EU-JAPAN DIGITAL WEEK 2025

Data-driven regional revitalization initiatives.

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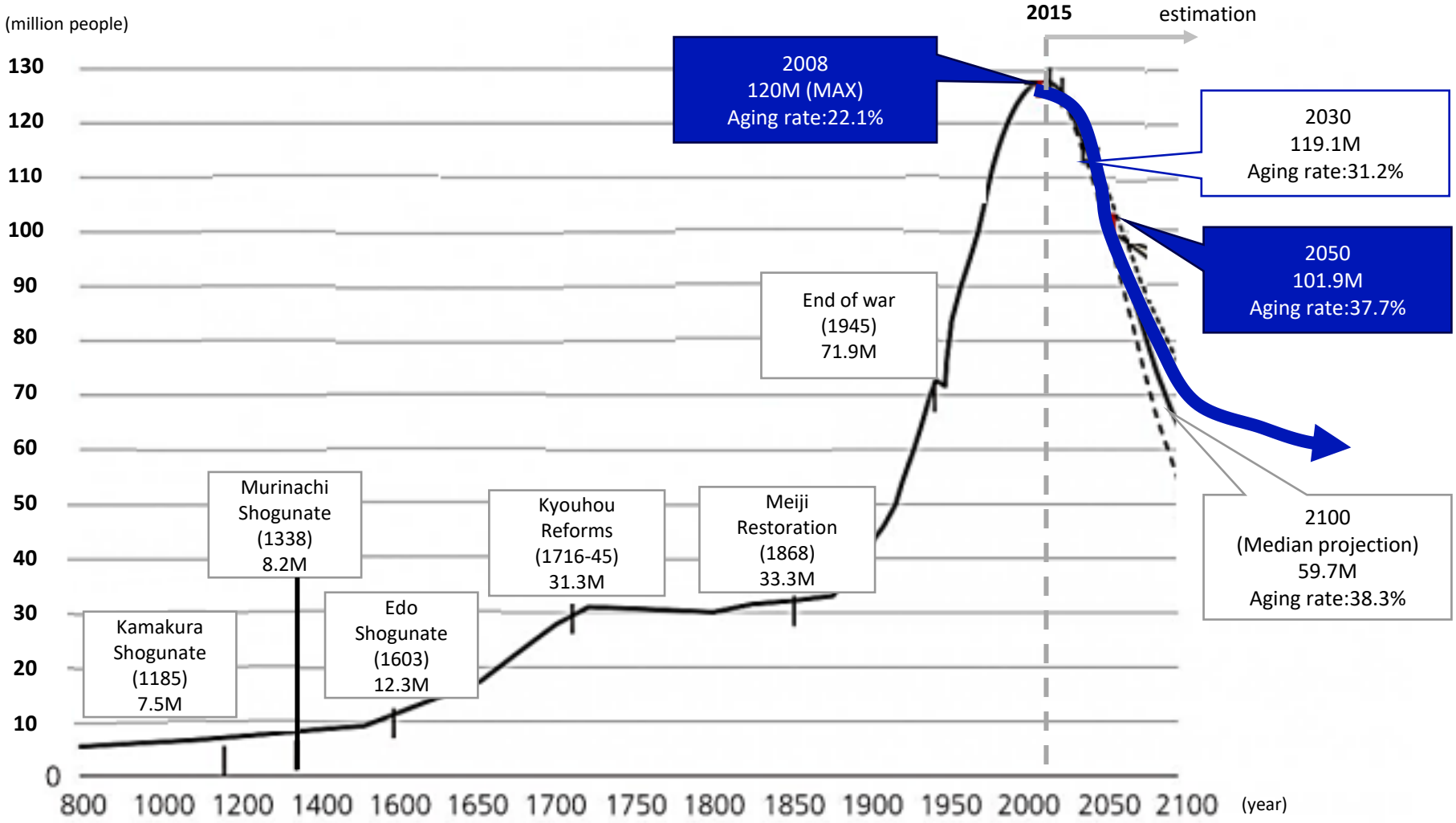
デジタル庁
Digital Agency

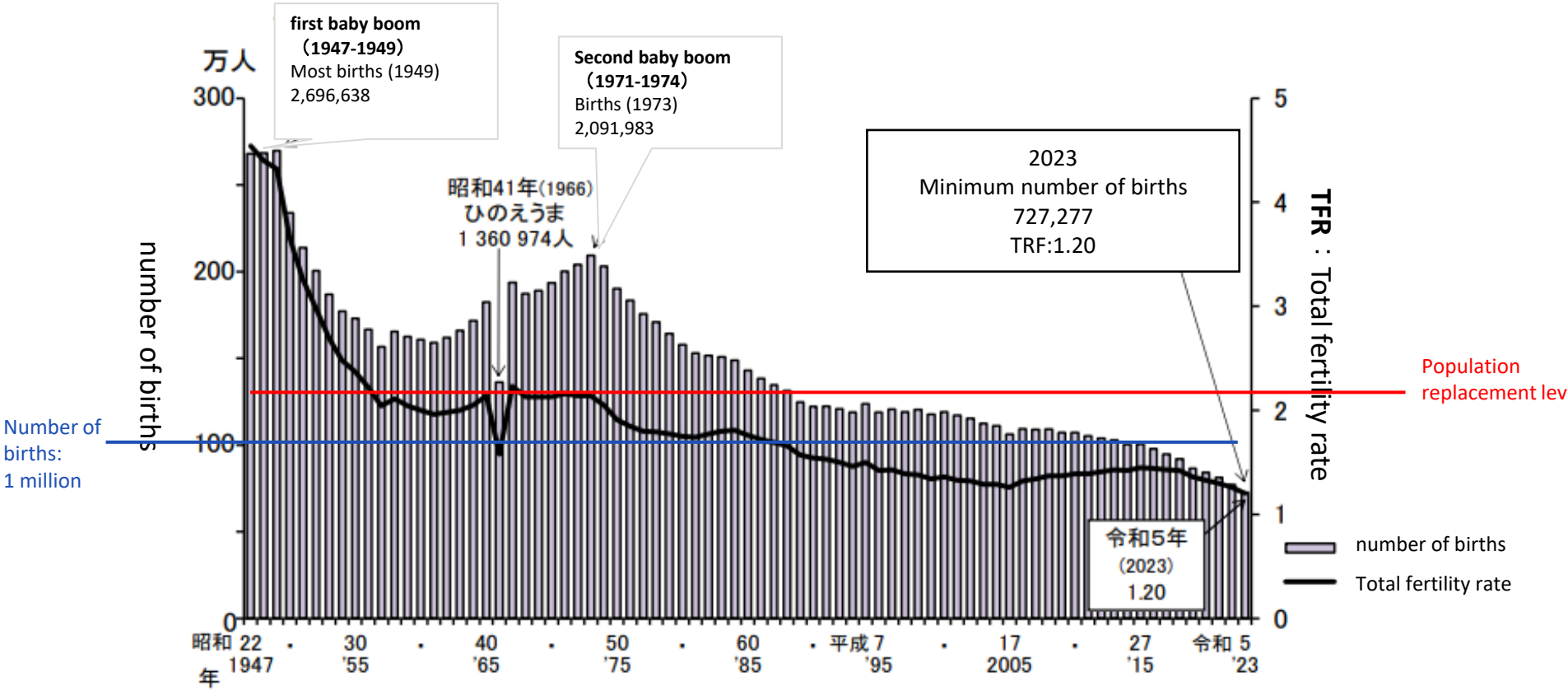
Japan's Population Decline Trends



Source: Until 1920, National Land Agency, “Long-Term Time Series Analysis of Population Distribution in the Japanese Islands” (1974). Ministry of Internal Affairs and Communications “Census” since 1920. The Ministry of Internal Affairs and Communications' “Annual Population Estimates” and “Interpolated Corrected Population Based on the Results of the 2005 and 2010 Population Census” were used to confirm the peak of the total population. From 2020, based on the National Institute of Population and Social Security Research's “Population Projections for Japan (2017 estimates).

Trends in Japan's Total Fertility Rate and Number of Births

- The number of births and total fertility rate have been declining for a long time since the middle of 1970s. The total fertility rate had gradually increased since 2006; however, it has decreased again recently. The number of births has fallen below 1 million since 2016 and has been declining every year.
- The total fertility rate, which is below the population replacement level (i.e., the level at which the population size is maintained = 2.07), has been declining for more than 40 years since it was recorded at 2.05 in 1974.
- While life expectancy is increasing in Japan, the birthrate is declining and the total population is declining.

