Separate Volume ②
Policies/Reference Materials Related to Smart City

Relationship among Smart City, Society 5.0 , and SDGs

As a leading country in resolving societal problems, Japan's Smart City Initiative and its concept, when widely recognized through global collaboration, will promote sharing of the values among countries and contribute to the creation of decarbonized society and a Regional Circular and Ecological Sphere that should be passed on to next generations and the attainment of the SCGs.

Smart City (Including Megalopolis, City, Region) = The answer for achievement of **SDGs** in Digital era

SDGs × Digitalization = **Society 5.0**

Society 5.0 × Realization = **Smart City**

Smart City and relevant policies ①

Source: Draft report on the 6th Science, Technology, and Innovation Basic Plan

Chapter 2. 1. (1) Cyber physical system

... to address these situations, Japan has been making joint public-private initiatives, including the establishment of sector-specific data linkage platforms for sectors such as agriculture and transportation infrastructure as well as inter-sector data linkage to allow for interconnectivity among these platforms, and the development of the Smart City Reference Architecture as a basic guide to designing a Smart City. In addition, Japan has made its first steps to becoming world's leading county in data utilization, including the reforms of the relevant systems, policies and organization structures, a full revision of the Basic Act on the Formation of an Advanced Information and Telecommunications Network Society (IT Basic Act) that sets out a basic policy on the development of strategies, the establishment of the Digital Agency as a new command center, and the development of the Basic Policy for Reforms toward the Realization of a Digital Society, the Digital Government Execution Plan, and the First Report of the Data Strategy Task Force.

○ Work to resolve the issues concerning the distribution and utilization of data across fields and common issues faced by relevant organizations by calling upon the technological, institutional, and human resource expertise of the industry, academia, and government, build a system for inter-sector data linkage led by the DSA by the end of 2023, promote the interconnectivity among the sector-specific data linkage platforms that build on the Research and Development Activities spearheaded by the Cabinet Office (such as the SIP), Smart City and Super City data linkage platforms, and research data search platforms, and promote public awareness through the DSA and the Smart City Public-Private Partnership Platform. Discuss more sophisticated ways of utilizing data, in line with the expanding role of administrative agencies as a 'platform for data holders', increases in cross-border distribution of data, and development of data- and AI-based services.

IT, science & technology, disaster prevention, police, finance, internal affairs, education, health & welfare, agriculture, economy, country, and environment

Smart City and relevant policies ②

Source: Draft report on the 6th Science, Technology, and Innovation Basic Plan

Chapter 2. 1. (2) Global challenges

○ Accelerate the implementation of data platform (data linkage platform) in the regions by consulting the Smart City Reference Architecture, in order to ensure data interconnectivity across cities and fields as well as system scalability.
Starting FY2021, provide support to the local governments that have announced their commitment to becoming a Zero Carbon City, to aid their Zero Carbon City* initiatives and encourage them to take climate actions using big data.

Science & technology, internal affairs, education, agriculture, economy, country, and environment

* A local government that has announced, either as the government or by its head, to its commitment to net zero carbon or greenhouse gas emissions by 2050

The concept of Smart City in existing documents

G20 Global Smart Cities Alliance Five principles

- **Privacy & Transparency**
- **Openness & Interoperability**
- **Security & Resilience**
- **Equity, Inclusivity & Societal impact**
- **Business & Operational Sustainability**

■ Source: G20 Global Smart Cities Alliance Global Policy Roadmap
https://globalsmartcitiesalliance.org/?page_id=90

Smart Cities Catalog (Japan's smart cities) Originality of Japan's smart cities

- **Transparency / Openness**
  - With openness and transparency as the central principle and concept of the whole project, Japan aims to build smart cities where all citizens and businesses can participate.
- **Residents' perspectives**
- **Interoperability and expandability**
- **Agile**
  - The Japan's data platform provides complex and personalized services and has data interoperability and distribution capability that can also be extended to other cities, thoroughly taking into account residents' perspectives. Furthermore, Japan's data platform has the ability to expand easily in response to regional growth and technological development, allowing the system to be maintained and developed continuously and agilely (can change quickly).
- **DFFT**
  - Japan's smart cities are oriented toward free, trustworthy, and credible norms. Under the norms, major companies are not allowed to monopolize data handling, excessive regulations are not imposed on the usage of data, and the state is not allowed to monitor data handling. This is the 'originality of Japan' that complies with the DFFT (Data Free Flow with Trust) presented at the G20 Osaka Summit.

