Integrated Innovation Strategy 2020 (Summary) (Tentative Version)

◆ Due to unprecedented, discontinuous changes such as the novel coronavirus disease, large-scale natural disasters around the world, etc., delay in the digitalization of Japan, and a lack of a sense of urgency and sense of crisis have been revealed
◆ Amidst the major shift of the core of the struggle for supremacy among states to innovation using emerging technologies, enhancement of Japan's ability in STI is an urgent issue
◆ Strategic STI policies are necessary for realizing a true Society 5.0 based on comprehensive knowledge that also incorporates knowledge of the humanities and social sciences

Impact of the novel coronavirus disease

- ✓ Increasingly serious situation in the medical care delivery system due to the spread of the disease
- ✓ Reduction in economic and social activities in order to avoid physical contact
- ✓ The need to disseminate "new lifestyles" and their impact
- ✓ Stagnation of research activities due to the closure of laboratories, reduced investment, etc.

Domestic and overseas changes

- ✓ Intensification of the struggle for supremacy in innovation, centered on the United States and China
- ✓ Data hoarding by GAFA, etc. and the responses of national governments
- ✓ Corporate behavior focused on SDGs
- ✓ Levelling off of venture investment
- ✓ Abnormal weather and large-scale natural disasters occurring around the world

Position of Japan

- ✓ Delay in digitalization: 23rd of 63 major countries (2019)
  IMD World Digital Competitiveness Ranking
- ✓ Stagnating innovation capability: 8th (2017) → 7th (2019)
  WEF Global Competitiveness Report
- ✓ Decline in international share of number of papers: 4th (2003)→11th (2016)
  NISTEP Science and Technology Benchmarking, number of adjusted top 10% papers

Issues for Japan taking into account these changes

- **Build sustainable and resilient social services (healthcare, education, public projects, etc.) and economic structures (supply chains, etc.)** that overcome domestic and overseas issues and lead to the strengthening of Japan's competitiveness
- In response to physical distancing and the "fragmentation" of spiritual and psychological society, **reshape "solidarity" in domestic and overseas societies so that no-one is left behind** in cities or regions, whether old or young, male or female

» Accelerate digitalization with a sense of crisis and sense of urgency to create innovation that transforms social systems, and strengthen the research capacity which is the source of innovation
Realize a sustainable, resilient, and human-centered Society 5.0 that leads the world using comprehensive knowledge that also incorporates knowledge of the humanities and social sciences

High-priority measures (Implementation of Society 5.0)

❶ Response to the difficult situation we are facing due to the novel coronavirus disease and building of a sustainable and resilient social and economic structure

Most recent responses

[Strengthening of the response to the public health crisis]
- ☐ Research and development of diagnostics and medical treatments, vaccine development, instruments, etc.
- ☐ Utilization of the findings of international collaboration, human resources development, behavioral economics, etc.
- ☐ Information transmission and prevention of infection utilizing digital technologies

Emergency support

[Support for stagnating STI activities]
- ☐ Propping up stagnating research activities and industry-academia collaboration activities
- ☐ Startup support such as development of young entrepreneurs taking on new challenges, the Gap Fund, etc.

Fighting back and social transformation

[Adaptation to the new normal and promotion of DX]
- ☐ Digitalization and adoption of remote approaches in all fields including education, research, public projects, logistics, etc. (DX of research including AI, supercomputers, BD analysis, etc.)
- ☐ Exploration of the new normal utilizing the findings of the humanities and social sciences

[Building of a resilient economic structure]
- ☐ Strengthening of economic security (making supply chains resilient)
- ☐ Switching to a decarbonized society, promotion of innovative environmental innovation

❷ Creation of innovation that overcomes domestic and overseas issues and leads to growth

[Encouragement of the creation of innovation and implementation of Society 5.0]
- ☐ Realization and globalization of smart cities through the utilization of a public-private collaboration platform, etc. from the perspectives of regional revitalization and residents
- ☐ Formation of startup ecosystem hub cities and integrated promotion of startup support policies
- ☐ Expansion of innovation in government projects and systems, promotion of investment in anticipation of future needs
- ☐ Promotion of a world-leading STI for SDGs Roadmap, strengthening of an international network that also takes into account the perspective of research integrity

[Development of an environment for creating innovation]
- ☐ Establishment of communications such as Post-5G, Beyond 5G, etc., and other next-generation technologies and utilization of the Fugaku supercomputer as the foundation for DX
- ☐ Realization of DFFT and implementation of a data-driven society, building of a cross-domain data exchange platform, enhancement of SINET
- ☐ Building of control tower functions for utilization of strategic standards, and identification of best practices and issues for that purpose

❸ Strengthening research capacity, the source of STI

[Strengthening research capacity and research and development]
- ☐ Creation of an attractive research environment through support for opportunities for young researchers to challenge themselves, diverse career paths, and emergent research
- ☐ Building of a global-level research base by establishing a fund, utilizing its investment profits, etc.
- ☐ Investigation of intellectual property management to appropriately evaluate and utilize inventions by universities, etc.
- ☐ Further promotion of the humanities and social sciences, promotion of strategic research and development such as moonshot research and development, etc.

[Creation of innovation ecosystems through university reforms, etc.]
- ☐ Ascertaining of industry-academia needs in the Leaders' Forum on Promoting the Evolution of Academia for Knowledge Society (PEAKS), and development of the investment rules of universities and national institutes
- ☐ Investigation of strategic management for the fourth-phase medium-term target period, operation of a governance code, reform of the subsidies for operation

[Development of high-quality STI human resources]
- ☐ Promotion of STEAM and AI literacy education and recurrent education that meets the requirements of the Society 5.0 era

❹ Major fields that should be advanced strategically

[Fundamental technologies] ☐ Promote world-leading research and development into AI, biotechnology, quantum technologies, materials, etc., hub formation and human resources development, and the upgrading of measurement and analysis technologies, etc.

[Applied fields]
- ☐ Investigation of new think tank functions concerning safety and security (disaster prevention, infectious disease countermeasures, cybersecurity, etc.)
- ☐ Focus on routes to the solution of issues in the environment and energy, health and medical care, space, food and agriculture, forestry, and fisheries, etc., and promote initiatives in which industry, academia, and government collaborate