

**Revitalizing Japan by Realizing Society 5.0:
~ Action Plan for Creating the Society of the Future ~
Overview**

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Japan Business Federation (Keidanren)

I. Introduction	2
II. The World of Society 5.0	3
III. Implementation Action Plan	5
IV. Required Measures	17
V. Conclusion	19

In tandem with the ongoing fourth industrial revolution, Japan is promoting the realization of Society 5.0

With a view to shifting from “solving social issues” to “creating a better future,” Society 5.0 offers a new growth model for Japan that also incorporates Germany’s “Industrie 4.0” vision

We will position projects aimed at realizing Society 5.0 within the context of initiatives such as the Japan Revitalization Strategy 2017 and propose a specific action plan for actively promoting them within both the public and private sectors

*Industrie 4.0: Initiative aimed at realizing a smart manufacturing industry published in “High-Tech Strategy 2020” in 2010

*Society 5.0: Initiative aimed at achieving a “Super-Smart Society”—the 5th stage of society’s development, following the Hunting Society, Agrarian Society, Industrial Society, and Information Society

The World of Society 5.0: Defining Society 5.0

Going beyond individual optimization to realize the optimization of society as a whole
Breaking free of various restraints with the aim of resolving social issues and creating abundance for society and its citizens



Society 4.0

Invention of the computer
Start of information distribution

Information society

Second half of 20th century

Individual optimization through application of ICT



Society 5.0

Use of IoT and AI
Advances in biotechnology

Super-smart society

From early 21st century

Optimizing society as a whole through integration of cyberspace and physical space
(total optimization)

Efficient use of natural resources

Use of new resources (data)

World bound by various constraints
(temporal, spatial, etc.)

World released from various constraints

Seeking solutions to individual problems
Making individual industries more efficient

Solving complex social issues
Achieving abundance for society and citizens

The World of Society 5.0: Overview of Society to Be Realized

Society 4.0 Issues

The World of Society 5.0

Falling population
Declining industrial
competitiveness

Smart society undaunted by population decreases

Doubling GDP per capita

Freedom from
population constraints

Super-aging
Lack of active
participation among
women

**Society in which individuals can actively participate,
including the elderly and women**

Maximizing the deployment of
the abilities of individuals

Freedom from
age/gender constraints

Disasters/terrorism
Deteriorating
infrastructure

Safe, secure society in both cyberspace and physical space

Zero damage from crime, disasters, and
cyber attacks

Freedom from
anxiety

Regional decline
Urban concentration

**Society where cities and regions are linked and it is possible
to live comfortably anywhere**

Zero difference in QoL between cities and regions

Freedom from
spatial constraints

Environmental
problems
Resource/water
shortages

Sustainable society that balances the economy and environment

Zero wasted use of resources/energy

Overcoming
environment/energy constraints

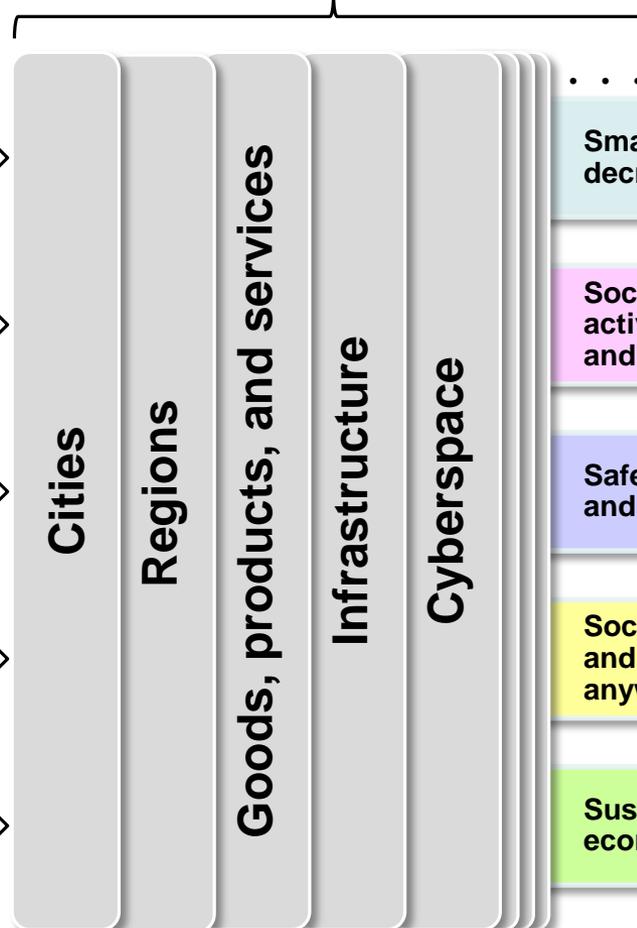
Implementation Action Plan: Executing Public-Private Projects

Executing public-private Society 5.0 realization projects in areas that will serve as a foundation for enabling Society 5.0 as part of Japan's new growth strategy

Promoting public-private projects in areas that will provide a foundation

Five considerations for selecting areas

- Resolving complex social issues and focusing on creating a better future
- Enhancing industrial competitiveness and improving QoL through digitalization
- The need for collaboration between public and private sectors and between businesses, since Society 5.0 will not be achieved by the private sector alone
- Looking beyond R&D to consider social implementation
- Providing a foundation for the new society