■ Source: Office of Prime Minister. Ministerial Meeting on Strategy relating Infrastructure Export and Economic Cooperation. Smart Cities catalogue
https://www.kantei.go.jp/jp/singi/keikyou/kaisai.html

Reference architecture Four concepts

- **User-centricity principle**
  - All participants in Smart City project must always be aware of the users of Smart City services in their initiatives to work on Smart City
- **Role of City management**
  - To maintain sustainable management of Smart City, a city-wide governance and management mechanism is needed
- **Role of data platforms**
  - By provisioning Smart City services via a data platform, data and services must be federated efficiently without obstacles
- **Importance of interoperability**
  - To efficiently advance Japan-wide Smart City implementation, securing interoperability with other regions and systems is needed

■ Source: Smart City Reference Architecture (Ministry of Internal Affairs and Communications)
https://www8.cao.go.jp/cstp/stmain/20200318siparchitecture.html

Toward the realization of smart cities (preliminary report) Three concepts

- **From technology- to challenge-oriented**
  - To ensure that the initiatives are sustainable, it is necessary to have a clear vision for community development, constantly asking the questions: 'which challenges are we trying to solve?' and 'for what purposes are we using technology?'
- **From public-led to public-private partnership**
  - It is important for councils etc., to build a system for a comprehensive coordination of a wide range of matters, from the development of a vision for community development to city management including the handling of individual interests and information / data and the development of policies for continuous maintenance and updating
- **From individual optimum to overall optimum (cross-field)**
  - The concept is to provide city-wide optimization (i.e. overall optimum) based on needs and seeds, rather than stopping at an optimal solution for just one field or one entity (i.e. individual optimum)

■ Source: Ministry of Land, Infrastructure, Transport and Tourism. Development of 'Toward the realization of smart cities (preliminary report)'
https://www.mlit.go.jp/report/press/toshi07_hh_000126.html

What is the fifth generation mobile communication system (5G)?

Key performance indicators of 5G

- **Ultra-high speed**
- **Ultra-low delay**
- **Multiple simultaneous connections**

→ **Important platform that supports Smart City services such as self-driving, remote control of robots etc.**

5G is the ICT platform of the AI/IoT era

Low delay

High speed and large capacity trend of mobile communication technology

2G (1993) → 3G (2001) → LTE/4G (2010) → **5G 2020**

Multiple connections

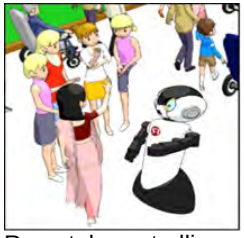
Ultra-high speed

offers broadband service that is 100x faster than that with the current mobile communications system

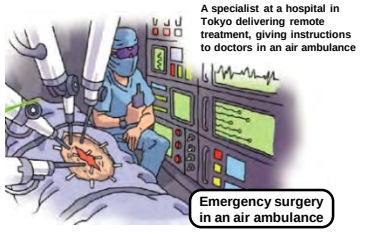
⇒ *You can download a two-hour movie in 3 seconds* (it takes **5 minutes** *on LTE*)

Ultra-low delay

Real-time remote operation/control of a robot without the users feeling any delay (time lags)



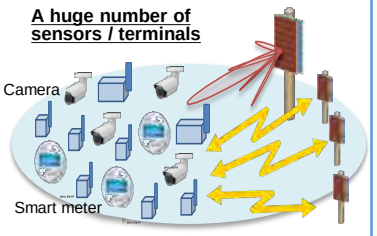
Remotely controlling a robot



⇒ ***Precision operation of robots etc.*** (**10x more precise** *than on LTE*) *with Real-time communications*

Multiple simultaneous connections

Smartphones, PC, and all manners of devices around us get connected to the Internet



⇒ **Around 100 terminals / sensors in your house can be connected to the Internet** (as opposed to **a few** smartphones and PCs on LTE)

Large social impact

5G promotion schedule

○ Frequency allotment and institutionalization of local 5G

- Allotment of 5G frequency bands in April 2019. - Institutionalization of local 5G in December 2019.
- The deployment of 5G platforms is expected to reach 98.0% by FY2023.

FY2019	2020	2021	2022	2023

Allotment of 5G frequency bands

Preparatory service starts (September 2019)

Commercial service starts (March 2020)

Nationwide service starts 2 years after the allotment

Base stations will be deployed in more than 50% of meshes nationwide within the next 5 years*

* Rate of deployment of 5G platforms will be 98.0% according to the plans of the four applicants put together, expected to cover almost entire feasible areas in Japan.

Rugby World Cup

Tokyo Olympics and Paralympics

Consider the next allotment of 5G frequency bands

★ Draft installation guidelines for additional allotment announced in November 2020 (1.7GHz band (excluding Tokyo, Nagoya and Osaka))

★ Allotment in early April 2021 (planned)

Deployment / promotion of various 5G services

Consider local 5G

★ Partly institutionalized in December 2019

★ Frequency expansion (December 2020)

Gradual expansion

What is local 5G?

■ A 5G system that a **local entity, such as businesses and local governments among others, can flexibly build inside its building or on its premises for spot coverage**.

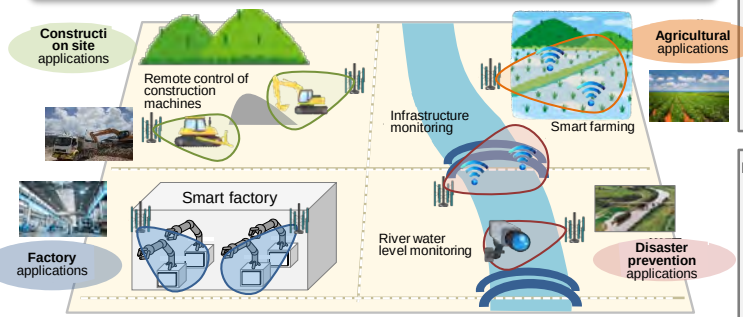
What sets it apart from carrier 5G

- Allows a 5G system to be **built ahead of others** in areas where deployment by mobile service providers is slower.
- Allows users to **flexibly set up functionalities as needed**.
- **Less vulnerable to communication failures, disaster etc**.
- Compared to Wi-Fi, **more stable as it relies on licensed radio stations**.

