The strategic transformation for future societal vision – Japan's innovative approach-

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY POLICY

Miki KURIBAYASHI

Kazuhiro HAYASHI and Shinichi AKAIKE

S&T Foresight Center
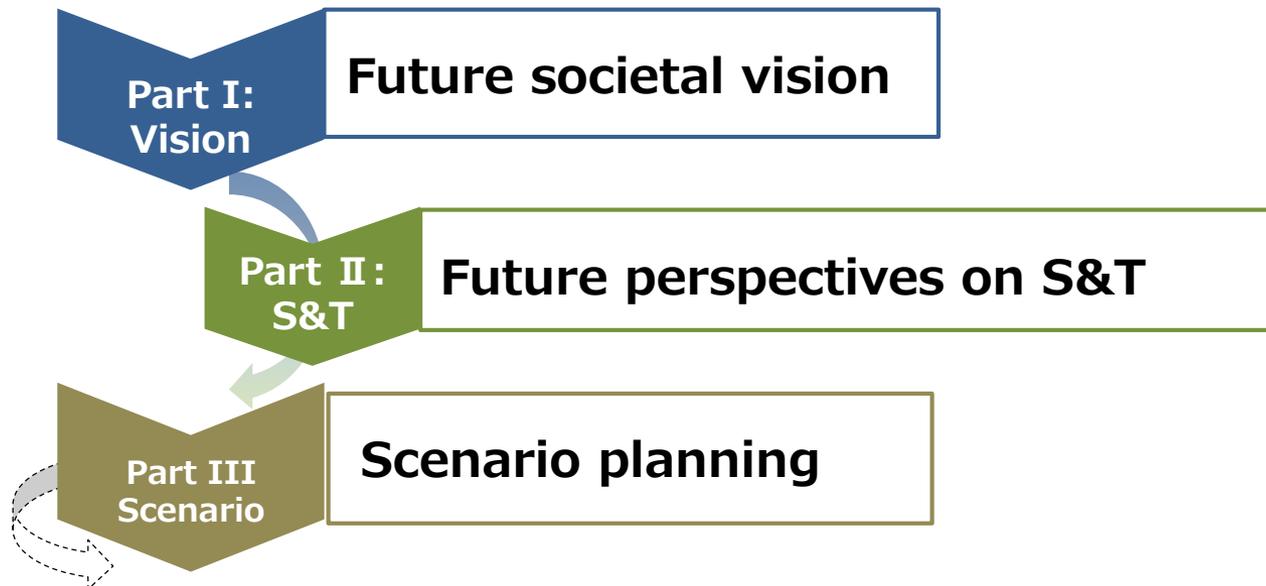**National Institute of Science and Technology Policy**
Ministry of Education, Culture, Sports, Science and Technology
JAPAN

◆ **Background**

The S&T Foresight survey has been carried out every 5 years since 1971

◆ **NISTEP has been involved since the 5th survey (1992)**

◆ **The 10th S&T Foresight survey was conducted through 2013-2015 to contribute to STI policies and strategies for the next 5 years**

◆ **Outline of the latest survey (2013-2015)**

Part I: Vision — **Future societal vision**

Part II: S&T — **Future perspectives on S&T**

Part III Scenario — **Scenario planning**

Review of the 10th S&T Foresight Report

1	**We need to identify goal oriented direction to the society.**

2	**We need to detect weak signals and wild cards to sense changes in the society.**

3	**We aim to organize workshops with members of different fields in order to grasp signals from multi-aspects.**

Resouce: NISTEP REPORT No.164

Forthcoming approach for Next Foresight

Review

Approach

Interim surveys

1	Identify goal oriented direction to the society
2	Detect weak signals and wild cards
3	Grasp signals from multi-aspects

Designing various sets of participants

Merging different perspectives into Delphi

Broadening Scenario-Planning

I Organize workshops with varying members

II Cooperation with international partners

III Consider scenarios introducing SDGs (case study)

3

Workshops consisting of following members

New setting

number of participants

	STI Researcher Administrator	Specialist, Staff		
		Communicator	HR Clerk	URA※
Lab.	12		2	
Univ.	6	1		1
Corp.	3	1		
Gov.	8			
Org.	3			
total	32	2	2	1

※URA : University Research Administrator

Feature

–These members have been selected to communicate and cooperate with a variety of stakeholders in society.

