

JST-Mirai Program; Overview and Int'l Activities

IMABAYASHI Fumie

Manager, Department of R&D for Future Creation



科学技術振興機構

2021.1.18 @ JST Connect 2020 Webinar

JST-Mirai Program



Since
FY2017

The JST-Mirai Program promotes **high-risk and high-impact research and development (R&D)** to establish Proof of Concept (POC), where practical application feasibility may be properly judged by investors and industry.

The R&D projects set the technologically challenging goals by considering the needs of industry and society.



Annual budget for FY2020;

7.3 billion JPY (approx. 70 million USD)

USD=104 JPY



Number of Projects;

196 projects (as of Jan. 2021)

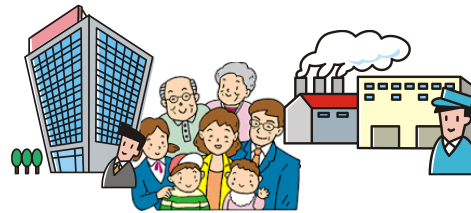
Two Project Approaches

Small-start Type

MEXT

Areas based on the
5th S&T Basic Plan

Super smart Society , Sustainable Society, Safe and Secure Society, Low carbon Society



Needs of Industry and Society

JST

Prioritized Themes

Call for proposal
research projects (FS)

Feasibility Study

Full R&D Project

S&T Trends
investigated by JST

Feasibility Study

Up to 3 years
20-45 million JPY/project

Full R&D Project

Up to 5 years
750 million JPY/project

Large-scale Type

MEXT

Technology Themes

to change current
technology system and to be
future basic technology

JST

Call for proposal

R&D Projects

R&D Project

Up to 10 years
4.5 to 6.0 billion JPY/project

■ Setting themes to maximize social impact

- Themes set to investigate various values that the society and industries seek
- Collaboration of various organizations and researchers across a variety of academic fields including humanities and science

■ Creating values that the society seeks

- “Back-casting” approach R&D that brings about a transformation of society and industry for the future

■ Developing technological challenges

- Proof of concept (POC) that helps determine the feasibility of practical implementation

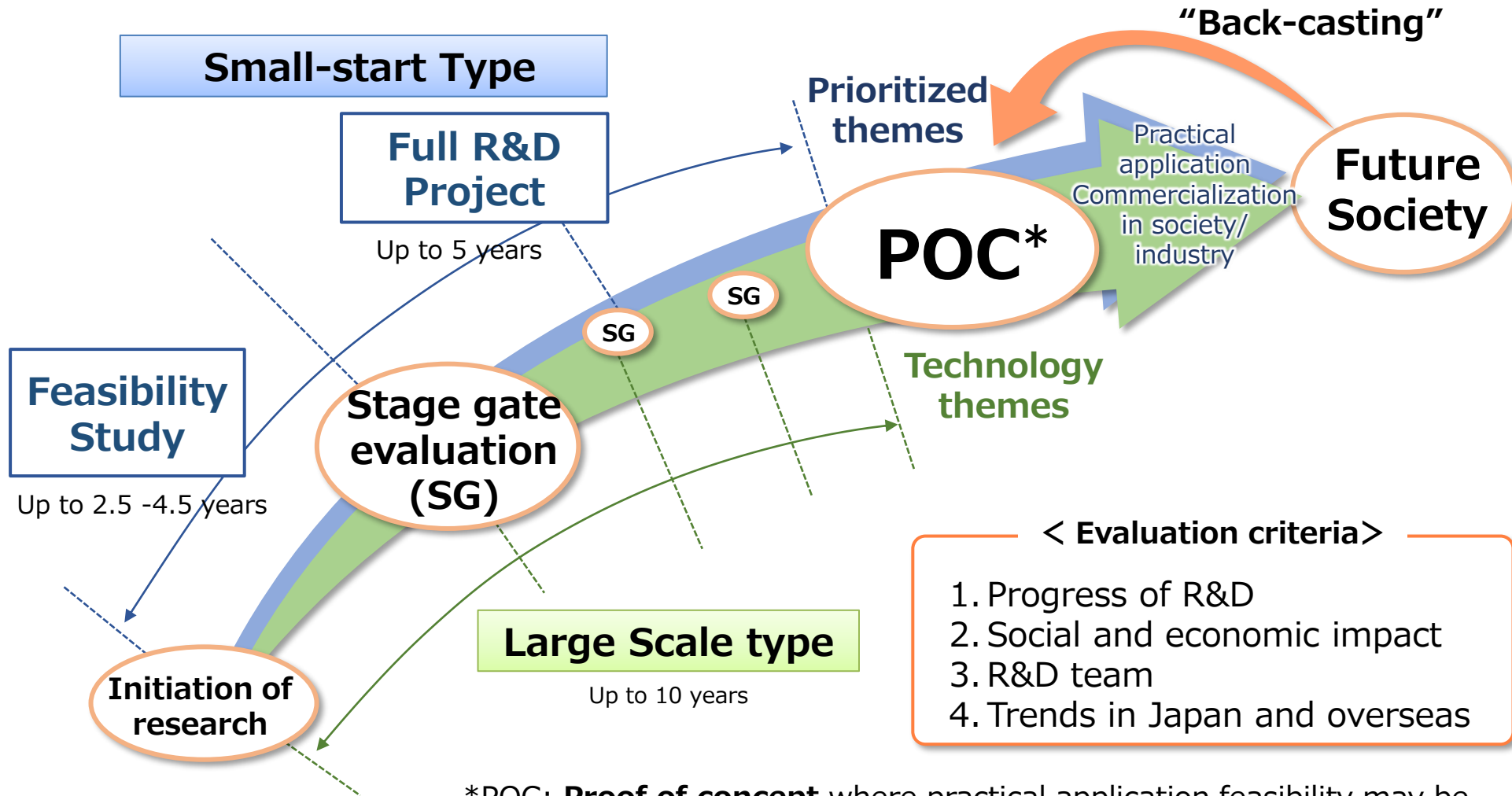
■ Flexible management by R&D Supervisors