A general contractor installs the system in a construction site
Remote control of construction machines

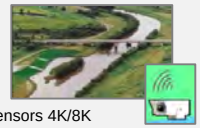
Business owner installs the system in a factory
Smart factory

Use as an in-house 5G inside a building or on the premises



Farmer makes farming smart
Farm automation

Local government installs the system
River water level monitoring



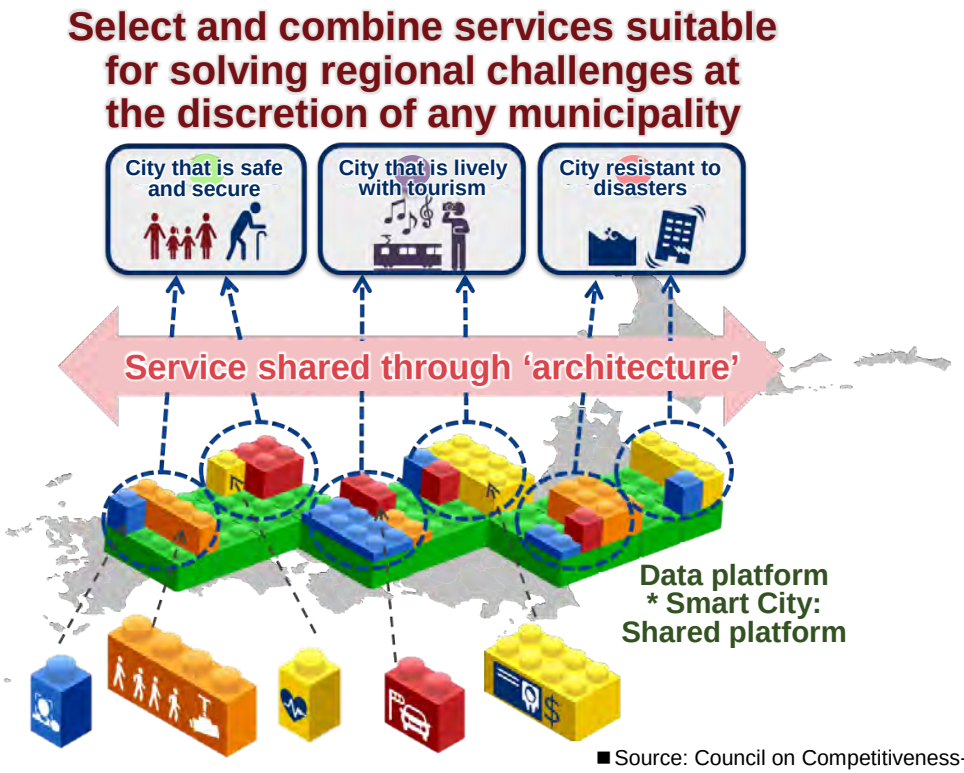
Sensors 4K/8K

Building data platform (data linkage platform) by building block method

- The structure of data platform (data linkage platform) is based on a concept called a building block method. This makes it possible to **start small in the beginning** and **expand the functionality gradually** according to the community's issues to resolve and goals to aspire for.
- In the past, every time a data platform (data linkage platform) is to be repaired in a **project funded by subsidy from the Ministry of Internal Affairs and Communications**, the subsidized company was required to undergo the process of asset disposal, i.e. obtain the Minister's approval and ascertain if they needed to return the subsidy. To promote elastic social implementation and reduce the burden on subsidized companies, the Ministry of Internal Affairs and Communications **revised the outline for its subsidy grant program in February 2020 to simplify the process to the filing of a notification alone**.

For example:

Also available in smart cities!

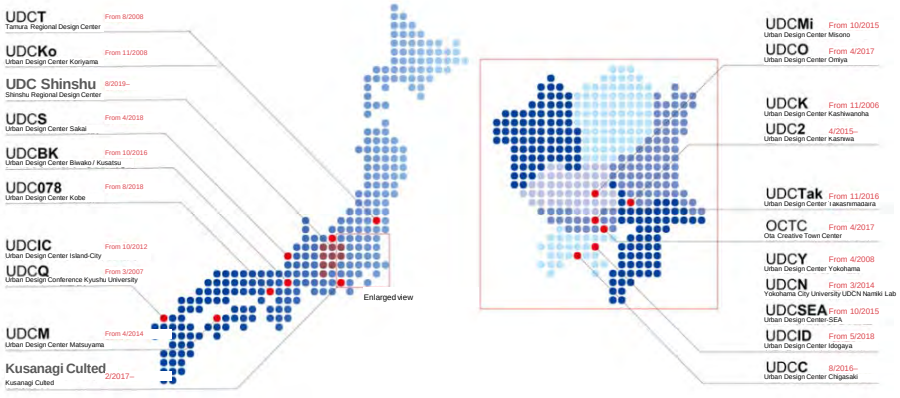


■ Source: Council on Competitiveness-Nippon (COCN)

Outline of UDC

- An Urban Design Center (UDC) is **an organization or site for a new form of community development, where entities that have interests in a community work together beyond the frameworks of government-led city planning or residents-led community development, by involving urban designers as a player with an objective viewpoint**. There are 21 UDCs established nationwide as of December 2019.
- The 'public' player is responsible for providing public services necessary for the community, the 'private' player for improving the attraction and vitality of the community through residential and economic activities, and the 'academic' player for forward-looking activities building upon their knowledge and technical expertise; together, they envision the future of the community and work as a driving force to realizing it, through daily and multifaceted collaboration.