**Title : Create open science in the future
through cooperation with society**
Date: 2days (27 and 28 Jan 2017)
**Organization :The Research Institute
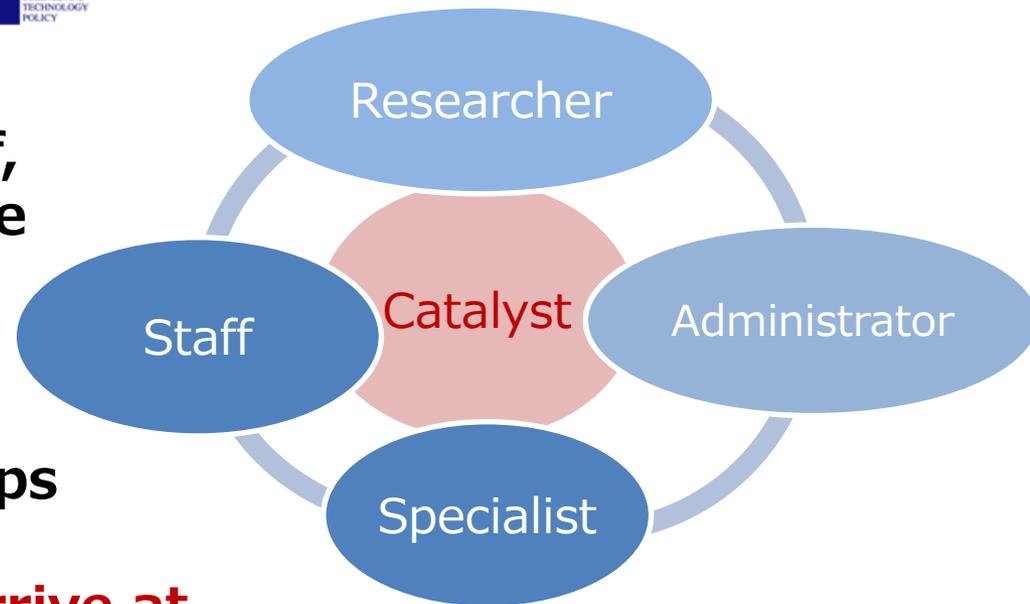for Humanity and Nature/
National Institute of Informatics/
and NISTEP**

NII

By adding specialist and staff, we can gain grater knowledge results.

"Catalyst" has ideas to fill gaps between science and society towards a new direction to arrive at an innovative solution.

Researcher

Catalyst

Staff

Administrator

Specialist

We have maintained good relationship with many countries through cooperation through surveys and collaboration. We aim to **further enhance bilateral cooperation with case studies, international comparison studies and information exchange.**