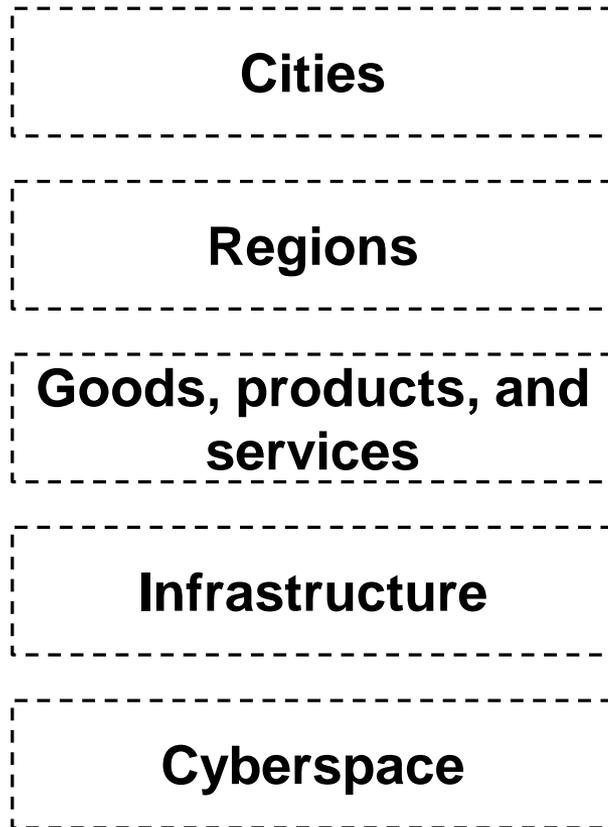
World of Society 5.0 to be realized

- Smart society undaunted by population decreases
- Society in which individuals of all kinds can actively participate, including the elderly and women
- Safe, secure society in both cyberspace and physical space
- Society where cities and regions are linked and it is possible to live comfortably anywhere
- Sustainable society that balances the economy and environment

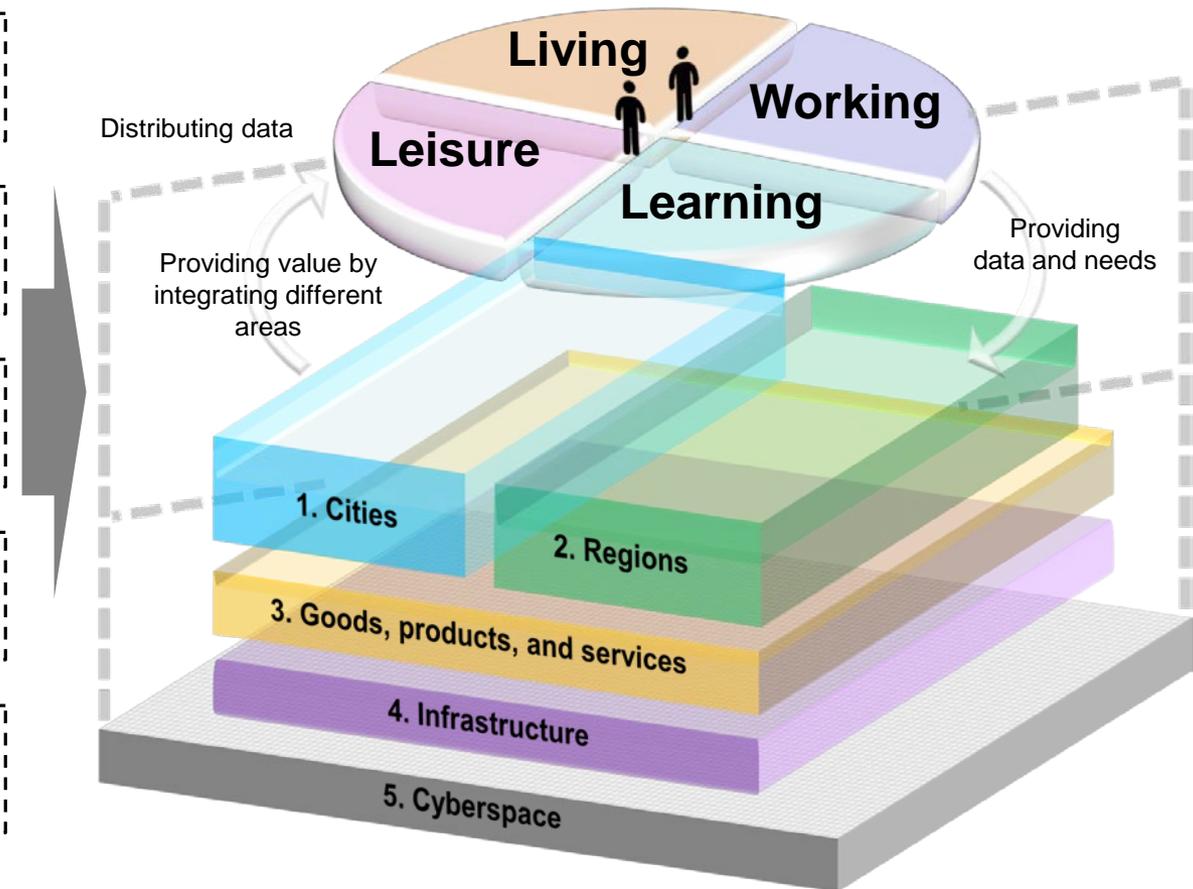
Implementation Action Plan: Executing Public-Private Projects