■ **UDC nationwide**

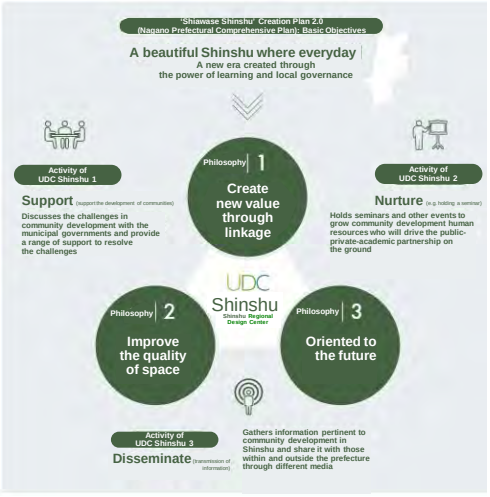


Source: UDC initiative HP

Shinshu Regional Design Center (UDC Shinshu)

- UDC Shinshu was established in August 2019 as a 'regional design' initiative under the Nagano Prefectural Comprehensive Plan ('Shiawase Shinshu' Creation Plan 2.0), through **collaboration of the Nagano Prefectural Government and the Urban Renaissance Agency (Public), Machinami Country Press, Co. Ltd. (Private) and the University of Tokyo and Shinshu University (Academic)**.
- UDC Shinshu **gathers and shares information pertinent to community development while serving as a network hub that connects people and organizations** and providing **support to the municipalities within the prefecture with their community development initiatives**. It also hosts seminars and training programs to cultivate community development human resources, and collects and shares information from Nagano and beyond.