Europe

Middle East

Africa

Asia

Japan

North America

Latin America

Pacific
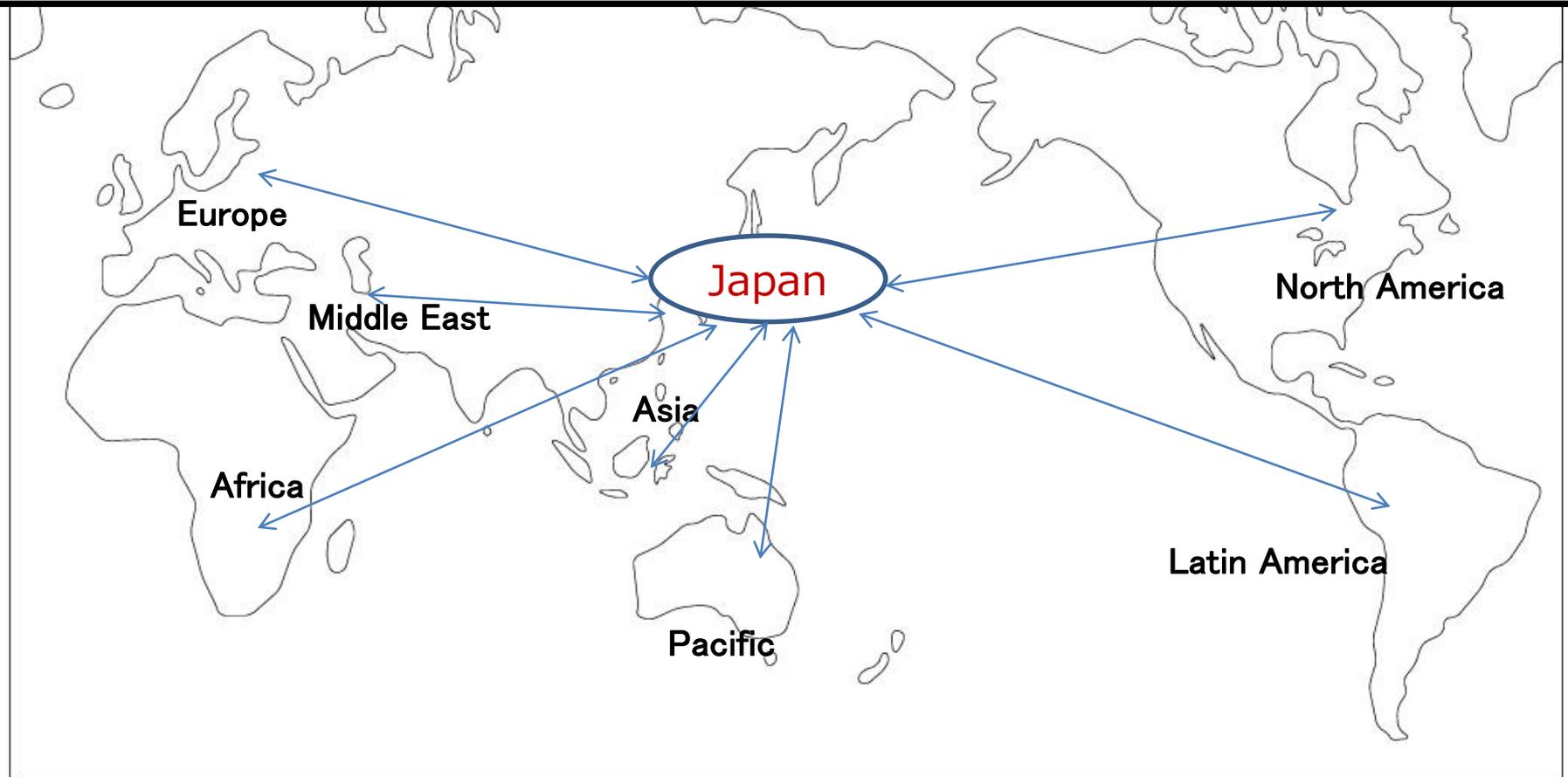
Resouce: map www.abysse.co.jp

Collaborative research project between Japan and Finland

Trial of foresight by integrated several foresight tool (2007-2008)

Finland
Extract topics having
Impact for social change

Japan
Utilize Delphi survey
for foresight

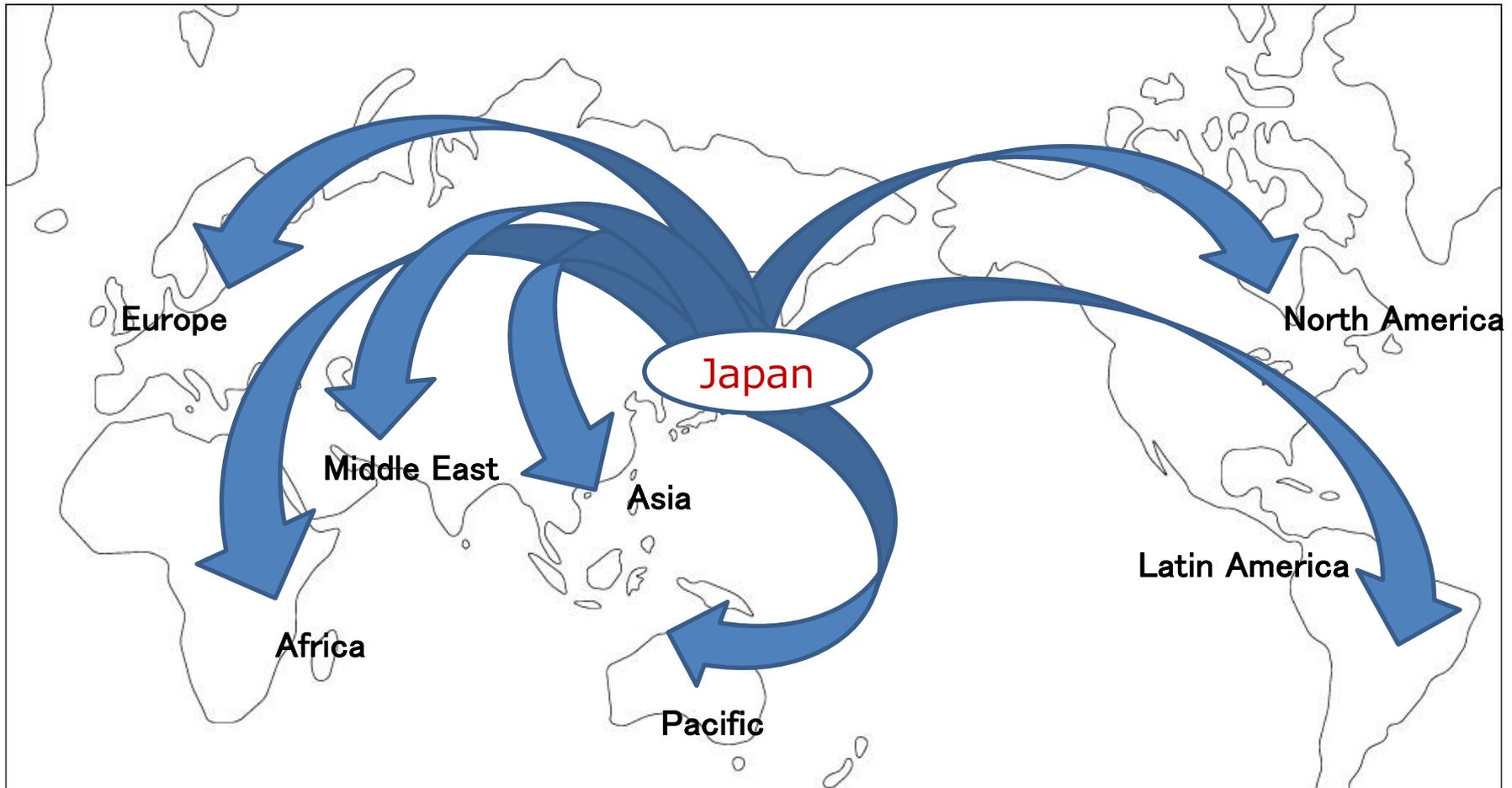**The main focus is to determine a clear concept and adjust opinions in a short period of time.**