Specifying “cities,” “regions,” “infrastructure,” “goods, products, and services,” and “cyberspace” as priority areas for action and considering specific action plans

Specifying 5 areas and considering actions



Linking various fields via cyberspace to achieve an abundant, dynamic society



Creating new cities that combine convenience, safety, and economic efficiency

Cities in Society 5.0

- ❑ Overcoming financial pressures caused by the falling birthrate and aging population to realize dynamic cities through public-private partnerships
- ❑ Resolving traffic jams (cost to national economy: 12 trillion yen/year), distribution efficiency (truck load factor: less than 50%), problems arising during disasters, etc.
- ❑ Improving international competitiveness with regard to work-life balance, increasing investment in Japan, and enabling women and the elderly to participate more actively in society

Core Initiatives

Developing a sensor network that enables constant, instantaneous visualization of urban activities

- Maintaining data for shared use by public and private sectors; promoting technological development of sensor network for collecting data, shared service platform, AI for optimized control, etc. (by 2020)

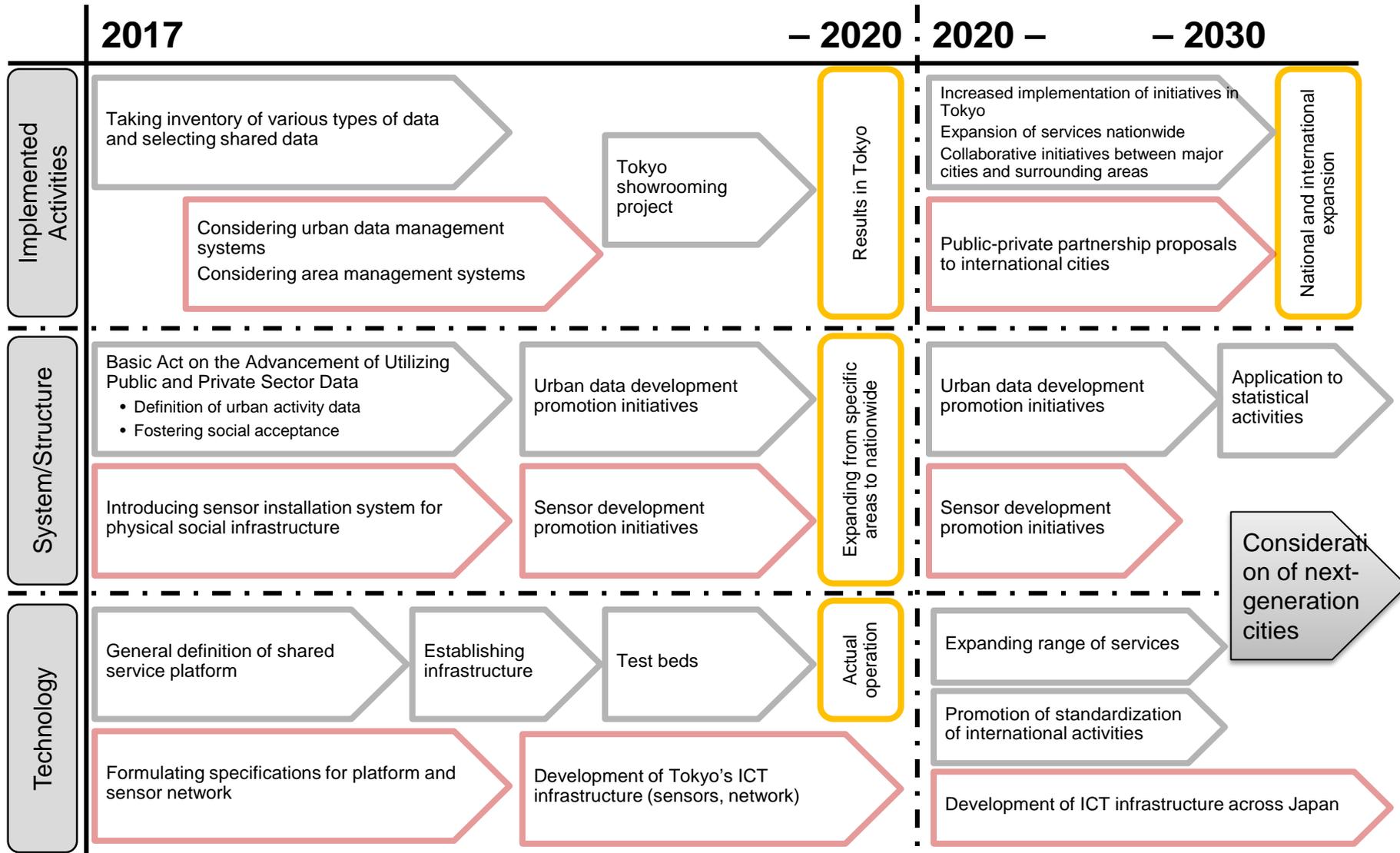
Establishing data analysis infrastructure that will enable urban management adapted to the needs of each individual resident

- Developing Japanese IoT service platform (shared service platform) to provide optimal services during the Tokyo Olympics/Paralympics (by 2020)
- Starting in the mobility and disaster prevention fields and expanding into other areas; enabling structural resolution of social issues and the creation of a better future by adapting to the aging of society, refining working methods, establishing a society based on recycling of resources, etc.