■ **Philosophy & Activities of UDC Shinshu**



■ **Activity area of UDC Shinshu (HY2019)**

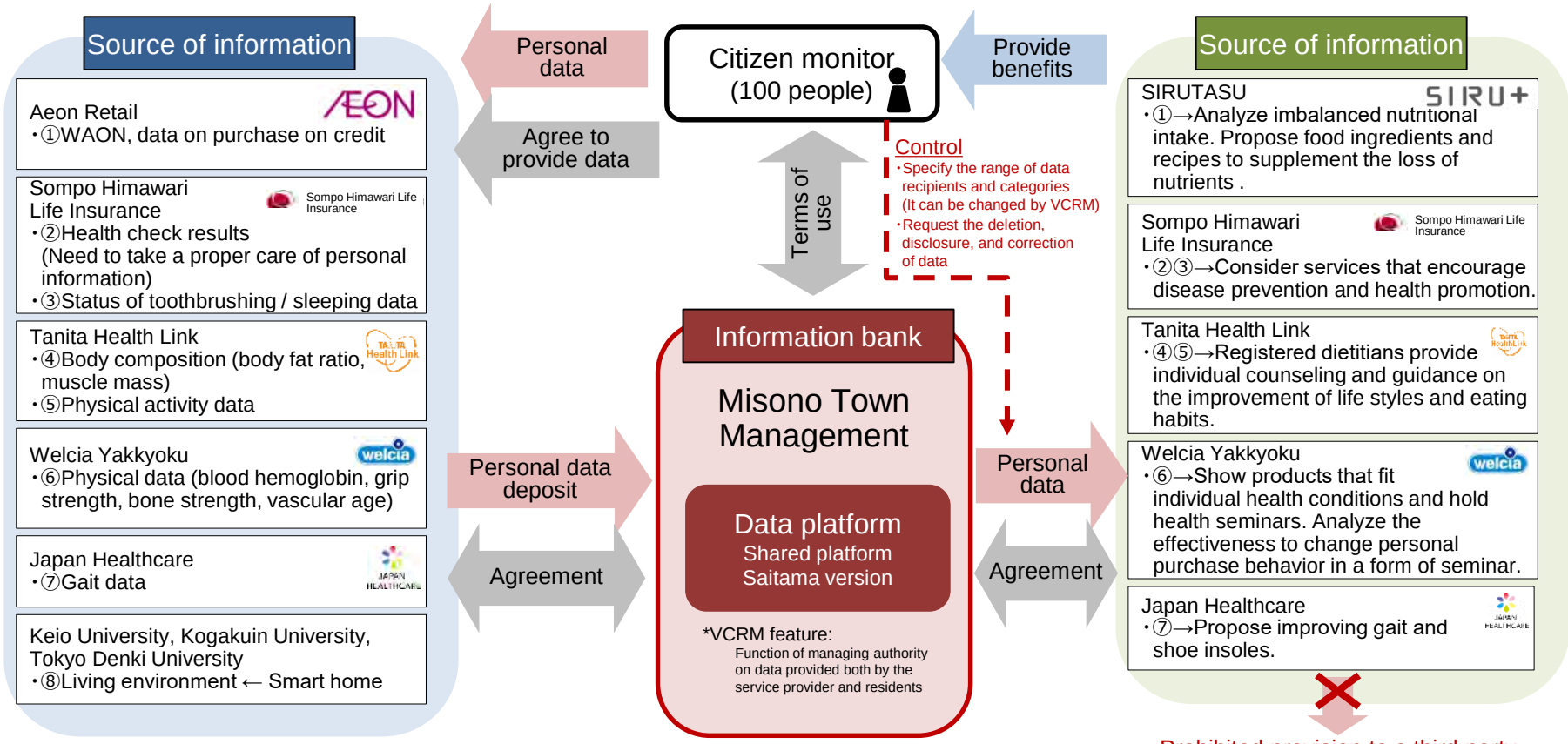
Source: UDC Shinshu HP

○ Smart City in Saitama City (Around Misono District, Saitama City, Saitama Prefecture)

- In Misono District, Saitama City, a pilot project was conducted from December 2019 through January 2020 where **the participating businesses obtained private data generated from a panel of citizens**, and **integrated and shared it on the 'information trust' system** of a **data platform** named the Common Platform, Saitama Version.

■ Linkage between information bank and Smart City (data platform)

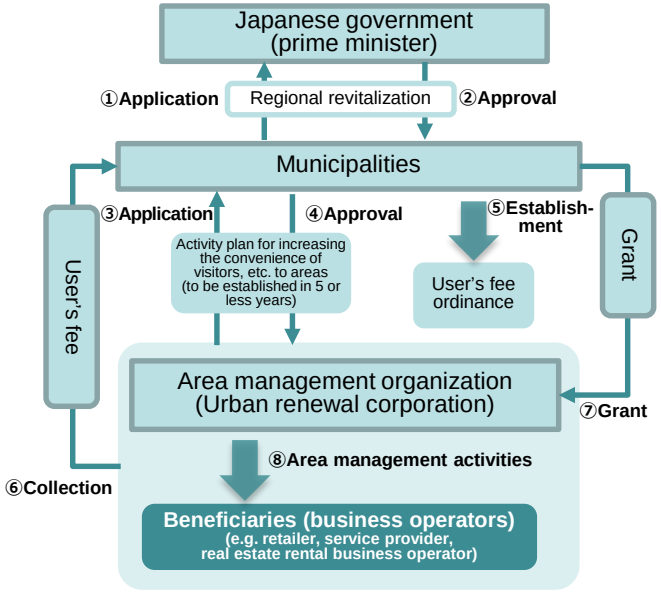
Obtaining 'real-life personal data' that is not available on the Internet to help new product development and cultivate new demand. Aiming for a business model building upon data sale as well as services such as sharing of personal information, and data consultancy for businesses.



Regional revitalization area management

- Promotion of area management activities requires securing of a stable sources of revenue. And in doing so, it is also necessary to solve the free rider problem, i.e. the issue of those who benefit from something but do not pay for it.
- The establishment of the regional revitalization area management user's fee program in 2018 has accelerated the promotion of area management activities funded by user's fee.
- It is a scheme that helps fund an area management activity that contributes to regional revitalization carried out by an area management organization (e.g. hosting an event, security patrolling that is required as the creation of liveliness), where the municipal government collects grants a subsidy to the organization from fees collected from the beneficiaries (businesses) within the area of activity to the extent of benefits received, subject to the consent of two-thirds of the beneficiaries.
- An area management organization receives a subsidy from the municipal government and carries out the activity according to the plan.

Regional revitalization area management user's fee program



Possible program activities

Events	Public space improvement	Information provision	Public services	Enhancement of infrastructure for economic activities
Projects that directly draw visitors, such as festivals, markets, and illuminations	Projects that help provide guests greater convenience and space of rest and relaxation, such as improved pedestrian areas and development and everyday management / operation of facilities	Projects that help provide greater convenience for visitors and guests and boost area public relations, such as gathering and sharing of information about the area (websites, maps etc.) and development of media exclusive to the area	Projects that help provide greater convenience for businesses in the area as well as guests, such as transportation-related services and business support	Projects that help develop infrastructure that support economic revitalization of the area, such as cleaning and security within the area, improved disaster-preparedness, developing industrial clusters and attracting businesses to open locations within the area

Activity to increase the convenience of visitors

Activity to increase visitors

■Source: Promotion of area management activities https://www.kantei.go.jp/jp/singi/sousei/about/areamanagement/index.html

Haneda 1st Zone Smart City (Ota Ward)

- Set targets (KGIs and KPIs) for FY2023.