We held seminars and discussed the effective new approach(2017)

Finland
Stakeholder involvement
(Foresight 2030)
Strategic design for Foresight

"Finnish Innovation and Foresight System"
"Hybrid Methods
for Exploring Transformative Futures" "

By adopting useful aspects through international cooperation, we can drive our research in new directions or speed up processes to arrive at solutions.

"Work and Lifestyle in 2030" is a Workshop on Sustainable Development Goals (SDGs), organized by Sustainability Forum Japan (2017)

The Participants of this workshops

	STI Researcher Administrator	General Specialist, Staff	
		SDGs	CSR※
Lab.	2		
Corp.	4		3
Gov.	1		
Org.	2	3	
total	9	3	3

※CSR：Corporate Social Responsibility

NPO Sustainability Forum Japan
Work :Spreading GRI（Global Reporting Initiative）
concept by holding seminars for sustainable society
The Participants : over 3,250 since 2002

Q:What preparation is required for co-existence of human and AI in the future society?

A1: How to evaluate worker's performance in such environment.

A2: How to plan HR strategy to enhance corporate value toward the future.

A3: How to strengthen the management comprehensively.

Field	Topics	Importance	Uncertainty	Discontinuity	Morality	Competitiveness	When to be realized	When to be achieved
Service	The generalization of robot inspection technology to inspect buildings or infrastructures.	3.7	3.2	2.5	2.4	2.3	2020	2025
ICT	Technology to ensure that critical systems which could malfunction and endanger people's lives or operate safely.	3.6	2.7	3.2	2.7	2.7	2025	2030
ICT	A robot which conducts dangerous work in cooperation with workers with specialized knowledge and skills.	3.6	3.1	2.7	2.5	2.5	2025	2025
Service	Intelligent robots (able to recognize and avoid danger without input from an external operator) becomes widespread.	3.6	3.1	2.7	2.5	3.2	2024	2026
Service	nursing care robots that both ensure human safety and shorten time humans and robots are in contact during operations.	3.6	3.2	2.5	2.6	3.3	2020	2025

※5-point scale: 5=High 1=Low

AI technology is developing rapidly.
It involves various issues regarding human and AI.
How to cope with this rapid change and adapt to it sustainably are essential.
I suggest the below approaches in response to Delphi survey.