Establishing systems and structures aimed at ensuring practicality of effective data-based urban management

- Clarifying powers and responsibilities relating to new area management systems in cities and fostering their acceptance by society

Implementation Roadmap



Enabling people and nature to co-exist in harmony in thriving regional communities that achieve self-sustaining growth

Regions in Society 5.0

- ❑ Creating thriving regional communities that achieve self-sustaining growth and developing human resources who will play an active role locally
- ❑ Developing cutting-edge infrastructure in areas that are vital for all regions, such as agriculture, childcare/nursing care, and disaster prevention
- ❑ Developing centers that will create industrial competitiveness and strong regional values that promote harmony between people and nature

Core Initiatives: Promoting the development of centers through full-fledged co-operation between government, industry, and academia based on an open laboratory approach

Establishing infrastructure that will enable the realization of agriculture support technology and regional agriculture projects based on labor-saving and smartification

- Supporting the expansion of agriculture support technology and diverse work methods via growing information acquired from satellites and ground-level cameras, smartification of soil and harvest information based on smart agricultural equipment, labor-saving based on the use of robotics, etc.

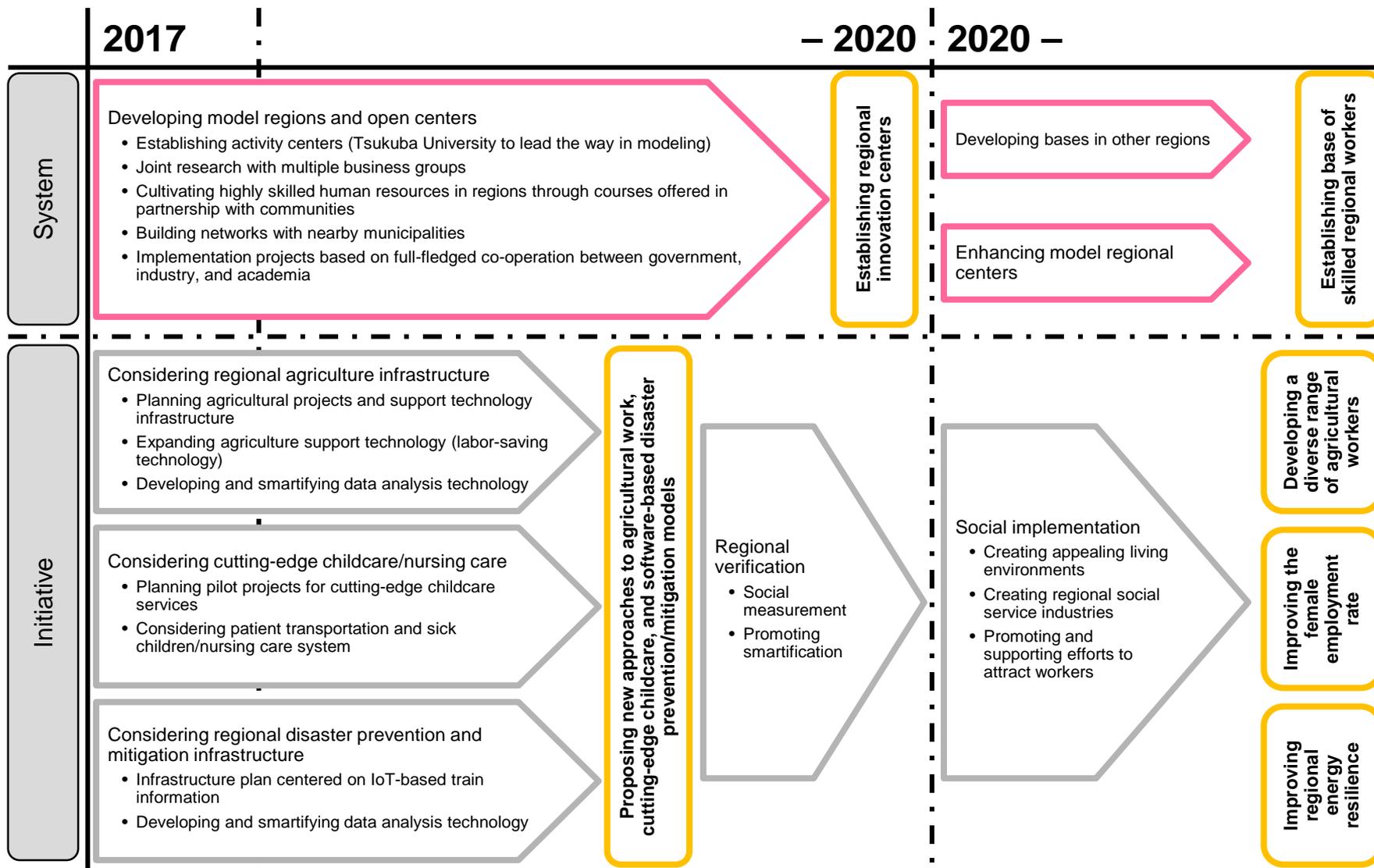
Enabling comprehensive regional care through the application of cutting-edge technology and cyber information sharing in fields such as patient transportation, care services for sick children, etc.