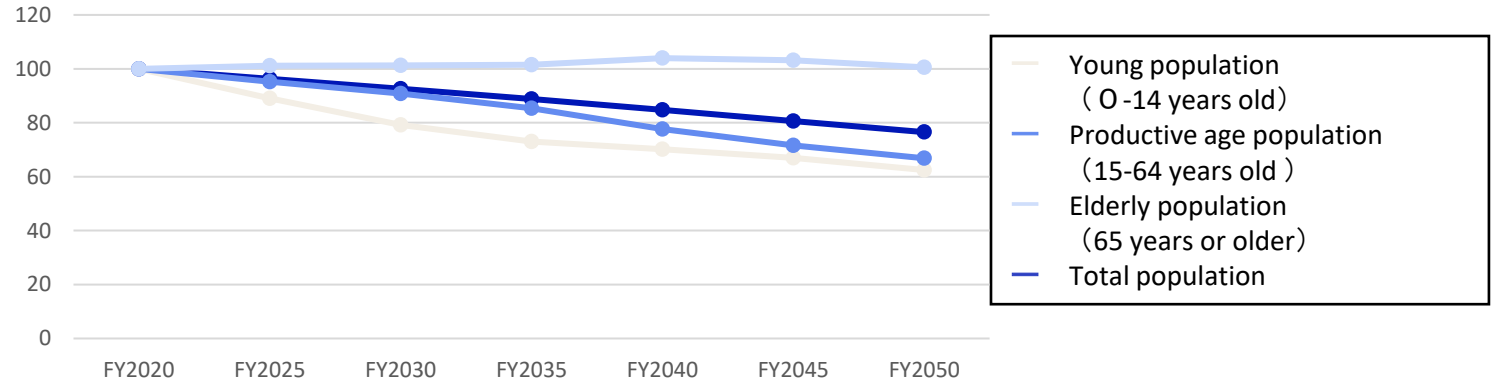


Source: Ministry of Health, Labour and Welfare, “2023 Vital Statistics Monthly Report, Annual Total (approximate figures)

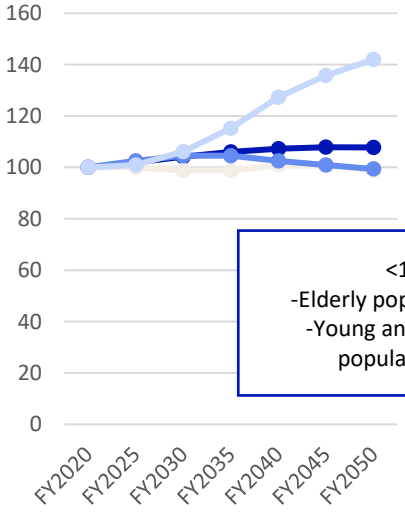
Future Population Trends by Region

- The "stage of population decline" varies greatly by region.
- While the Tokyo metropolitan area and other large cities are in the “1st stage”, rural areas are in the “2nd or 3rd stage”.

Table calculating Japan's population projection with 2020 as 100

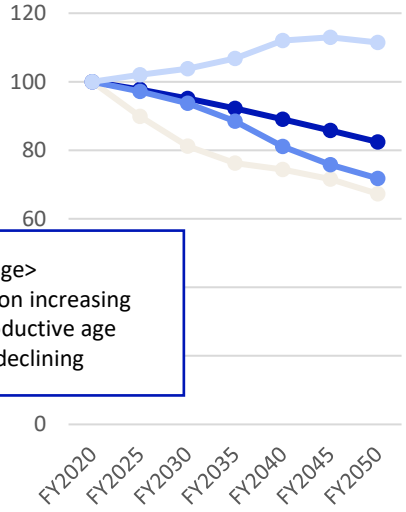


Tokyo Metropolitan Area

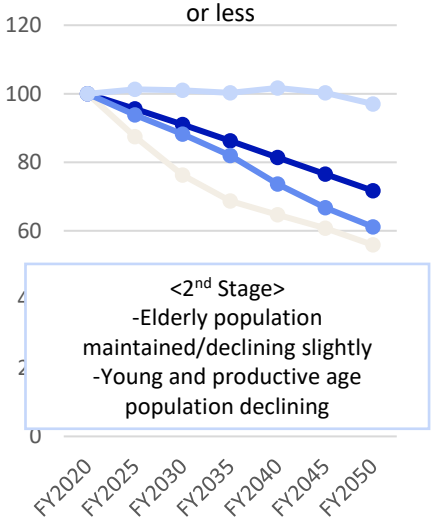


<1st Stage>
-Elderly population increasing
-Young and productive age population declining

Core Cities, Special Cities

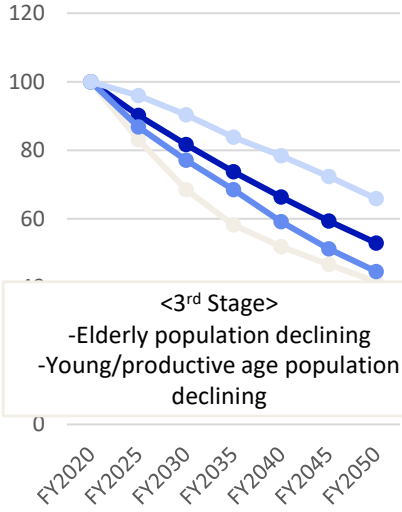


Municipalities with a population of 50,000 or less



<2nd Stage>
-Elderly population maintained/declining slightly
-Young and productive age population declining

depopulated area municipalities



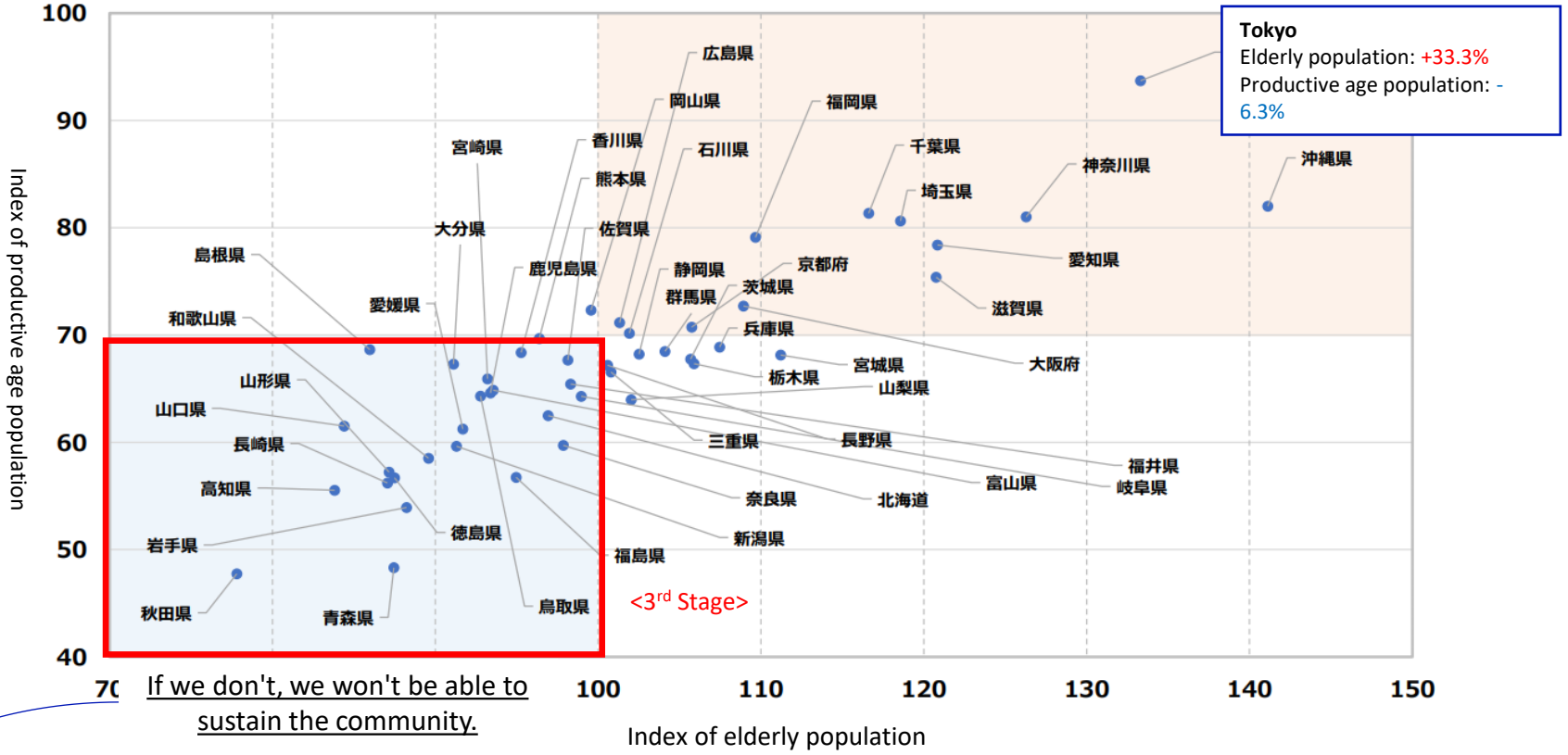
<3rd Stage>
-Elderly population declining
-Young/productive age population declining

Source: National Institute of Population and Social Security Research, Population Projections for Japan by Region, 2023

Polarization of Urban and Rural Issues

- While the productive population decrease is limited in urban areas, the elderly population is increasing rapidly. There is an urgent need to build a public service for the rapidly increasing elderly.
- In rural areas, the productive population and elderly population are both decreasing rapidly, which raises concerns about community continuity.

Correlation of Changes in productive age Population and Elderly Population by Prefecture（2020→2050）



If we don't, we won't be able to sustain the community.

Regional revitalization

① Protecting community life and livelihoods.
② Earn and grow from outside the community.