Promoting ways to make effective use of time by carrying out productive activities

Creating methods to optimize ways of human and AI cooperation
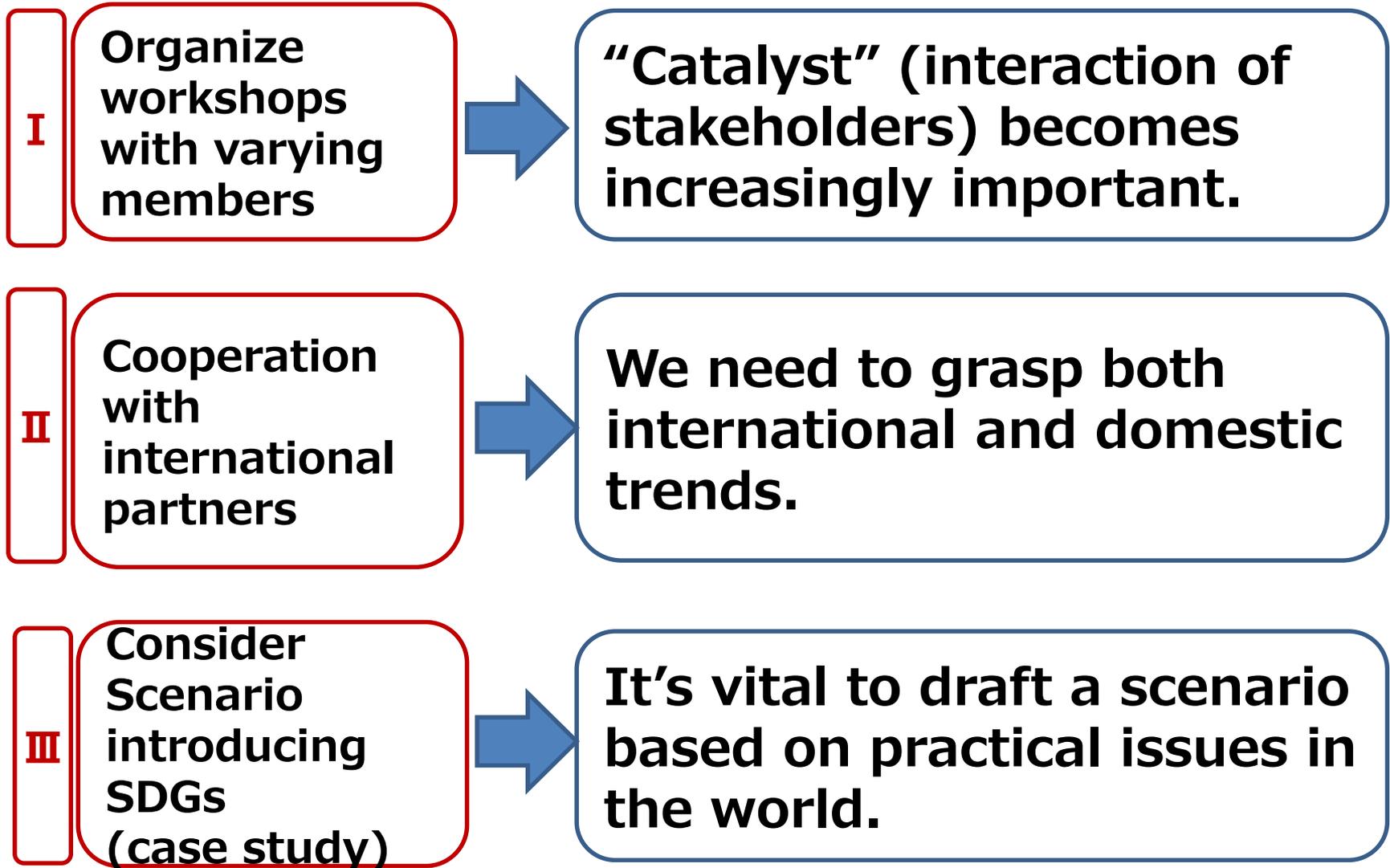
Theory by 2020

Design by 2025

The process of collaborative creation of value in services, and the effective combination of resources and the dynamism of their interaction will be theorized.

Establishment of methods to measure and evaluate productivity in the case of intellectual work and contributions to cooperative intellectual activities.

Conclusion of Interim surveys

I	**Organize workshops with varying members**	→	**"Catalyst" (interaction of stakeholders) becomes increasingly important.**
II	**Cooperation with international partners**	→	**We need to grasp both international and domestic trends.**
III	**Consider Scenario introducing SDGs (case study)**	→	**It's vital to draft a scenario based on practical issues in the world.**

Towards a new framework

Framework for new S&T Foresight

Developing horizon scanning and adapt various data and Planning evidence-based STI policy

Web crawling of information about S&T and society press releases, news articles, SNS, database of patent and monograph

horizon scanning

Extract emerging issues

Visualized information of regular survey

Emerging issues reports

Reports by field and theme

Analysis and assessment by experts

Foresight open platform

Future societal vision

S&T Foresight

Future perspectives on S&T

Scenario planning

Thank you
for your attention!

Please visit our Website:
http://www.nistep.go.jp/en/