

AI Technology Area

Aiming to accelerate solutions for issues in Japan by promoting AI strategy

The Cabinet Office of Japan is leading AI research and development as the AI technology area of PRISM. Among the priority fields in the industrialization roadmap, those that are expected to have a significant effect on attracting private R&D investment and those that are expected to accelerate commercialization in the private sector will be selected to accelerate problem solutions through add-on investment in the measures of ministries and agencies.



Director of AI Technology Area

ANZAI Yuichiro

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Profile

ANZAI Yuichiro is known for his pioneering work on learning by doing and human-robot interaction in the fields of cognitive and computer sciences, having published around 300 reviewed academic articles and books in those fields. He served as the president of Keio University (2001-09), the president of the Japan Society for the Promotion of Science (2011-18), the chair of the Central Council for Education, the chair of the Association of Pacific-Rim Universities, and others. Currently he is the chair of the Council for Artificial Intelligence Strategy under the Cabinet Office, as well as the program director for the program "Big-data and AI-enabled cyberspace technologies" in SIP and also the program director for the innovative cyberspace technology program in PRISM, both at the Cabinet Office. ANZAI was made a Person of Cultural Merit, and also received the Medal with Purple Ribbon from the Japanese government, as well as Commandeur de l'Ordre Palmes Academiques from France, and honorary doctoral degrees from Ecole Centrale de Nantes and Yonsei University.

Area Overview

Six measures are being promoted in the PRISM's AI technology area to specifically promote the AI strategy.

Currently the following six measures are being promoted.

1. Construction of the platform to explore drug targets

We are working on building a data platform for sharing data with AI in order to select drug targets.

2. Building a smart preventive Long-term care platform

This is an initiative to identify people who are likely to require nursing care at an early stage using the "Kayoinoba" app for successful preventive Long-term care.

3. Building a 5G network utilizing traffic signals

We are working on controlling traffic flow and improving distribution of open data by implementing 5G stations to traffic signals.

4. Smart agricultural production

We are working on image analysis of disease and pests, breeding using cultivation environment emulators, and application of odor sensors to agricultural sites.

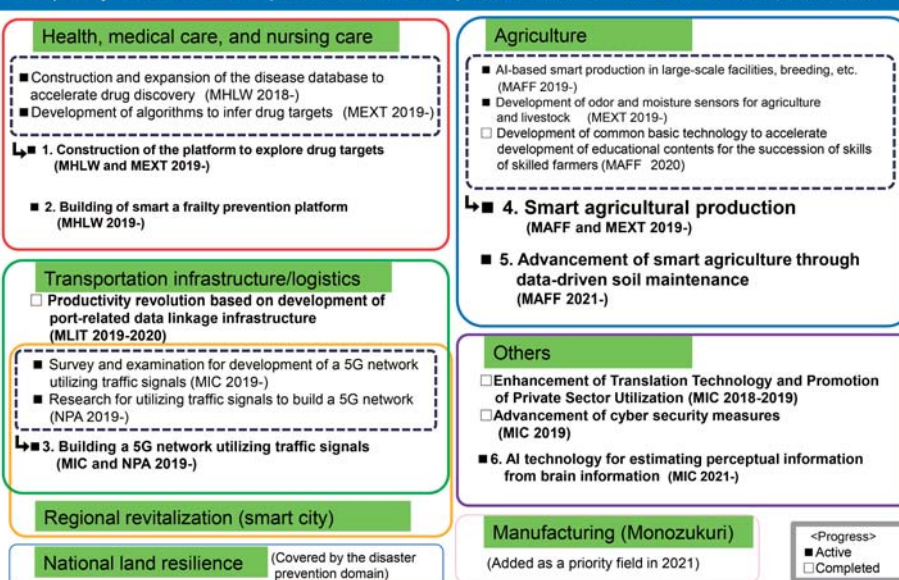
5. Advancement of smart agriculture through data-driven soil maintenance

This is an initiative of smart agriculture that analyzes soil fertility by AI to provide better soil maintenance, farming support, and farming planning.

6. AI technology estimating perceptual information from brain information

We are working on the AI technology to model human brain and evaluate sensory information.

Six priority fields for social implementation and adopted schemes in PRISM's AI domain (since FY2019)



Introduction of the steering committee members

ANZAI Yuichiro Area Director/Chair
ATAKA Kazuto Professor, Faculty of Environment and Information Studies, Keio University/Chief Strategy Officer, Yahoo Japan Corporation
KANADE Takeo U.A. and Helen Whitaker University Professor, Carnegie Mellon University

SAITO Yutaka Vice President and CISO, General Manager of IoT Headquarters, FANUC Corporation
SHIMA Keiichi Deputy Director of Technology Research Institute, Internet Initiative Japan Inc.
TANAKA Hiroya Professor, Faculty of Environment and Information Studies, Keio University
FUKAO Takanori Professor, Graduate School of Information Science and Technology, The University of Tokyo

Interview with the Area Director

Accelerate the social implementation of AI technologies in various fields including health/medical/nursing care, agriculture, and transportation infrastructure



Q1 Could you tell us about the features of the PRISM's AI technology area?