- Developing cutting-edge child care/nursing care based on the use of automated transportation, robotics, and smartphones
- Improving the employment environment for younger workers who will play a key role in the future for regions by developing cutting-edge childcare services and applying similar measures for nursing care

Establishing disaster prevention/mitigation infrastructure based on optimization of regional energy supply and demand and infrastructure monitoring

- Enabling flexible, convenient travel through IoT-based vehicle information and use of FCVs, PHVs, and EVs and distributed power functions
- Establishing disaster recovery systems that secure transportation routes and use local energy in regions when a disaster occurs

Implementation Roadmap



Enabling increased capacity to create goods, things, and services, enhanced industrial competitiveness, and improved quality of life

Goods, Products, and Services in Society 5.0

- ❑ Developing a model that uses goods as a starting point for generating profit from products and services
- ❑ Creators of products and services in cyberspace select ideal suppliers. Suppliers are able to participate in creation of products and services that leverage their own strengths
- ❑ Individuals receive goods, products, and services that better meet their needs

Core Activities: Using products and services as well as goods as a starting point for enhancing growth potential

Developing a platform for goods, products, and services

- Modeling the value chain and verifying the profit redistribution system, economic impact, etc.
- Considering how to fully optimize the value chain by conducting various domestic trials and holding conferences
- Establishing public contract research organizations to perform cutting-edge manufacturing

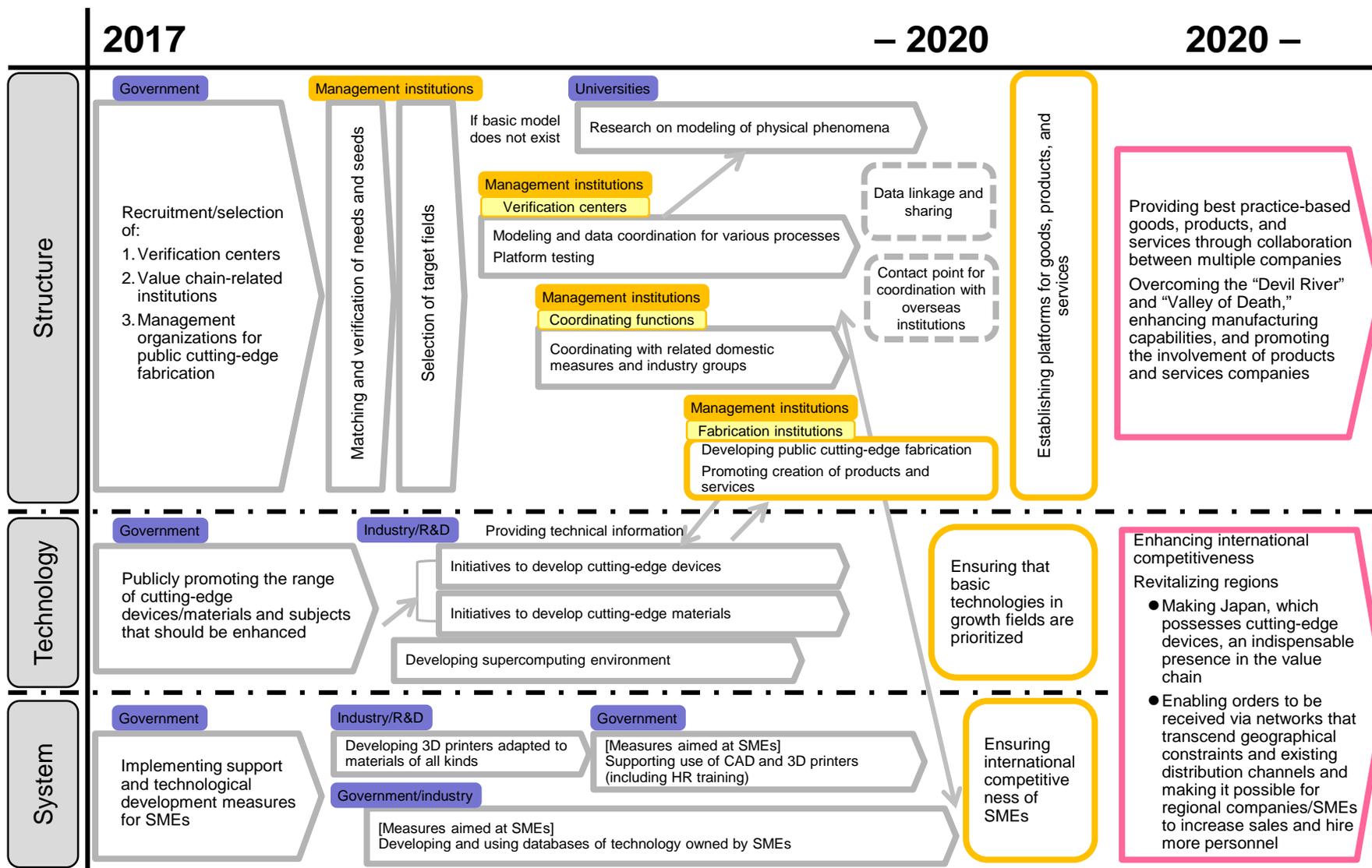
Ensuring that basic technologies in growth fields are prioritized

- Establishing development centers for cutting-edge devices in order to maintain the device design capabilities of Japanese companies
- Developing and promoting cutting-edge material technologies to support the superiority of Japanese manufacturing
- Developing a supercomputing environment in collaboration with industry and academia for AI design, model design, and simulations

Developing an environment to ensure the international competitiveness of small- and medium-sized enterprises

- Validating and supporting best practices through early acquisition and model representation of advanced skills
- Developing and globally deploying technology such as composite 3D printers suited for plastics, metals, compounds made from them, etc.