- R&D Supervisors review the R&D plans, teams and progress of the projects according to the R&D portfolio for each area and prioritized theme, in collaboration with experts.

■ Stage-gate evaluation (SG)















- Verify impact of targets, necessary technologies and other research elements (ELSI, standardization, etc.) in addition to the scientific merit.
- Advice to spin-out or to collaborate with other sectors.
- Judge whether to scale-up, continue or terminate R&D projects.
- For “Large-scale Type”, private funding (more than 20%) is sought for the subsequent R&D activities in the promotion of participation of the private sector looking ahead to practical implementation.

Scheme of the Program

















*POC: **Proof of concept** where practical application feasibility may be properly judged by investors and industry

Areas & Prioritized Themes (1)

Area	Prioritized Themes
Super Smart Society (Society 5.0)	Establishment of a service platform that enables collaboration between various components and creation of new services 
	Modeling and AI that connects the cyber and physical worlds 
	Innovative AI technologies for sophisticated integration of cyber and physical world 
	Making full use of AI and simulation technologies across different fields for a human centered society   
Sustainable Society	Innovation in manufacturing for new process of sustainable resource recycling 
	Improving intellectual capabilities to enable “a Socially Active Life” for all members of society, helping overcome labor shortages 
	Creation of innovative food production technologies responding to future changes in climate and social demands 
	Enhancement of product durability and usability for a resource efficient society  
	Breakthrough technologies to accelerate breeding and strain improvement in biological production for a sustainable society   

Areas & Prioritized Themes (2)

Area	Prioritized Themes
Safe and Secure Society	Development of a crisis navigator for individuals  
	Creation of "humane service" industries   
	Realization of safe, secure, and comfortable urban areas free from hidden hazardous substances  
	Self-management of health based on the action mechanism of daily behaviors such as food, exercise and sleep 
	Realization of wellbeing by feedback based on psychological states evaluated by objective methods  
Low Carbon Society	Realization of a low carbon society through game-changing technology   
Common Platform	Realization of common platform technologies, facilities, and equipment that create innovative knowledge and products 

For details, please visit our website (<https://www.jst.go.jp/mirai/en/index.html>)

Full R&D Projects Presented Today

“Safe and Secure Society” Area; Development of the crisis navigator for individuals

Crowd control adaptive to individual and group attributes

(PL; Katsuhiko NISHINARI, Professor, The University of Tokyo)

Development of highly accurate crowd simulator and optimum control system for whole crowds, which provide mobility information services to individuals by taking individual and group attributes into account for safe and secure society.

“Sustainable Society” Area; Innovation in manufacturing for a new sustainable resource recycle

Construction of integrated circular production system by product lifecycle management and innovative dismantling technology development

(PL; Chiharu TOKORO, Professor, Faculty of Science and Engineering, Waseda University)

Development of novel separation technology between different materials by pulsed electric discharge and the life cycle simulation to optimize product design/ manufacturing assuming separation for reuse/recycling, toward the construction of a novel integrated circular production system.

“Sustainable Society” Area; Creation of innovative food production technologies in response to environmental changes in the future

Development of the production technology for next generation-meat using 3D tissue engineering techniques

(PL; Shoji TAKEUCHI, Professor, Graduate School of Information Science and Technology, The University of Tokyo)

Establishment of the technology for the industrial production of cultured steaks using bovine muscle cells, contributing to a sustainable and healthy society.

1. Dispatching or inviting researchers for knowledge exchange

- Funding from both sides (Japan/JST and overseas)
- NDA if necessary, to protect IPs/ know-how etc.

2. Organizing international workshop/symposium

- Co-funding workshop/symposium from both sides
- Co-organize committee for realizing standardization on new technologies

3. Participating in the JST-Mirai R&D Projects

- Funding from JST
- Agreement required between JST and overseas institute

Thank you for your kind attention!