Cross-ministerial Strategic Innovation Promotion Program (SIP)

Cross-ministerial Strategic Innovation Promotion Program (SIP) was established based on the "Japan Revitalization Strategy" and the "Comprehensive Strategy on Science, Technology and Innovation," each decided by the Cabinet in June 2013. SIP is a cross-cutting program beyond the framework of the Cabinet Office and the ministries and of traditional disciplines. The Council for Science, Technology and Innovation promotes SIP by exercising its headquarters function, along the entire path from basic research to exit strategies (practical application/commercialization), and with reform of regulations and systems as well as use of the Special Zone System in mind. SIP contributes to economic recovery by improving the ability to promote research, solving social issues through application of core innovation models, creating new markets and employment opportunities, and strengthening industrial competitiveness.

Mechanism

To implement SIP, the adjustment expenditures included in the Cabinet Office budget (Expenditure on Science, Technology and Innovation Promotion) were established in 2014. The Council for Science, Technology and Innovation determines target issues and program directors (PD), and flexibly allocates budgets by evaluating the progress every fiscal year.

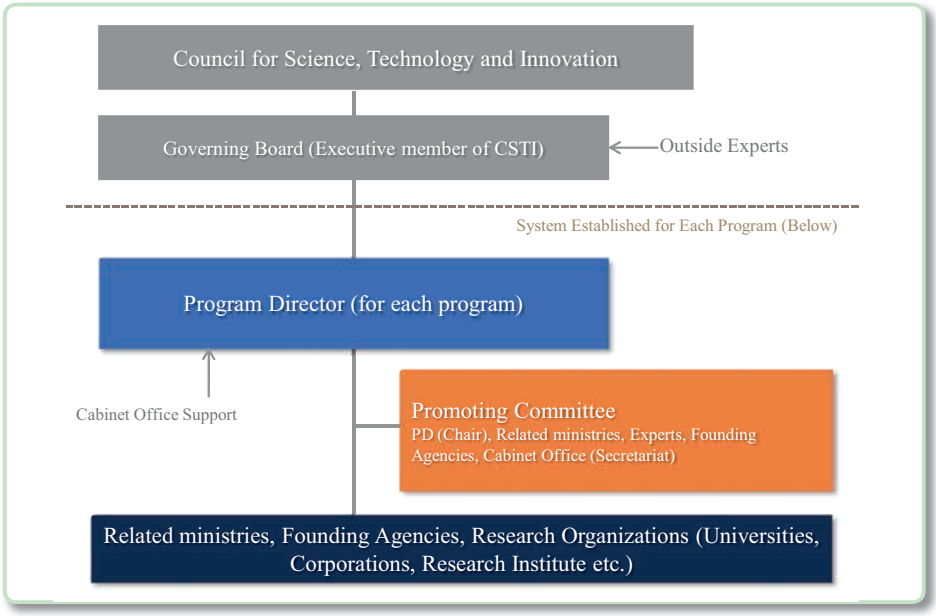
Target Areas

Four fields were selected for SIP, namely energy, next-generation infrastructure, regional resources, and healthcare. For three of them (excluding healthcare), the Council for Science, Technology and Innovation set 10 programs and selected persons representing industry and academia as their program directors.

Note that in the field of health care, overall coordination is conducted by the Headquarters for Healthcare Policy.

Implementation Structure

Regarding the structure for implementing SIP, the "Governing Board" consisting of executive members of the Council for Science, Technology and Innovation deliberates important matters related to SIP and offers advice and assessments. PD selected for each target program, then, organizes and promotes an R&D plan (including its exit strategy). Coordination among the relevant ministries and other work are carried out by a promoting committee. The chair of this committee is PD, the Cabinet Office acts as its secretariat, and the related ministries and experts also participate in it.



Governance Structure

The 10 Issues addressed of SIP and Program Director

Innovative Combustion Technology
(Allocated budget: 1.9 billion yen)
Masanori SUGIYAMA, Field General Manager, Engine Engineering Field, Toyota Motor Corporation
Educate and train global top-class combustion researchers and build an industry-academy cooperative structure to improve internal combustion thermal efficiency up to a maximum of 50 percent, up from today's maximum of 40 percent. Contribute to improved energy savings, CO_2 reduction, while at the same time building a stronger, more competitive Japanese automotive industry.