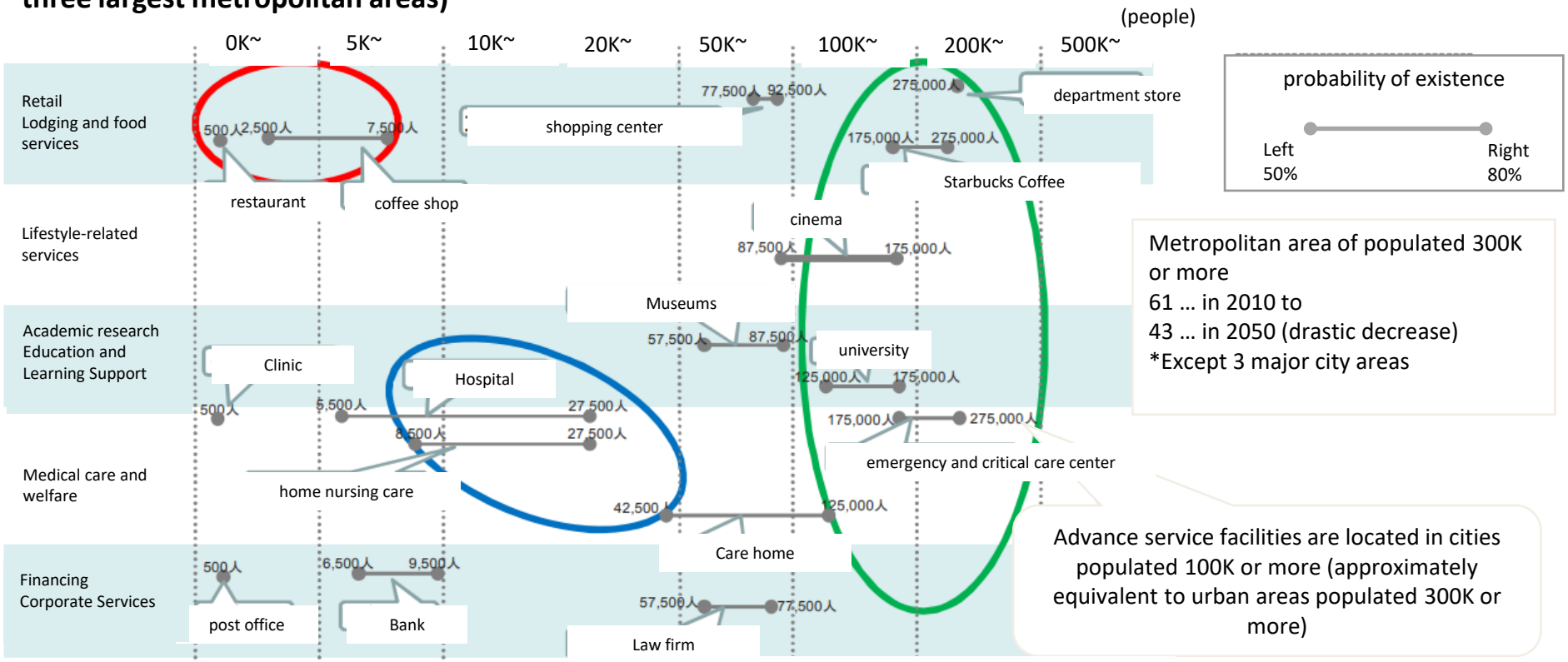
Digital utilization,Data utilization, DX（Digital transformation）

Source: From materials presented at the second meeting of the Council for the Creation of a New Local Economy and Living Environment.

Impact on Rural Areas by Outflow of People

If the outflow of human resources continues, the service industries that support people's lives will disappear from rural areas, and it is feared that the number of areas where people cannot live will increase.

Population size of municipalities with 50% and 80% probability of having service facilities (excluding the three largest metropolitan areas)



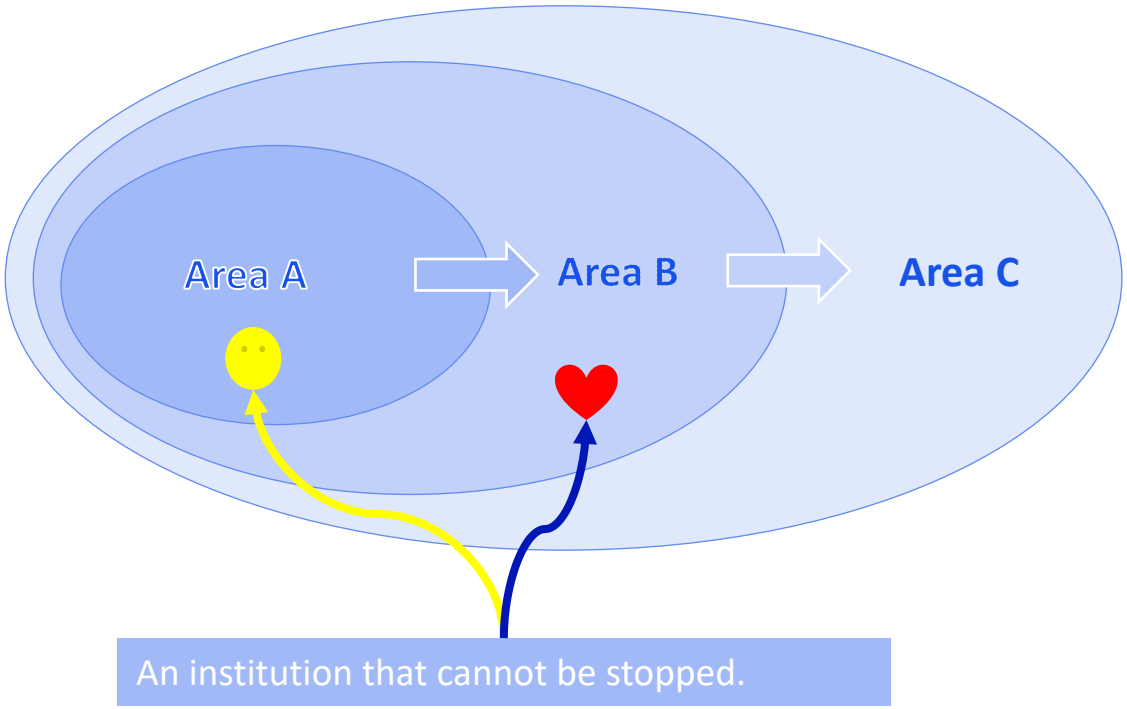
Source: Compiled by National Land Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism, based on various sources.

Example of when population decreases and service density decreases

EX. Milk delivery

→ Area A goes out of business and merges into Area B.

→ Area B goes out of business and merges into Area C.



The business density is decreasing rapidly.

Toward An Economy Where Supply Matches Demand

- In the population growth phase, demand meets supply like waiting for a bus at the bus stop. However, in the declining population phase, supply meets demand like a bus running at the customer's convenience.
- To achieve this, it is essential to have a digital infrastructure and data sharing that can capture demand in real time and move goods or services before confirming the intent of the supply side.

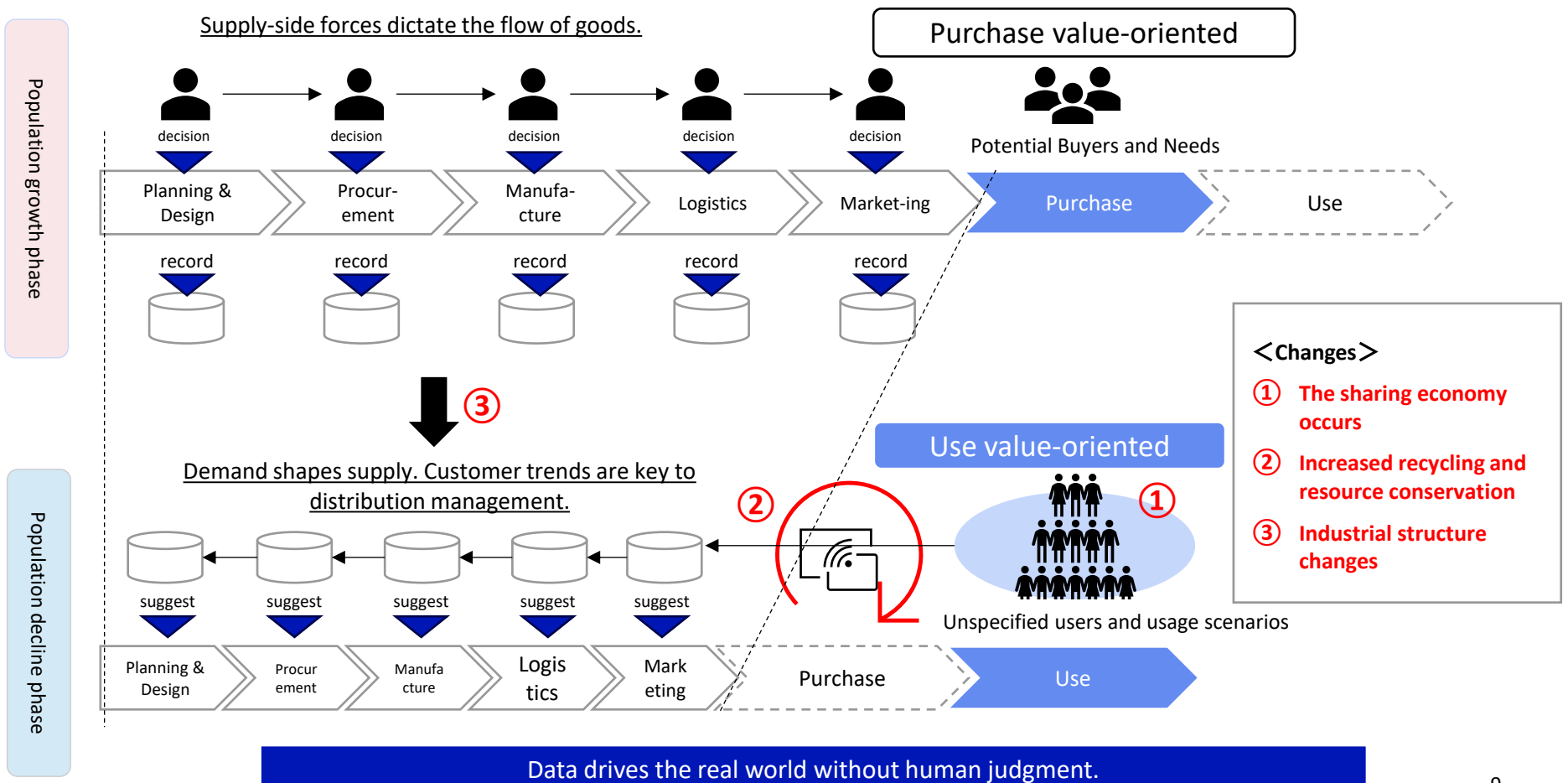
	Population growth phase (Domestic consumption expansion phase)	Population decline phase (Domestic consumption contraction phase)
	The economy that demand matches supply	**The economy that supply matches demand**
Transportation	Passenger waits for the bus on timetable at bus stop	Courtesy car matches passenger's convenience
Labor	Employees meet the work rule at their employer	The work rule matches employee lives
Shopping	Consumers go to the store to buy products	Products are delivered to consumers
Education	Students gather at specific school or curriculum	Students select school or curriculum
Medical care	Patients go to specific medical institution and family doctor	Patients select medial institutions or the doctors
Logistics	Logistics run by the order of supplier side	Goods move automatically according to the demand trends
Administrative Services	Citizens go to the city hall and apply for the procedure	Citizens receive the notice that the procedure will be carried out automatically

- If both population and market are increasing, the supply-side can increase variation and actively adjust the demand. (If the number of bus increases, adjustment may be made.)
  → Supply influences demand, the demand adjusts to supply.