Implementation Roadmap



Developing a resilient, sustainable infrastructure and nation and supporting comfortable living through digitalization

Infrastructure in Society 5.0

- ❑ Improving labor productivity in the architecture and civil engineering fields by 20% by 2025
- ❑ Developing high-quality infrastructure stock through sophisticated infrastructure maintenance and management
- ❑ Enabling a more resilient nation and urban development through establishment and management of “virtual Japan”

Core Activities

Developing smart construction and production systems centering on the introduction and promotion of BIM and CIM*

- Aiming to smartify construction and production systems by promoting digitalization through the introduction and promotion of BIM and CIM compliant with international standards and technological development of related software and hardware (robots, etc.)

Developing asset management technology through collection of infrastructure data, AI analysis, etc.

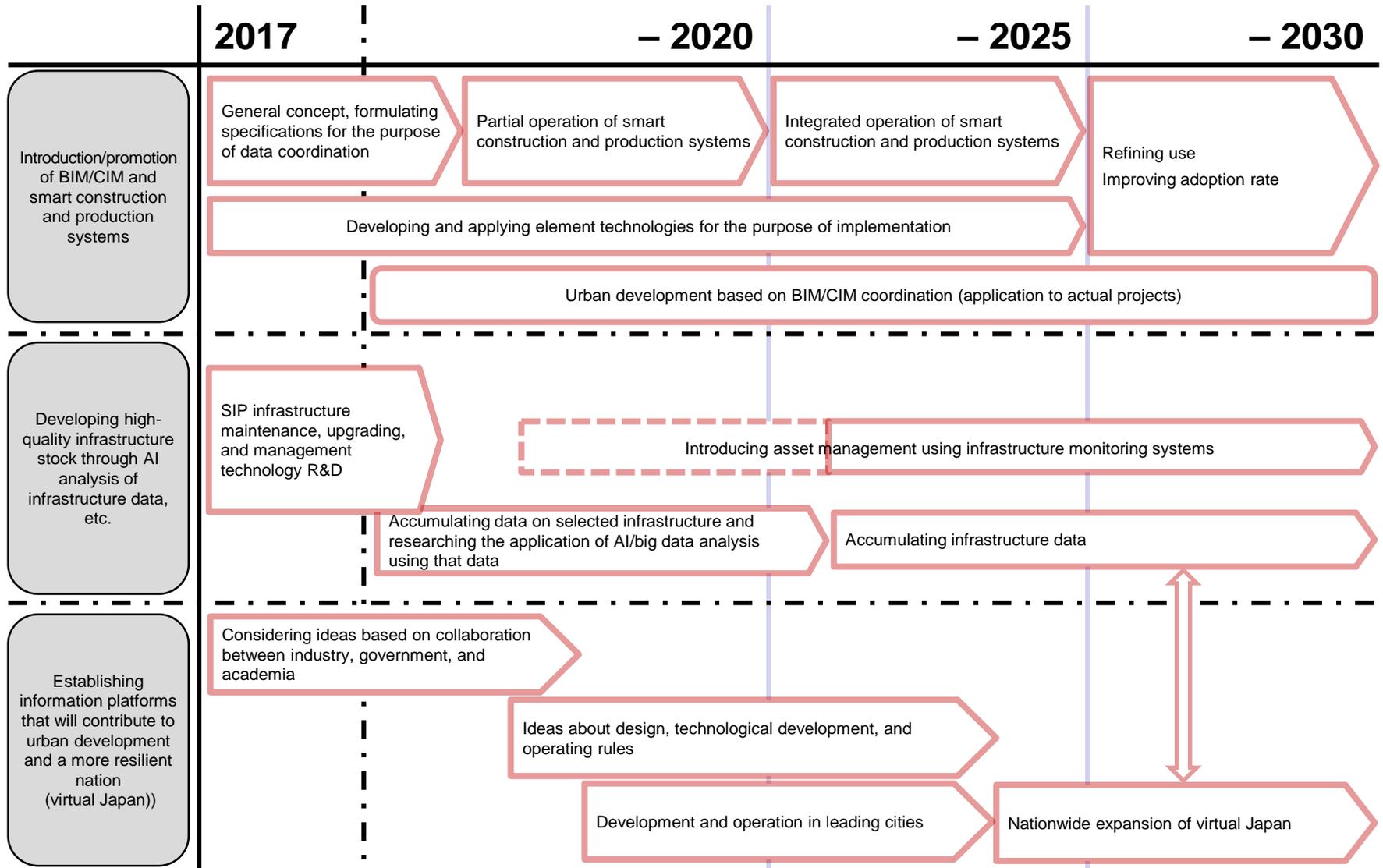
- Contributing to the development of high-quality infrastructure stock by improving the evaluation of infrastructure health based on analysis of big data and application of AI, using the results of existing SIP infrastructure maintenance, upgrading, and management technology as a platform

Establishing “virtual Japan” information platforms that will contribute to urban development and a more resilient nation

- Integrating infrastructure databases, geospatial data (topography, geology, etc.), and real-time data on disasters, weather, traffic, cities, etc. to reproduce lands, cities, areas, and neighborhoods across Japan in cyberspace

*BIM (Building Information Modeling) and CIM (Construction Information Modeling): systems that digitalize information relating to works in the construction and civil engineering fields

Implementation Roadmap



Contributing to diverse value creation through safe, secure, effective data usage

Cyberspace in Society 5.0

- ❑ Linking systems together to function as a synergistic whole* and enabling optimal distribution/arrangement of people and things
- ❑ Functioning as a platform for optimizing society as a whole, resolving social issues, improving Japan's industrial competitiveness, and creating a service model that leads to economic growth

Developing data distribution platforms

- Developing an environment that promotes public-private collaboration which transcends organization- and task-related barriers and sharing/usage of a wide range of data

Developing security platforms

- Developing platforms that ensure the reliability, soundness, and robustness of cyberspace in Society 5.0

Developing digital twin platforms

- Developing platforms for constructing sophisticated models in cyberspace based on big data obtained from sensors, etc.