Challenge		Goal to reach (i.e., major goal)	Medium goal	Minor goal	Measure
Commercial challenges	Maintain and develop high levels of technological capabilities and keep up with globalization in one of the leading locations for small- and medium-sized businesses in the country	**A Smart City as a test bed for the creation of 'Sustainable Ota'** ✓ Build a data linkage platform to gather and analyze various information on the city, and create a Smart City as an ideal test bed for verification activities ✓ Carry out a range of verification activities on the test bed created to contribute to the resolution of challenges faced by Ota Ward	**Smart ecosystem** Building environment to invite forward-looking initiatives	Test bed is used by a wide range of entities, creating new business opportunities KPI: No. of verification tests conducted (5/year)	Call for the participation in the verification tests on the HICity website etc. Host business events in collaboration with the Committee for the Creation of Frontier Industries
	Support for venture businesses and entrepreneurs and promotion of technological innovation			Forward-looking solutions are proposed by a variety of entities to solve the challenges faced by Ota Ward KPI: No. of idea proposals (5/year)	Present a long list of Ota Ward's challenges to address; create a workflow for public-private partnership initiatives that build on HICity
Transportation challenges	Securing means of mobility for vulnerable road users in areas of densely built wooden structures		**Smart mobility** Community where everyone can move around freely and with comfort	Diverse means of mobility for every setting KPI: No. of self-driving forms of mobility implemented (3)	Implement a wide range of forms of self-driving mobility Link mobility with elevator systems for free, seamless movement
				Mobility services are made sustainable through improved operation efficiency KPI: Mobility income and expenditure (Balance of payments)	Operate self-driving mobility that connects HICity and other sites (Haneda Airport etc.) Implement Dispatcher, an integrated remote control platform for multiple forms of mobility
Productivity improvement challenges	Addressing declines in working-age population and labor shortages	**KGI** ■ No. of new Smart Services introduced: 5/year ■ Business entry rate in Ward: 10% ■ Level of satisfaction with transportation environment among Ward residents: 90% ■ Productivity (sales of businesses within Ward / No. of people employed within Ward): 20 million yen/person ■ No. of tourism visitors to Ota Ward: 16.76 million visitors/year ■ Rate of certification of long-term care need: 20% ■ Prevalence of frailty: 20%	**Smart robotics** City where a variety of robots are helping run the city smoothly and improve user convenience	A wide range of robot services available that supplement or replace activities of visitors KPI: No. of robots introduced (ten types / 50 units)	Introduce robots to help improve efficiency of facility maintenance and management work Sophistication through combination with smart BM that helps improve efficiency of facility maintenance and management work
				Improvement of efficiency of facility maintenance and management work through replacement of labor by robots KPI: Efficiency improvement rate (20% down from current level)	Introduce robots that help improve added value services for visitors
				Realize sustainable robot services through improved operation efficiency KPI: Robotics income and expenditure (Balance of payments)	Introduce RoboticBase, an integrated control platform for multiple robots
Tourism/regional revitalization challenges	Increasing recognition to promote Ota Ward's urban tourism; turning 'Ota craftsmanship' into a tourism resource		**Smart tourism** Making tourism resources more visible and creating liveliness through tourism DX using cutting-edge technologies	Ota Ward's tourism resources are made more visible; people's interests in visiting Ota are greater KPI: Official tourism website PV (500K views/year)	Provide remote tourism services using avatar robots
	Creating liveliness through community development initiatives such as shopping district activities			Greater added-value of tourism resources through the use of AR technologies KPI: No. of app downloads (1,000)	Introduce AR apps to provide tourism services and experience
				Improved walkability and longer stays KPI: Length of stay of visitors (20% up from current level)	Run a reward point-based health app, in tandem with community events etc.
				More sophisticated area management measures capitalizing on people flow data etc. KPI: Consumption per person (4,500 yen/person)	Visualize and analyze visitor data such as people flow data
Health challenges	Extending healthy life expectancy and addressing the issues of presymptomatic disease state in the increasingly aging society		**Smart healthcare** City where people keep themselves fit and lively through everyday activities	Promotion of physical activity habits, in tandem with a reward point-based health app KPI: Frequency of physical activity among Ward residents (Once or more often per week on average)	Create opportunities for physical activity by running a reward point-based health app
				Improved health through collection and utilization of health dataKPI: Decline in male obesity rate (compared to 2017)	Provide health improvement services by collecting and utilizing health data

Comparative evaluation of cities using a common set of indicators

- Systems to compare and evaluate different cities using common indicators are becoming established.
- Rather than fretting over each ranking, it is more beneficial for individual communities to use these results with a focus on motivating themselves to work on what can be done to make themselves better compared to other communities.

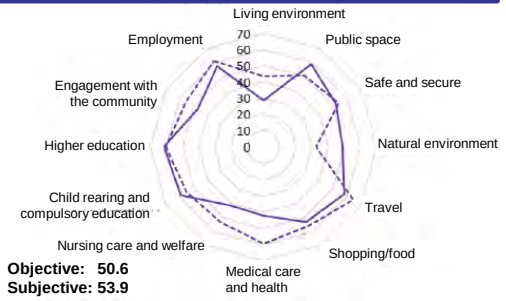
Name	Developed by	Characteristics
OECD Framework for Measuring Well-Being	OECD	Evaluates well-being of a country in terms of quality of life and material conditions
RMIT Liveability	Australia	Evaluates health, well-being and urban liveability of a city using 11 indicators. Used for urban policy making and evaluation in major Australian cities
Japanese version of Liveable Well-Being	General Incorporated Association Smart City Institute Japan, etc.	Quantifies and visualizes levels of a city's liveability and well-being in terms of its citizens (residents + related population), using both objective and subjective data
Report on QoL in European Cities	European Commission	Quantifies the levels of satisfaction with public services etc., based on a survey covering 83 cities in EU, the EFTA countries, and Turkey