- If both the population and the market are decreasing, supply has no choice but to reduce variation, and there is no way to match the variation in demand.(If the number of buses decreases, there is no way to match demand.)
  → Demand influences supply, the supply adjusts to demand.

Shift to a decision starting point based on demand-side data and an emphasis on use value

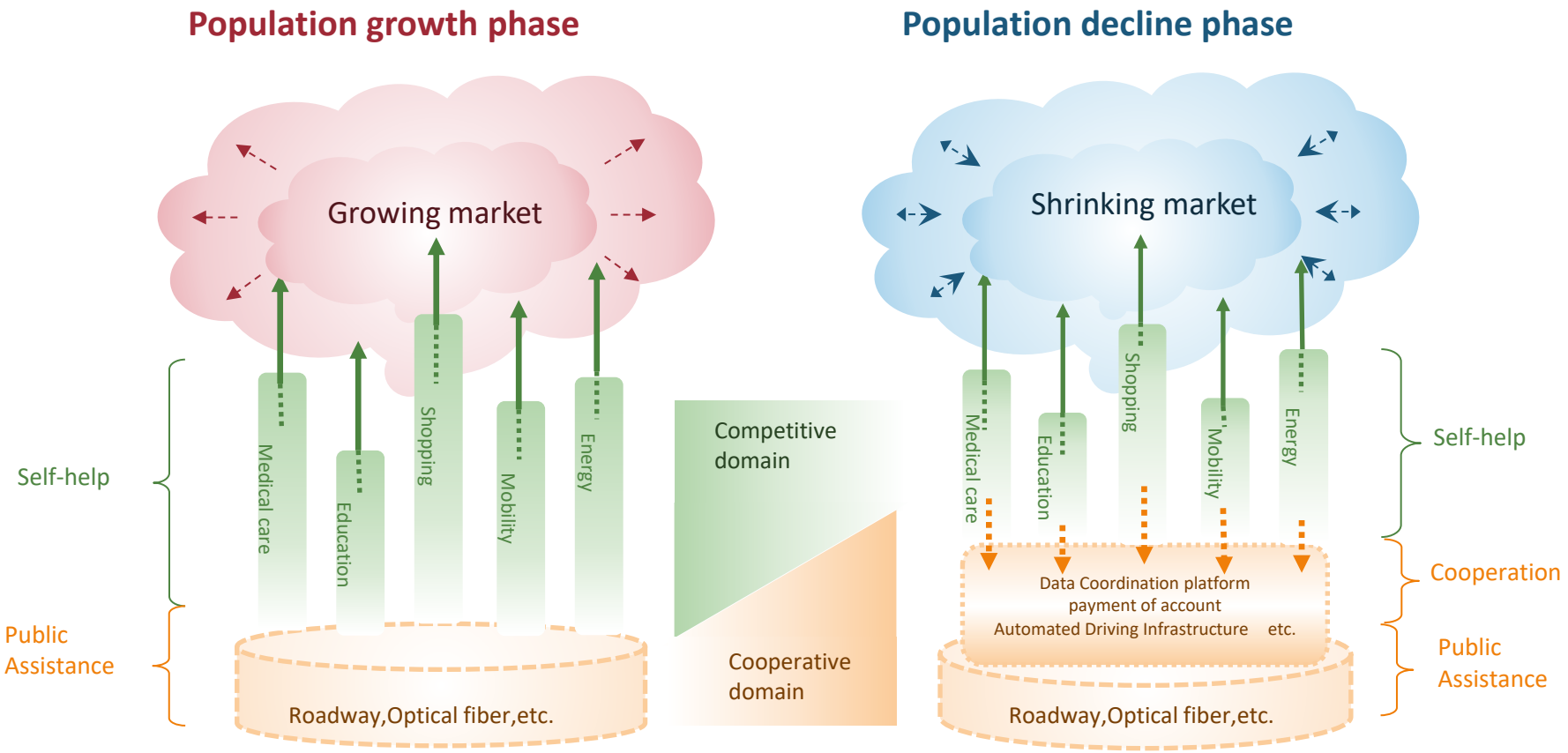
- In the age of population growth, suppliers dictated production. Goods reached consumers through a chain of human decisions in logistics and sales. The emphasis was on purchase value, starting with people's decisions.
- In a declining population, real-time consumer data optimizes production & distribution. Goods move based on demand. Focus shifting to how sharing platforms are used. What is the value of use will be the demand.
- Prioritizing reusable, modular components is key for affordable and efficient service development.



Data drives the real world without human judgment.
【Dataspaces,Society5.0,Data-driven society,etc.】

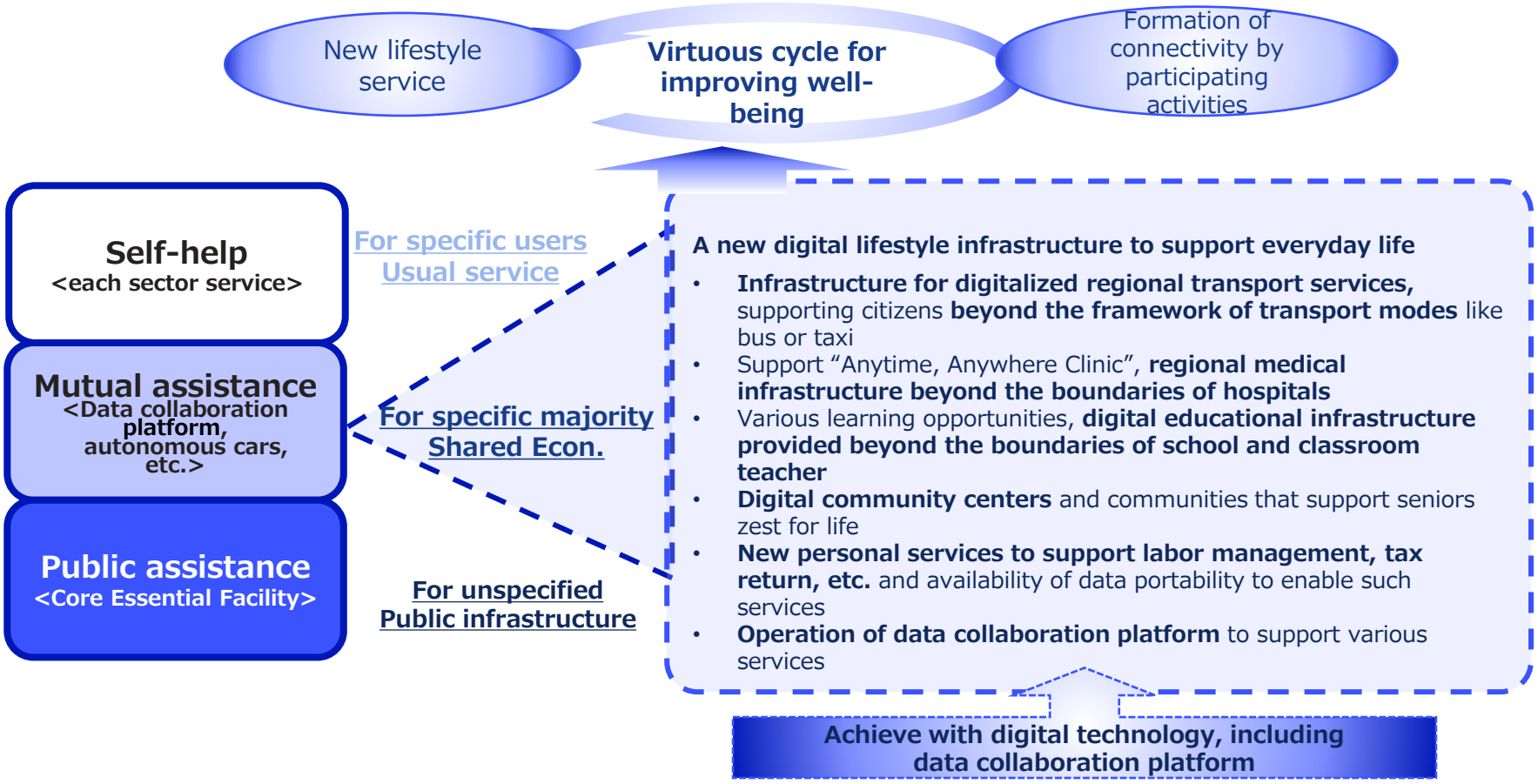
The Need of Business Model for Cooperation

- During periods of market expansion, if each operator makes digital investments separately, they can all recoup their investments to some extent, so each operator makes more and more investments individually.
- During periods of market contraction, if each operator makes digital investments separately, there is a risk that they will not all be able to recoup their investments. While the public sector may be willing to support roads and fiber optics used by all citizens, it is difficult for the public sector to support the data collaboration platform (digital platform) used by a large number of specific companies. Therefore, to encourage investment in the necessary platforms/infrastructure, it will be necessary to invest collectively in those that can be shared.