Developing systems that promote data distribution/usage

- Achieving an environment that enables secure distribution and usage of data by finding the right balance between data protection and distribution/usage

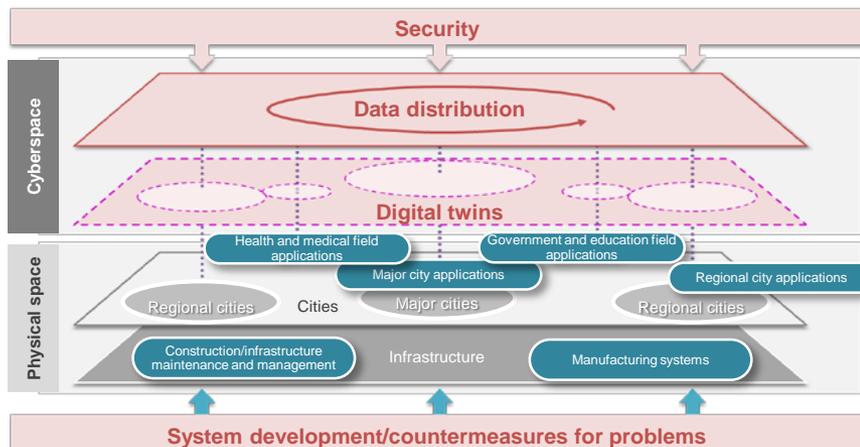


Figure: Overview of Cyberspace

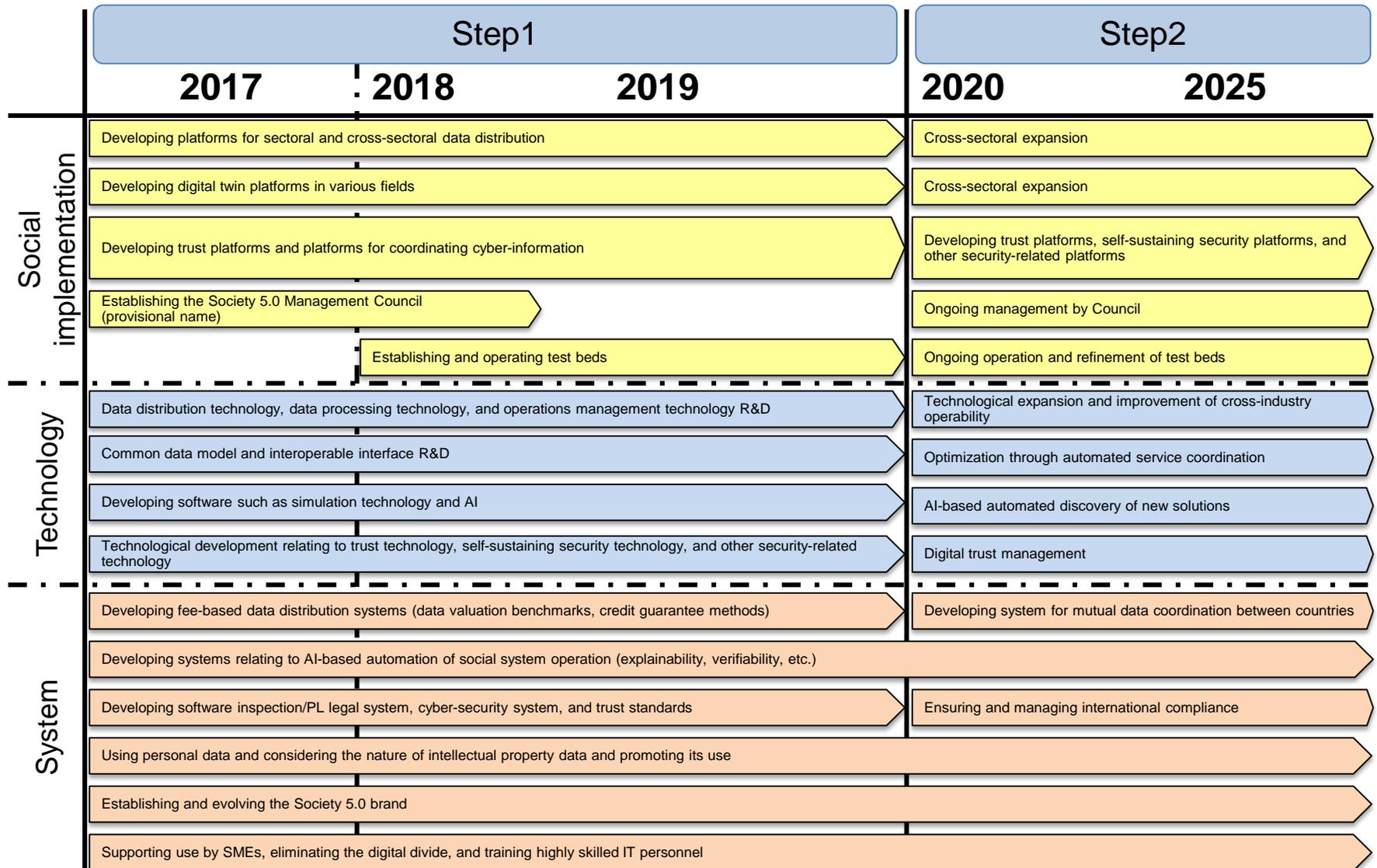
Addressing problems that arise due to the expansion of cyberspace