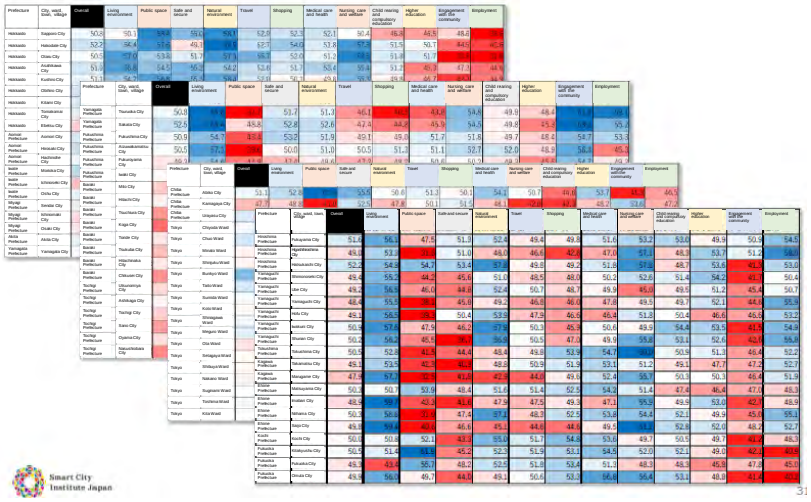
Indicators for Liveable Well-Being City

2-2. (5)
Appropriate project evaluation

- Initiatives have been made to create indicators for residents' Well-Being, such as 'Liveability Indicator', which has been adopted in major Australian cities, Singapore and India as a policy approach for city design/operations, and 'Report on QoL in European Cities', which is being used in European countries.
- General Incorporated Association Smart City Institute Japan published the Japanese version of Liveable Well-Being City indicators in 2020. They consist of objective and subjective indicators, and the objective indicators specifically provided data of basic municipalities around the country (a total of 45 KPIs consisting of 12 categories) as open data.

Area	Major KPIs
Living environment	Total area per house, average residential land price
Public space	Percentage of population living within walking distance of public green space
Safe and secure	Vacancy rate, number of criminal cases per 1000 people
Natural environment	Automotive CO_2 emissions per person, percentage of uninhabitable areas
Mobility / transportation	Percentage of population living within walking distance of a train station or bus stop, percentage of people with a commuting time of 30 minutes or less
Shopping / food	Percentage of population living within walking distance of a commercial facility, number of restaurants
Medical care / health	Percentage of population living within walking distance of a medical facility
Nursing care / welfare	Percentage of population living within walking distance of a welfare facility, number of welfare facilities
Child rearing / compulsory education	Percentage of houses within 1000 m from the nearest nursery school, numbers of kindergartens / elementary schools / junior high schools, total fertility rate
Higher education	Number of senior high schools, percentage of graduates of university / graduate school
Engagement with the community	Percentage of single elderly households, number of suicides
Area	Major KPIs





Source: Created based on Smart City Institute 'Liveable Well-Being City indicators'

International standards for the evaluation index systems of smart cities

- A number of international organizations for standardization have developed evaluation indices, and they have been used to help clarify areas of improvement through comparison between cities and time-series comparisons.

○Smart city-related evaluation indicators

International Organization for Standardization (ISO), International Telecommunication Union (ITU), and ISO/IEC JTC1*1 developed indicators for smart cities

*1 ISO/IEC Joint Technical Committee 1

Standardization organization	International standard	Title	Year of issue
ISO	ISO37120	Indicators for city services and quality of life	October 2018 (2nd edition)
	ISO37122	Indicators for smart cities	2019
	ISO37123	Indicators for resilient cities	2019
	ISO37153	Maturity model for assessment and improvement	2017
ITU-T	Y.4900	Overview of key performance indicators in smart sustainable cities	2016
	Y.4901	Key performance indicators related to the use of information and communication technology in smart sustainable cities	2016
	Y.4902	Key performance indicators related to the sustainability impacts of information and communication technology in smart sustainable cities	2016
	Y.4903	Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals	2016
ISO/IEC JTC1	ISO/IEC 30146	* Smart City ICT indicators	2019

e.g.: ISO37122 indicators (19 items, 80 indicators)