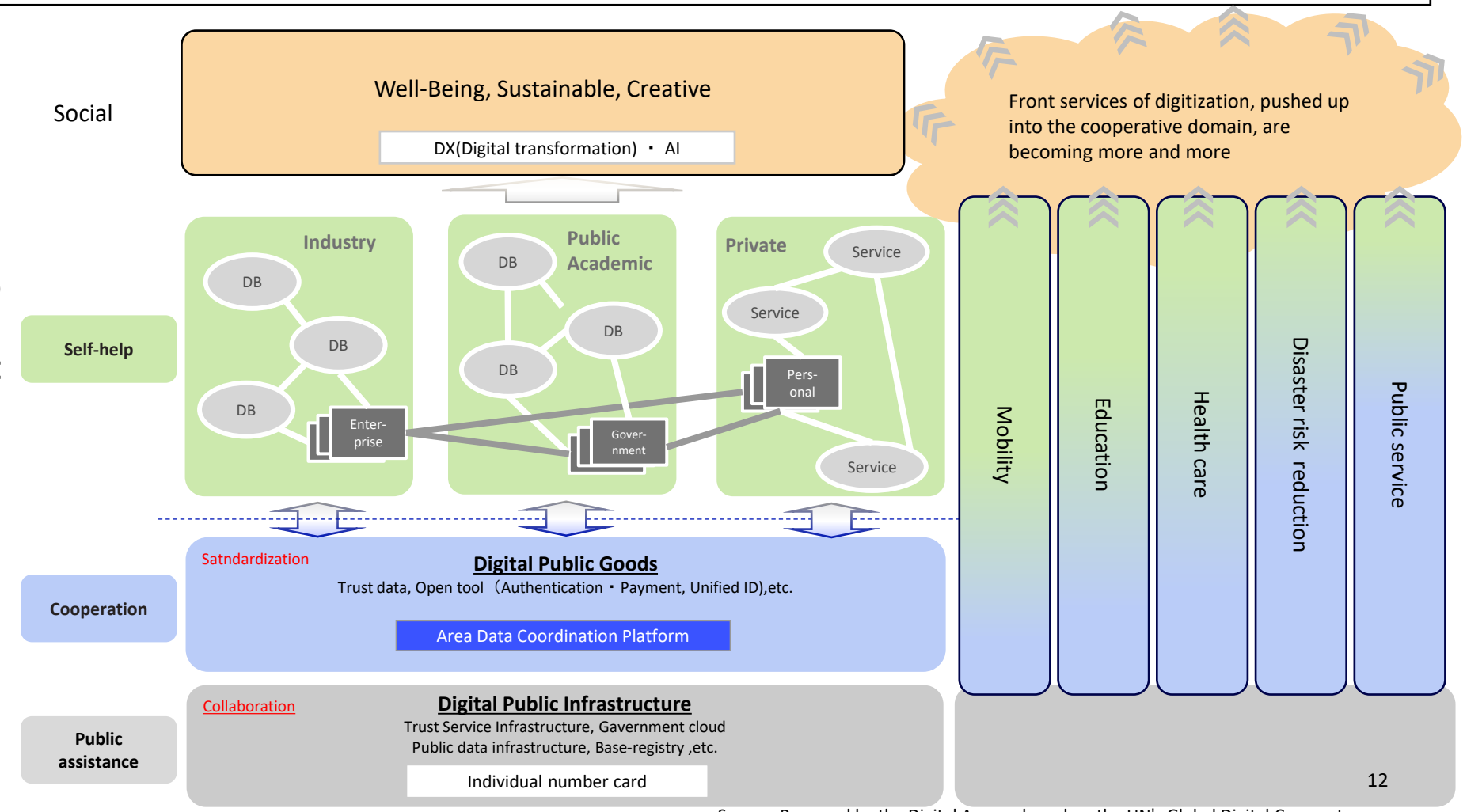
Data Collaboration Platform and Community Development to Support Mutual Assistance

- In order to refine services that cater to diverse lifestyle needs and values through digital technology, it is necessary to rebuild a data collaboration platform based on a mutual aid business model, in which multiple services actively cooperate and support each other.
- After building a data collaboration platform for mutual assistance, it is necessary to create a virtuous cycle of urban planning to improve people's well-being by creating new lifestyle services based on the infrastructure and strengthening connections within the city through active citizen participation.



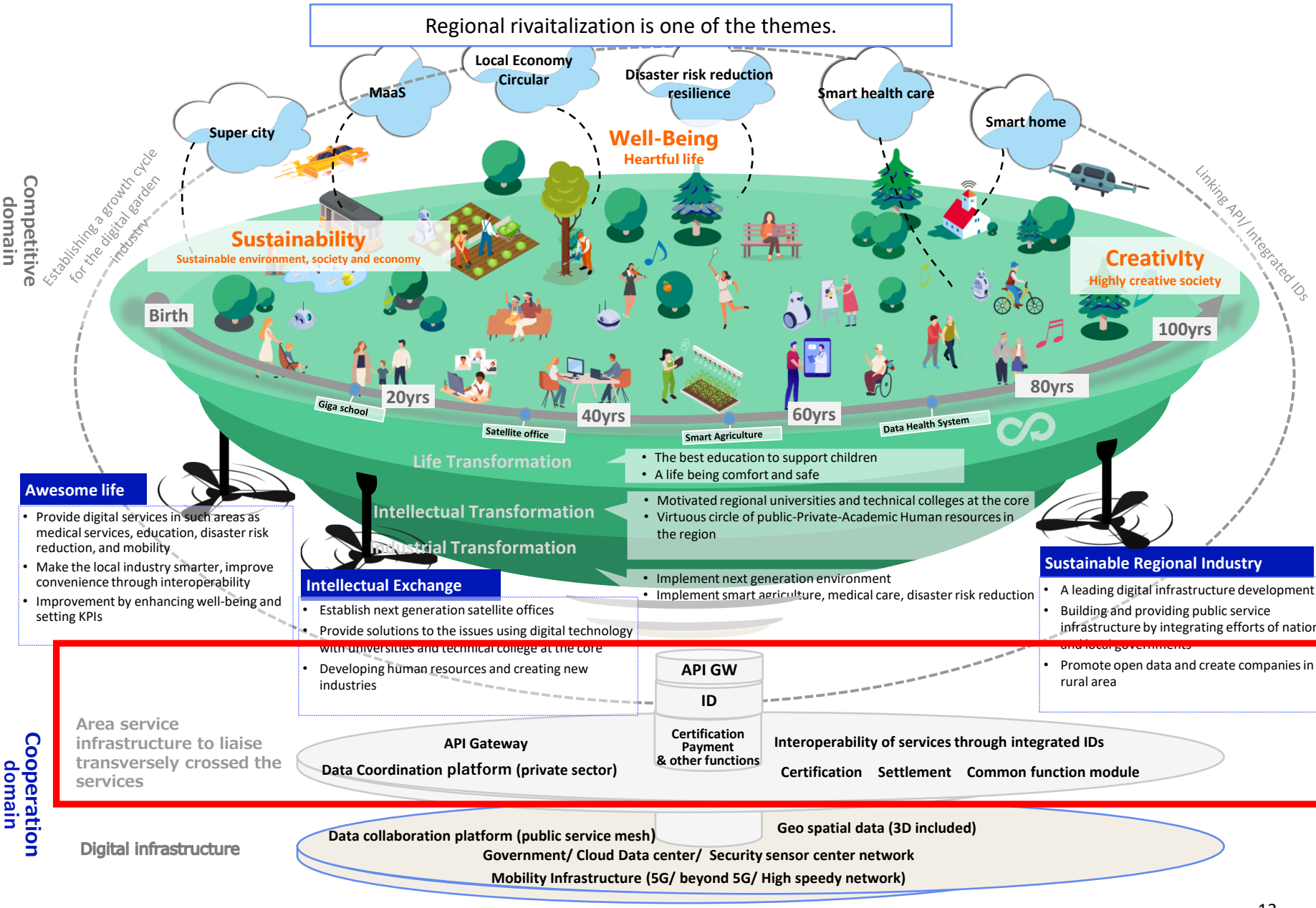
The dynamism of investment created by cooperative and competitive domain

- As data and software collaboration and sharing in the cooperative domain advances, the investment power and big data gained from this can be channeled into investments in new services that are more personalized or more sophisticated, while also making use of AI.
- This is precisely the image of data and common software, cut out and shared as a cooperative domain, pushing up the market front in the competitive domain, and the need for data processing by AI in response to the growing labor shortage will accelerate the materialization of this movement.