- Achieving an environment that continues running even when disasters occur, eliminating the digital divide, and supporting appropriate ICT use

Addressing other issues

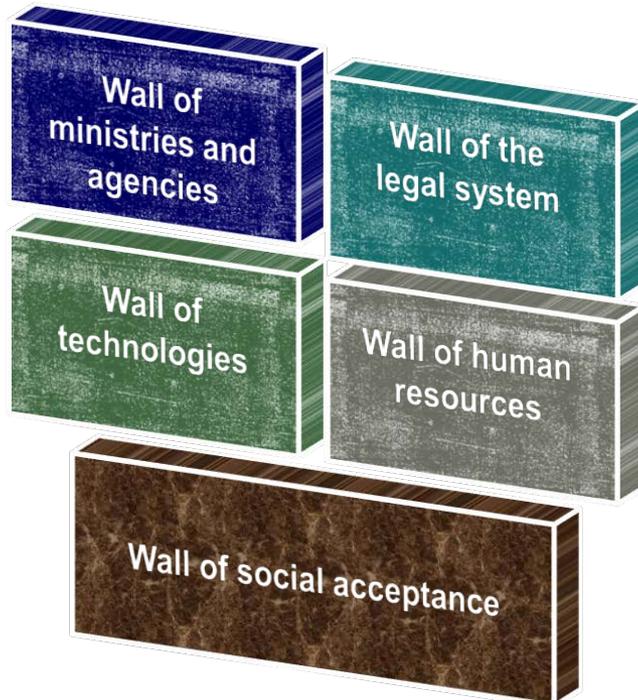
- Reviewing and enriching architecture, enhancing base technology research, global industrialization, HR development, etc.

Implementation Roadmap



Required Measures 1: Breaking Through the Five Walls

In order to realize Society 5.0, it is necessary to break through “five walls”—the wall of ministries and agencies, wall of the legal system, wall of technologies, wall of human resources, and wall of social acceptance—as well as the wall of industry itself



Wall of ministries and agencies

- Making the Council on Investments for the Future and Council for Science, Technology and Innovation leaders in realizing Society 5.0 and coordinating the efforts of various ministries

Wall of the legal system

- Based on the Basic Act on the Advancement of Utilizing Public and Private Sector Data, using public and private data to resolve social issues and enhance international competitiveness and developing digital government

Wall of technologies

- Ensuring that government investment in R&D is at least 1% of GDP
- Investing a further 250 billion yen to execute SIP/ImPACT/FIRST-type projects geared toward social implementation of new technologies

Wall of human resources

- Ensuring the development of workers who can contribute to realizing Society 5.0, both in Japan and abroad, based on a long-term HR strategy; carrying out HR development through large-scale joint research projects, etc.

Wall of social acceptance

- Building consensus among various stakeholders involved in Society 5.0 based on consideration of ELSI, demonstrations using test beds, etc.
- Promoting understanding of Society 5.0's benefits
- Global expansion of Society 5.0 aligned with the cultures and regional characteristics of countries around the world

*SIP :
Cross-ministerial Strategic Innovation Promotion Program

*ImPACT:
Impulsing PARadigm Change through disruptive Technologies program

*FIRST:
Funding Program for World-Leading Innovative R&D on Science and Technology

*ELSI:
Ethical, Legal and Social Implications

Required Measures 2: Breaking through the Wall of Industry

**Industry has a major role to play in realizing Society 5.0
Society 5.0 will be achieved while increasing the international competitiveness of companies
and thus of industry as a whole**

Inter-company cooperation that transcends industries/sectors

- Promoting cooperation through investment in various management resources
- Clarifying and expanding areas for cooperation relating to data and R&D

Ci-creation with universities and R&D institutes

- 3-fold increase in investment in joint research projects, etc., involving universities and R&D institutes by 2025
- Partnering with governments, etc., to begin considering public-private partnership investment schemes

Cooperation and co-creation with venture companies

- Partnering on investments in venture companies, etc., and increasing procurement and personnel exchanges
- Considering the creation and development of venture companies based on university technological research seeds*

Society 5.0 is an imperative strategy for revitalizing Japan

This concept will enable Japan to lead the way globally in achieving an abundant society whose citizens have hope for the future and it will also contribute to sustainable development of the world economy through its deployment in other countries

There are many areas where Society 5.0-oriented initiatives should be implemented*

Starting with this action plan, we will promote activities aimed at realizing Society 5.0 in key areas along with a wide range of partners, including governments/municipalities, universities, R&D institutes, and venture companies

We will also speed up the development of proposals aimed at establishing new social systems, including innovations in working methods, education, and other social mechanisms