AI technology has been evolving at an accelerating pace in recent years and has become an essential technology for promoting innovation. Competition with other countries in utilization of AI technology using big data is becoming increasingly fierce, and it is difficult to say that Japan is sufficiently competitive.

In order to compete with the world or lead the world, Japan has compiled the AI Strategy 2021 as a national strategy, which focuses on measures that the government should actively and immediately implement. For social implementation, the strategy has selected six priority fields*, describing "we will contribute to the realization of Society 5.0 through diffusion and development of AI, while strengthening our international technological capabilities".

The PRISM's AI technology area is one of the important measures to promote this AI strategy. For FY2021, we have selected ways to accelerate commercialization of measures from ministries and agencies, and are currently promoting a total of six measures: four continuing from the previous year and two new for this year.

It became apparent that Japan's digitization had been delayed when measures against COVID-19 were taken. The AI Strategy 2021, announced in June this year, will advance development of strategy focusing on promoting the social implementation of AI that is truly useful for our social life, including establishment of the Digital Agency. PRISM also implements measures with an emphasis on accelerating the social implementation of AI and applying the results to social changes.

(*) The six fields are health/medical/nursing care, agriculture, national land resilience, transportation infrastructure/logistics, regional revitalization (smart city), and manufacturing.

Q2 What do you specifically focus on in the initiatives of the area?

Particularly, we place importance on three things: cross-ministerial collaboration, exit strategy, and response based on the features of the PRISM system.

1) Cross-ministerial collaboration

Considering that PRISM is a measure of the Cabinet Office, we are promoting collaboration among ministries and agencies on issues that can be solved by working together.

One of the examples should be a measure of building a 5G network utilizing traffic signals.

In this scheme, the Ministry of Internal Affairs and Communications (MIC) and the National Police Agency (NPA) are working together. MIC takes the lead in communication-related matters and NPA takes care of traffic signal-related matters. Then, both of them take collaborative actions not only about traffic flow control using a 5G network but also utilization of public space information around traffic signals. For cooperation between ministries and agencies, we assign one PD to the whole project to prompt R&D regardless of the framework of ministries and agencies. PRISM exceptionally aims to solve a problem across the organizations. In this way, PRISM has some challenges including management over ministries and agencies,

how to focus on issues, and future potential, but I have high expectations for PRISM.

2) Clarification of exit strategy (social implementation)

We also place emphasis on clarification of the exit strategy. Specifically, we want the ministries and agencies to think about sustainable mechanisms (business models, ecosystems, etc.) even after completion of the PRISM's activities.

We ask them to think deeply about whether the business can be continued with a system in which all parties involved can enjoy the benefits or can participate without any burden.

We need to make sure that even if the R&D activity progresses well during the period when the government funds are being invested, it is necessary to prevent it from losing velocity even after ending of the budget period. It is necessary to make a well-defined plan about which cooperative areas PRISM (or ministries/national research institutes after PRISM's activities) takes care of and which competitive areas private sectors will be in charge of for social implementation. I ask them to make sure that the plan should not be one that fizzles out after the end of the budget period, but one that can be sustainably implemented in society.

It is assumed that if the platform is like the one from the conventional R&D of national projects, social implementation will not be successful because the platform will be made in a top-down and government-led manner and not implemented in an assertive manner. I ask the ministries and agencies in charge to consider the form of social implementation from the earliest possible stage and to build a system that will benefit all participants.

3) Actions with the nature of the fund (add-on budget) considered

Since PRISM is an add-on budget to the measures currently being promoted by each ministry or agency, the PRISM Steering Committee has closely communicated with the ministries or agencies in charge and the PDs of R&D.

We are giving consideration so that social implementation can be realized quickly by flexibly modifying the plan specially to minimize the effects of the COVID-19 crisis.

Q3 While you are promoting PRISM's AI technology area, what issues about AI did you notice?

I think some parts of the challenge are common with what I mentioned about the exit strategy earlier. For social implementation, it is crucial to firmly define the line between the cooperative and competitive areas and to create a mechanism in cooperation with PDs to accelerate development of the competitive areas. On top of that, I expect that active competition will accelerate social implementation.

Q4 Please tell us about the expectations and prospects for the future of PRISM.

Regarding development of AI technology, I think it significant to support not only the R&D for social implementation as in PRISM but also development of basic advanced technology considering global competition.

There are many promising measures adopted by PRISM to realize the targets of the AI strategy. Then, I hope that the presentations and reports at this symposium will serve as good precedents and open up new perspectives.