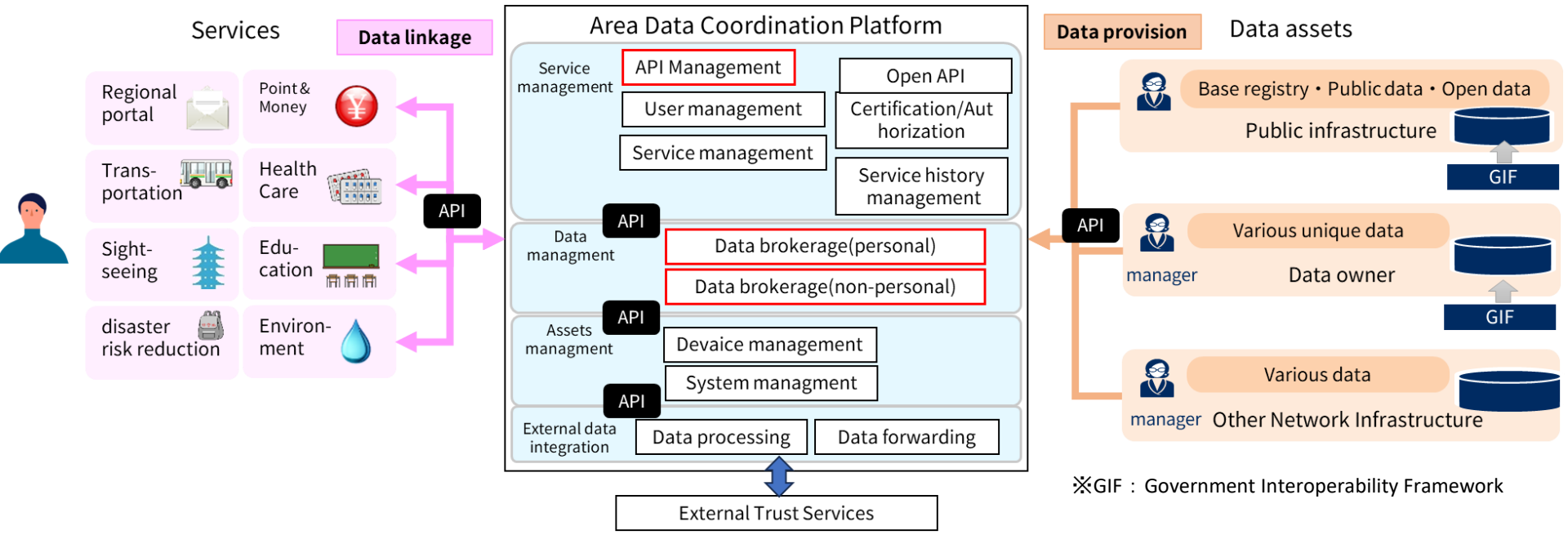
Source: Prepared by the Digital Agency based on the UN's Global Digital Compact

Keys to Smart Cities in Japan



Role of Area Data Coordination Platform

- The area data coordination infrastructure is the use of data provided by the data brokerage function at its core. Furthermore, it is responsible for linking the data held by each service to each service. It supports the provision of services optimized for individual needs by utilizing these data.
- **In order to ensure open specifications and interoperability, the Digital Agency has selected recommended modules using OSS and is promoting their widespread use.**
- Going forward, we will promote openness and standardization efforts to standardize data models and APIs.



※GIF：Government Interoperability Framework

【Recommended modules】

- APIManagment →Kong Gateway
- Date brokerage(personal)→Personal-Data-Linkage-Module
- Data brokerage(non-personal)→FIWARE Orion

【Future efforts】

- Promote standard data sets in data assets
- Openness and commonality of data models at the service layer
- Promote open API format

Technologies supporting data collaboration and sharing

① Relative and Intermediary Processing

（There is no clear boundary between the two, and both technologies have aspects of both.）

Relative processing：
The method in which the parties concerned directly connect their systems and communicate with each other without any intermediary, i.e., direct API linkage.
A method in which the reuser collects data by scraping, etc. directly from the resource from which the data was generated.

Intermediary processing：
If the number of parties to collaborate and share increases, use the intermediary function. Collaboration method using data brokers in FIWARE. A method of linking through a connector claimed by the European data space. Blockchain technology-based ledger management method proposed by Uranos Ecosystem.

② Centralized and decentralized control

(The two can be hierarchically fused.)

Centralized control：
A method to collect and centrally manage the data necessary for collaboration and sharing in one location. Adopted by big platformers such as GAFA. (Note that this is not about cloud services.) Public medical data, administrative information held by government agencies, and some other public organizations have adopted the system.

- A reliable, investment-strength third party with centralized management is needed.

Decentralized control：
Data is distributed and managed in each system, and only the necessary data is shared when needed. Adopted for information linkage between administrative agencies using individual numbers. API collaboration among financial institutions, medical data collaboration, and adoption within Japan‘s smart cities. Europe, as a data space, is actively promoting the development of a data collaboration infrastructure centered on this method.

- Efforts should be made to ensure interoperability and openness among stakeholders

③ Data access and trace management

(Both can be used together and should be used according to the situation.)

Access management：
The system asks the user to confirm whether or not he/she is authorized to access the system, and if so, allows access to the system. Provision of information by administrative agencies through MyNa Portal . This is the case for many data provision services on the Internet.

Trace management：
Instead of individual access management, usage history is tracked and necessary billing is performed. A method of collaboration using FIWARE data brokers, etc.(It can be used in conjunction with access management.) A method of linking through a connector claimed by the European data space.(It can be used in conjunction with access management.) Ledger management on the blockchain.(Users and scope can be restricted by smart contracts, etc.)

National movement toward data utilization.

- In the EU, the development of systems for data utilization in various fields such as medicine, finance, and industry is progressing in a manner consistent with the GDPR. In Japan, the “Data Utilization System and System Study Group” was established at the end of last year to conduct a comprehensive study of the data utilization system.
- A basic policy on the ideal data utilization system is scheduled to be formulated by the end of this summer.

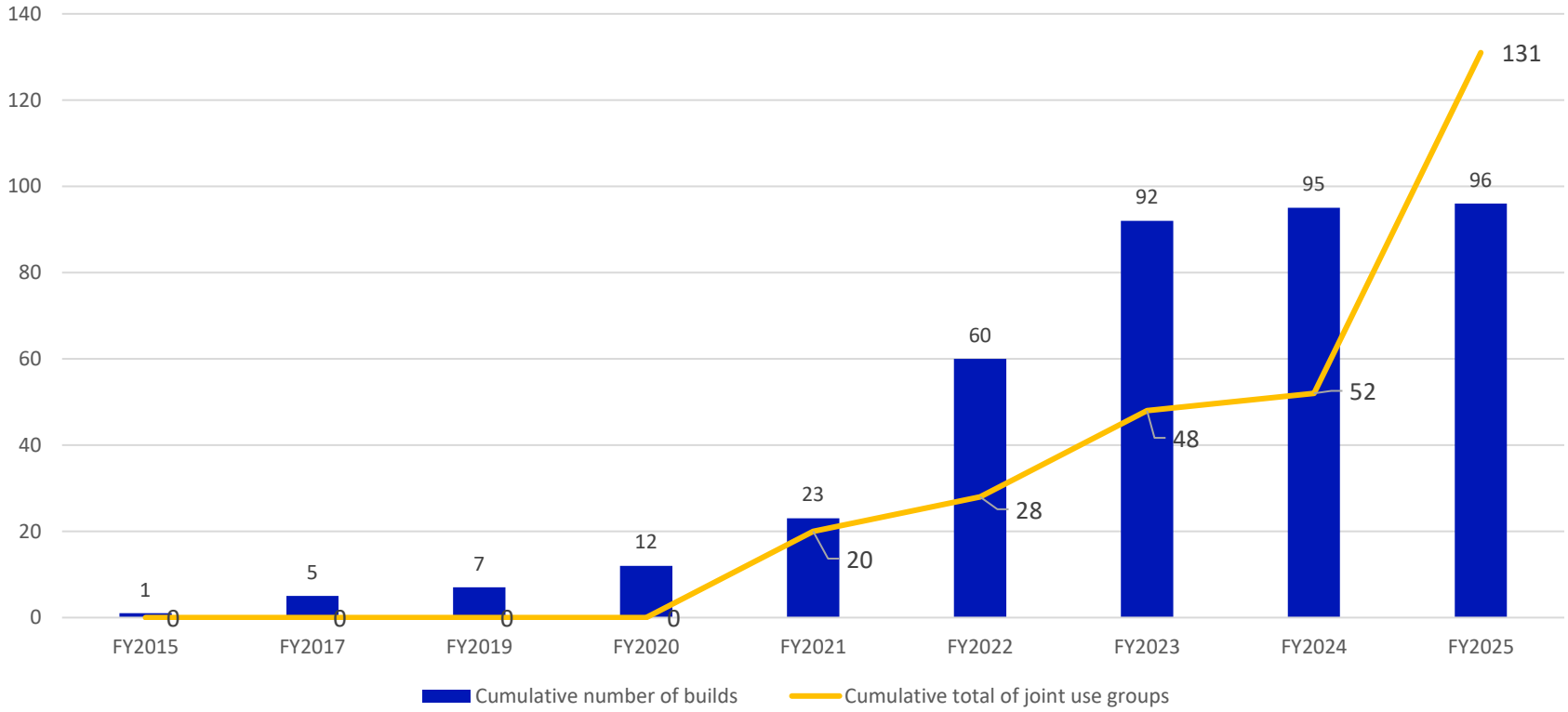
	Data Protection	Data Utilization [Personal origin (primary use), Social beginnings (secondary use)]
EU	GDPR (2016)	EU Data Act (2023) Promote sharing of private non-personal data (IoT, etc.) Data Governance Act (2022) Data intermediary disciplinary framework, etc. European data space (2020) Wide-area data linkages are being considered in 14 areas, including health care. EHDS (Medical care・2022) Building a Health Data Infrastructure, No consent required to provide health data to third parties, Mandatory submission of data from medical institutions,etc. PSD3 (Financing・proposal) Amendments to PSD2 in conjunction with the Financial Data Access Framework.
JAPAN	Act on the Protection of Personal Information(2003)	
USA	Federal law: HIPPA (medical care・1996); GLBA (Financing・1999) State law: CCPA (California・2018) General law・Special law	The company has an autogenous data collaboration and utilization within the private sector (large digital platforms).

A proactive institutionalized approach to data exploitation.

Reactive market-oriented approach.

