regional universities as co-creation bases

③ Education and human resources fostering to realize diverse well-being of individuals and to take on challenges

- Establishing a school support system by allocating ICT personnel to realize the GIGA School concept
- Enhancing STEAM education and holding discussions aimed at creating an educational environment for children with special talents in the discussion forum with the participation of the Central Council for Education, which will be established under the CSTI
- Development of an environment to promote the introduction of recurrent education for corporate employees

④ Promoting sectoral strategies through public-private partnerships

【Fundamental technologies】 Pursue the world's most advanced R&D including the formulation of new AI strategies; review of quantum strategies; implementation of biotechnology strategies including the development of vaccines, etc. and strengthening of production systems; and the realization of a materials DX platform; and promote the formation of hubs and fostering of human resources.
【Application fields】 Industry-academia-government collaboration to promote initiatives with a view to finding ways to solve issues in areas such as health and medicine, space, ocean, food, agriculture, forestry and fisheries.

⑤ Revitalizing the flow of funds

- The government has set investment targets of 30 trillion yen in R&D investment and 120 trillion yen in the private and public sectors over the next five years to lead the international R&D race.
- Constant improvement of the quality of policy and securing of science and technology related budget through the thorough implementation of evidence-based policymaking (EBPM), etc., ESG investment, and induction of private investment
- Promotion of innovation

⑥ Strengthening leadership functions

- Enhance functions of the evidence system (e-CSTI), including the use of AI towards the promotion of EBPM
- Establish a foundation to link the progress and analysis of the basic plan with the integration strategy