Next-Generation Power Electronics
(Allocated budget: 2.19 billion yen)
Tatsuo OOMORI, Fellow, Corporate Research and Development Group, Mitsubishi Electric Corporation
Power electronics use semiconductors to convert electricity from direct current to alternating current and vice-versa, as well as to control electrical voltage, current, and frequency. This program aims to use next-generation materials such as silicon carbide and gallium nitride to improve the performance for, develop new applications, and spread the adoption of power electronics for a leap forward in energy savings and a greater ability for Japanese industry to compete on the global stage.

Structural Materials for Innovation
(Allocated budget: 3.5 billion yen)
Teruo KISHI, Professor Emeritus, University of Tokyo / Advisor, National Institute for Materials Science
Accelerate the development of innovative lightweight, heat- and environment-resistant materials for Japan's aviation industry. Use the materials integration concept to reduce development time through advanced computer science and other technologies. Contribute to energy savings and CO_2 reduction for dramatic advancements in Japan's component materials industry and major gains in Japan's aviation and electric power generation industries.

Energy Carriers
(Allocated budget: 3.04 billion yen)
Shigeru MURAKI, Executive Adviser, Tokyo Gas Co., Ltd
Create a clean, economically secure society through electricity and hydrogen produced via renewable energy sources. Leverage advancements to market technologies on global markets. Forecast future technological innovations and energy costs that lead to a hydrogen-based, new-energy society. Develop technologies to create a hydrogen value chain.

Next-Generation Technology for Ocean Resources Exploration
(Allocated budget: 5.7 billion yen)
Tetsuro URABE, Professor Emeritus, University of Tokyo / Executive Adviser, JMEC
Exploit the wealth of potential resources in Japan's maritime boundaries, which represent an area greater than 12 times the mass of Japan's dry land. Lead the world in developing efficient survey technologies to survey cobalt-rich manganese crusts, rare metals, and other hydrothermal ores, helping Japan overcome its resource deficiencies. Establish an industry-academy-government cooperative body to generate new efficient survey technologies for creating ocean resource survey industries.

Automated Driving System
(Allocated budget: 2.32 billion yen)
Hiroyuki WATANABE, Advisor, Toyota Motor Corporation
Set national goals to reduce the number of annual traffic fatalities to 2,500 or fewer by the year 2018 and create the world's safest road traffic environment by the year 2020. Develop automated driving systems, including next-generation urban transportation infrastructure, to accomplish these goals. Drastically reduce accidents and traffic congestion for a major leap forward in travel convenience.

Infrastructure Maintenance, Renovation, and Management
(Allocated budget: 3.27 billion yen)
Yozo FUJINO, Distinguished Professor, Institute of Advanced Sciences, Yokohama National University
A large portion of today's infrastructure was built during the period of Japan's high economic growth several decades ago, and in recent years numerous cases of infrastructure deterioration have surfaced, presenting the danger of devastating accidents and other serious related issues. This program will take advantage of world-leading information and robotics technologies to create systematized infrastructure management to restrain infrastructure lifecycle costs through preventive maintenance. The goal is to create sustainable maintenance industry and globalize the new technologies.

Enhancement of Societal Resiliency against Natural Disasters
(Allocated budget: 2.45 billion yen)
Masayoshi NAKASHIMA, Professor, Disaster Prevention Research Institute, Kyoto University
Create a real-time disaster information forecast system taking advantage of the latest science and technologies for dealing with major earthquakes, tsunamis, heavy rains, cyclones, and other natural disasters. At the same time, use information and communications technologies to devise systems for sharing public-private information in real time. Improve and prevention and strengthen response capabilities of each citizen.

Technologies for Creating Next-Generation Agriculture, Forestry and Fisheries
(Allocated budget: 3.32 billion yen)
Takeshi NISHIO, Professor, Department of Clinical Plant Science, Faculty of Bioscience, Hosei University
Create innovative production systems, new breeding and plant protection methods, and new product functions, all supported by agriculture policies. Contribute to new agriculture careers and higher income for farmers and rural citizens. Improve quality of life, grow related industries, and contribute to solving the world's food problems.

Innovative Design/Manufacturing Technologies
(Allocated budget: 2.55 billion yen)
Naoya SASAKI, Corporate Chief Engineer, Research & Development Group, Hitachi, Ltd.
Leverage regional business expertise and individual creativity for a more competitive industry stance, establishing new manufacturing methods that break current time and geographical constraints. Create regional innovation by developing new technologies allowing for high-added-value product design and manufacturing that quickly responds to the needs of businesses and consumers.