Data Coordination Platform for Joint Use

- More than 90 local governments have established and are operating daily life data collaboration platforms that connect various government and private services to effectively support citizens' daily lives. This is supported by Nation Grants and assistance from various government ministries and agencies.
- Services are developed in many field as services that contribute to the resolution of local issues and benefits of residents.
- Currently, each prefecture has been asked to formulate a vision for the shared use of a data collaboration platform within and outside the prefecture. The aim is to promote the establishment and active use of data collaboration platform, while avoiding duplication of investment in platforms with similar functions and ensuring smooth connection between data collaboration platforms.



※Dated as of the end of May 2024

Council for Promoting Horizontal Deployment of Digitalization

- The "Council for Promoting Horizontal Deployment of Digitalization" was established on March 18, 2024 to promote the solution of local social issues through digital technology and the horizontal deployment of excellent services and systems.
  As of July 1, more than 270 organizations have joined the council.
- In order to solve the issues of multiple subcontracting structures and markets divided by region, issues to be considered and be raised by the private sector. The government also participates in the study group appointed by the Council, and the public and private sectors will work together to study and formulate policies as a trial process.

Council Overview

Objective

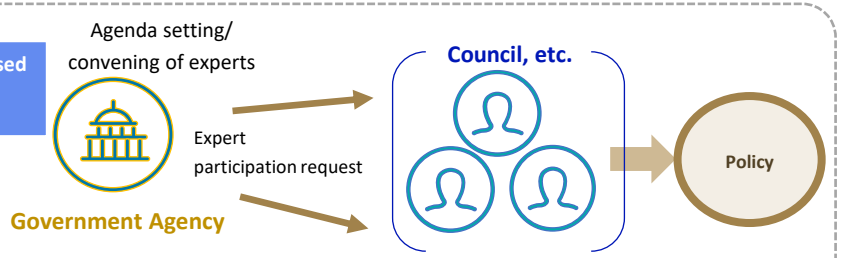
To promote horizontal deployment of digitalization to effectively resolve regional issues by public and private participants

Mission

1. Expanding digital investment and promoting commercialization in the region
2. Creating a healthy digital marketplace with choices
3. Developing human resources to support digital investment and solve local issues

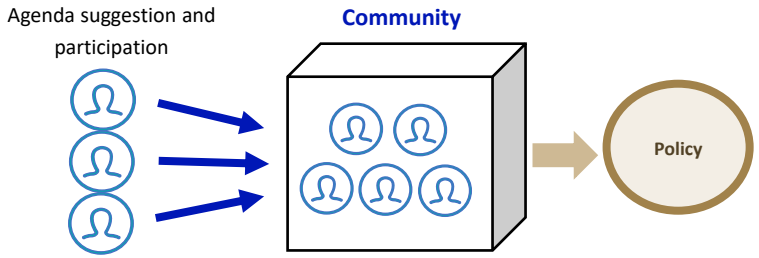
Trial of private proposal-based policy formulation process

Public sector proposal-based policymaking
(Water fall type)



The government sets the agenda for the next policy decision, and experts study the agenda and prepare a report according to the agenda. The report is prepared and the policy is adopted.

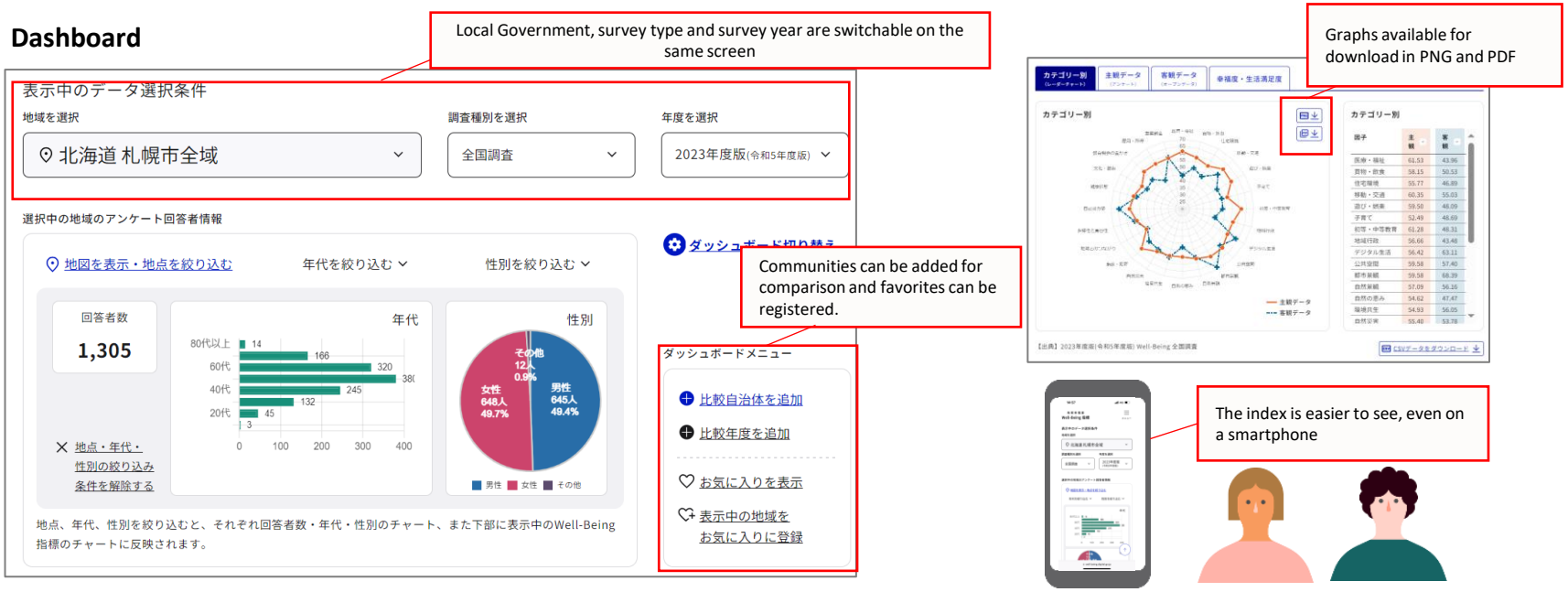
Private sector proposal-based policymaking
(Agile type)



Public-private partnerships are established to study private sector proposals for the "next market standard", etc., then the agenda and issues are translated into a common language and policies are established.

Well-Being Index

- The Digital Agency has released a new website that is easier to understand even for people who have never used the regional Well-Being index.
- The new website makes it easier to view graphs and data from smartphones and adds frequently asked questions. The guide and video have also been updated.



Source excerpt from: https://www.sci-japan.or.jp/LWCI/

[Main changes]

Dashboard page:

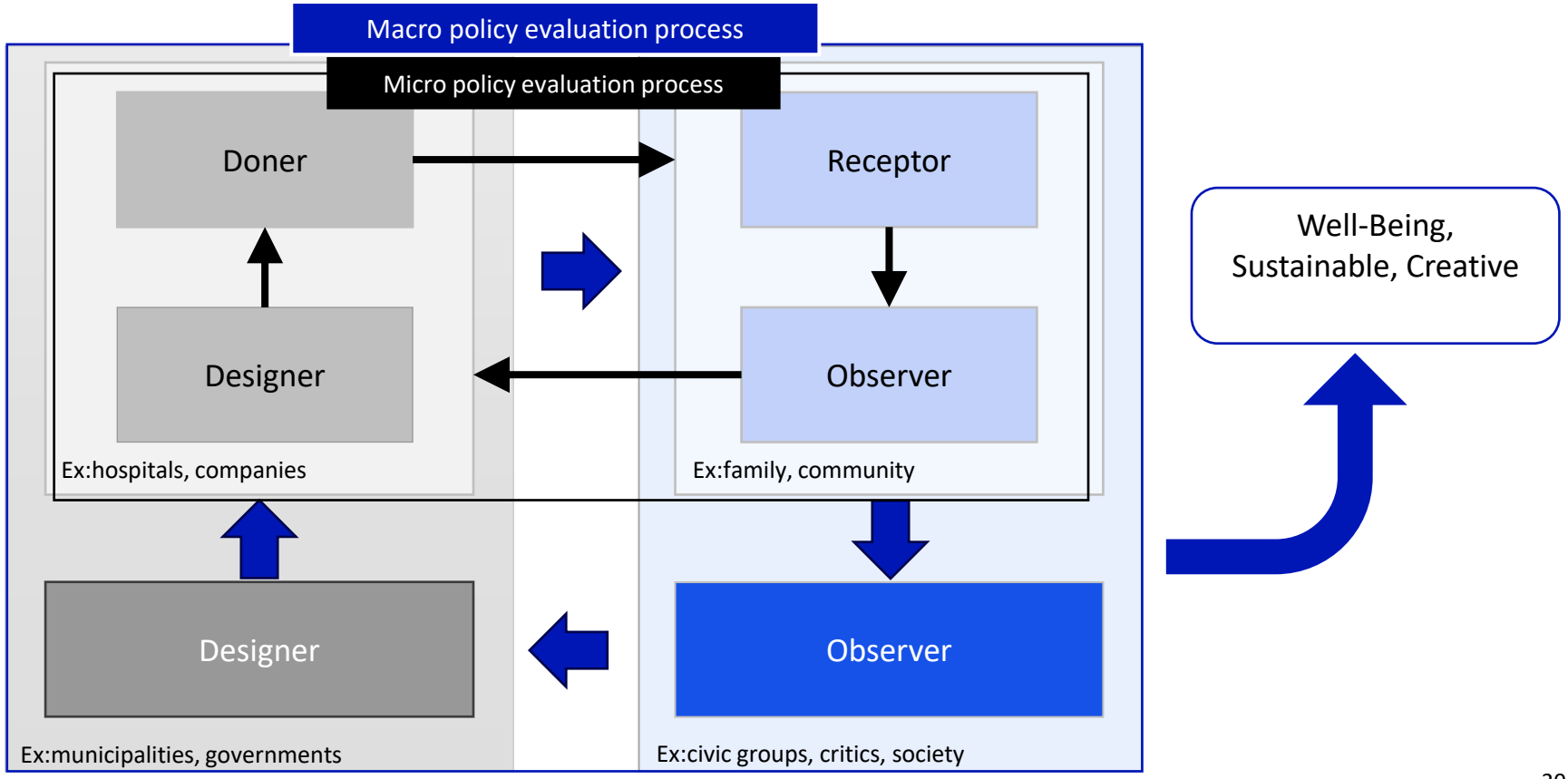
Municipality, survey type and survey year can be switched over on one screen. Comparable municipalities can display up to five graphs, and graphs can be downloaded in PNG or PDF format.

Addition of My page function:

Viewed regions can be saved as favorites for easy review, and survey results files can be uploaded.

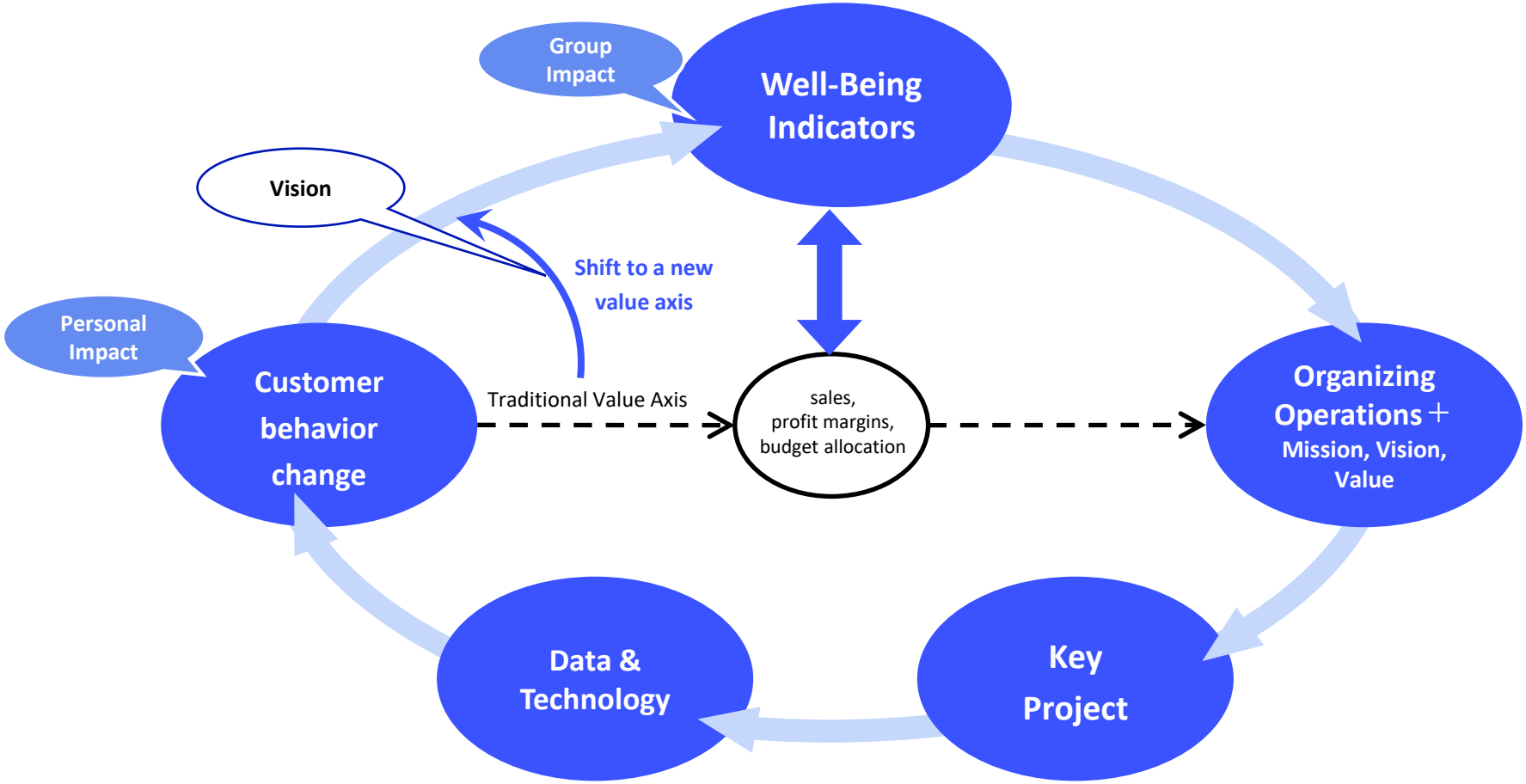
ISO standardization efforts for policy processes related to Well-Being.

- In the population growth phase. Insufficient supply of each policy sector (roads, educational facilities, water and sewage, etc.) is the main issue. Therefore, if the macro designers distribute resources to each sector and measure micro achievement, it is complete.
- In a phase of declining population, the key is not so much a lack of supply as satisfaction with the system that has been fulfilled and effective coordination and sharing of facilities and projects in the face of a shortage of manpower. However, the macro “observation” process for this is absent. It is important to conduct a macro review to determine whether the supply of infrastructure and public services, etc., has actually increased the level of satisfaction and happiness of residents, rather than the supply of quantity.



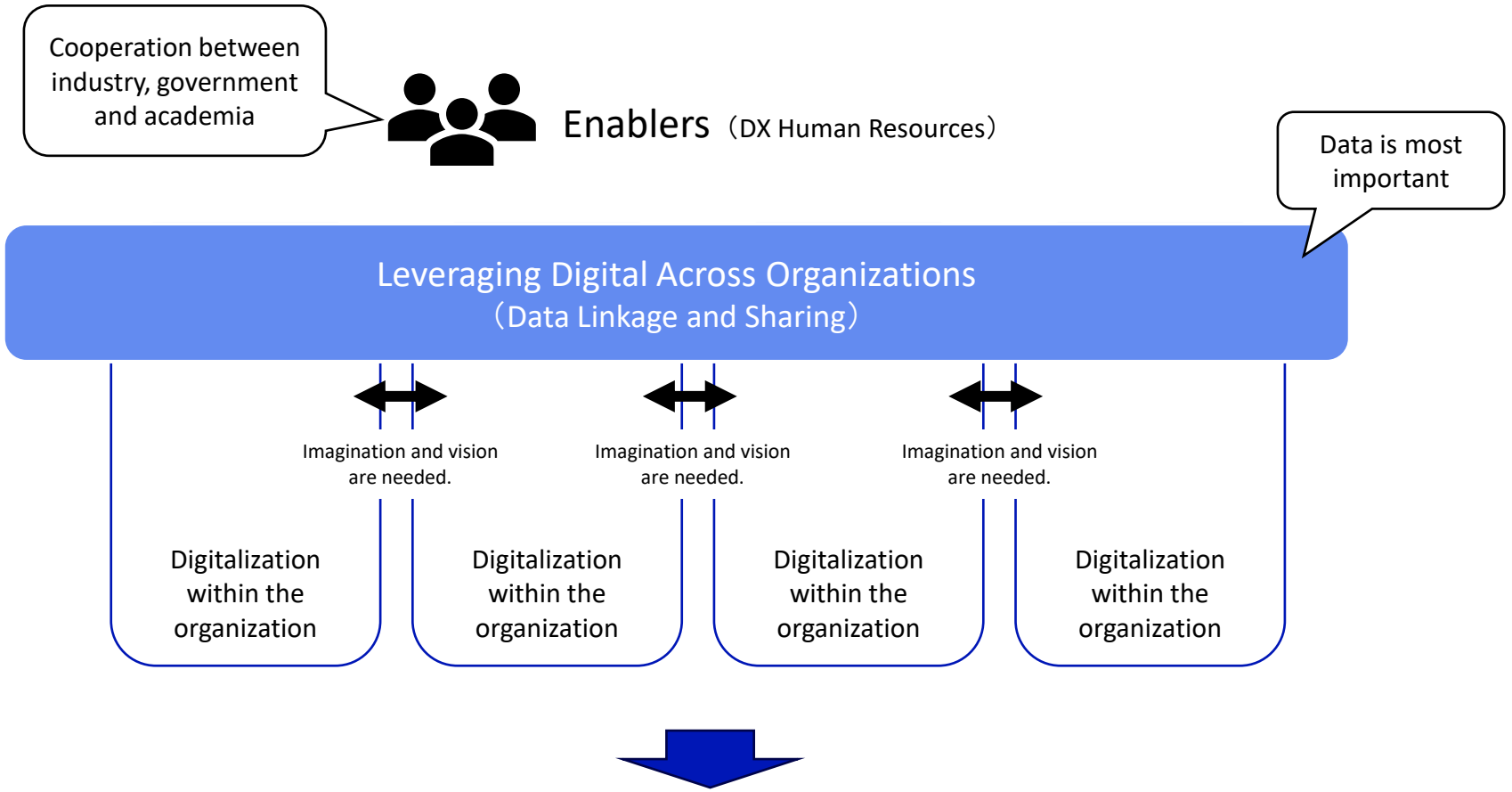
Connect the policy process to Well-Being indicators.

- We will implement the policy cycle based on Well-Being and introduce it into initiatives to digitally transform the lives of citizens.
- The goal is to create a project promotion system and organization that can promote important initiatives in a cross-departmental manner, while nurturing each initiative one by one and linking them to gradually create a virtuous circle.



Imagination and enablers needed for DX(Digital transformation).

- Digitalization is considered to be the improvement of business efficiency and operations by creating/processing data by promoting it within the organization.
- Digital transformation is thinking imaginatively and proactively beyond organizational boundaries to create new customer experiences, transform business models, gain competitive advantage, and increase corporate value.



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