Evaluation category (Figures in parentheses are indicators)	Evaluation index
Economy (4)	City service agreement, new business, ICT employment, education / research employment
Education (3)	population with ability for multilingual communication, digital learning device, people with a degree of higher science education
Energy (10)	Energy derived from drainage and waste disposal, drainage-derived energy, dispersed power, energy grid storage capacity, street lamp management system, repaired street lamps, public buildings requiring repair, spread of smart energy meters, EV charging station
Environment (3)	Environment-oriented building, real-time remote atmospheric monitoring station, indoor air monitoring
Finance (2)	Revenues from collaborative economy, electronic payment
Government (4)	Access to open data portal, accessible online service, inquiry response time, IT infrastructure down time
Health (3)	Online health file, remote medical treatment, public air / water quality alarming system
Housing (2)	Smart energy meter, smart water meter
Population and society (4)	Public barrier-free building, budget to aid and/or support the mobility of citizens, crosswalk sign, removal of digital divide
Entertainment (1)	Online bookable service
Safety (1)	Digital surveillance camera
Solid waste (6)	Waste disposal site container equipped with telemeters, door-to-door collection of garbage, energy use of waste, recycled plastic waste, sensor-equipped trash can, recycling of electric / electronic waste
Sports and culture (4)	Online booking in cultural facilities, digitalized cultural record, number of books in public library, ratio of library users to city population
Communications (3)	Population with access to broadband, area to which access cannot be made, areas for which the local government provide access to the Internet
Transportation (14)	Road subject to traffic alert, public transport users, low-emission vehicles, shared bikes, real-time public transportation information, common payment service for public transport, electronic payment public parking, public parking providing real-time information, smart traffic signals, interactive street map, registered autonomous bikes, Internet-connected public transport, autonomous driving-compatible road, rate of buses
Agriculture and food (3)	Budget of urban agriculture municipality, composting of food waste, online food suppliers mapping
Urban planning (4)	Urban planner, electronification of building permit, days to obtain approval building permit, population in moderately to highly populated areas
Waste water (5)	Treated drainage for recycling, recycled dried waste, generation of drainage-derived energy, consumption of drainage-derived energy, real-time monitoring drainage network
Water (4)	Real-time monitoring of drinking water, real-time monitoring environmental water quality, smart water supply monitoring system, smart water meter

Definitions of and requirements for smart city: Setting of KPI

The 2020 Reform Time Schedule (published on 18 December 2020) set out the Japanese Government's policy agenda for Smart City as well as indicators to evaluate steps and measures involved.

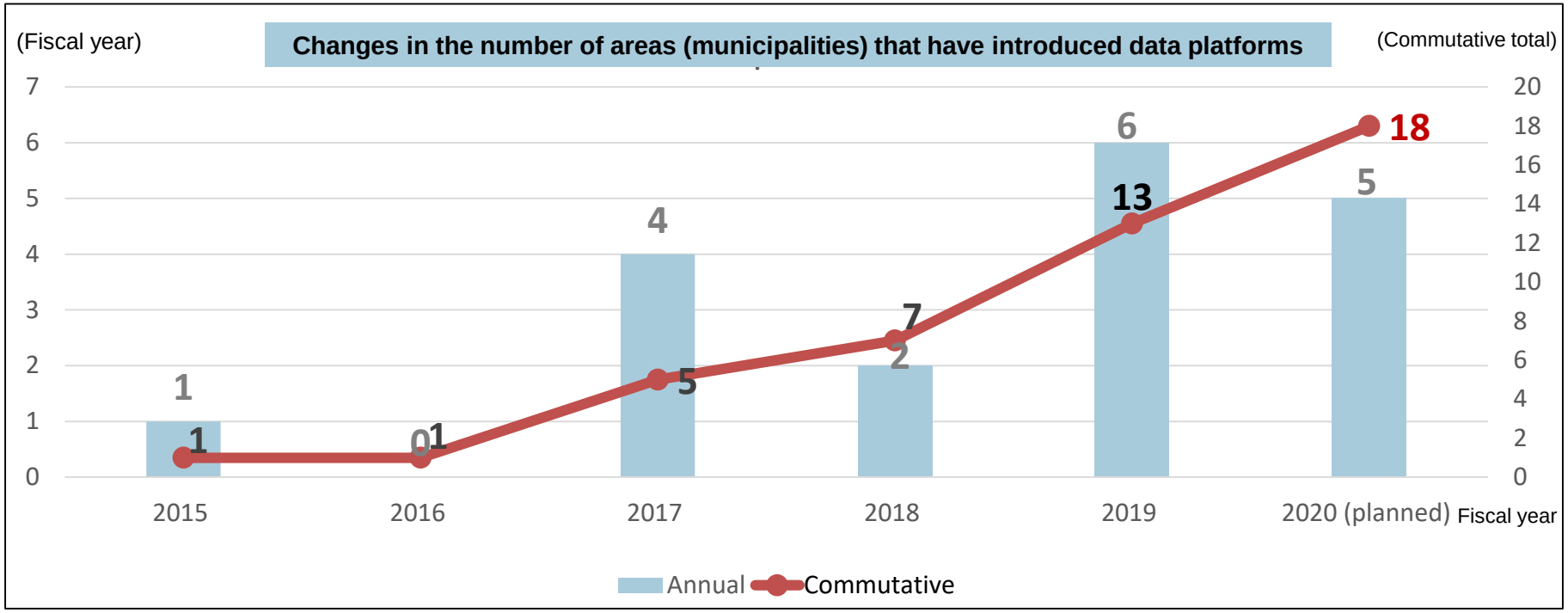
Outcome indicators, including those for residents' satisfaction (well-being), will require further discussion.

KPI 2nd layer	KPI 1st layer	Process (action)
○ No. of types of services developed on data platform (data linkage platform) _ Social fields _ (e-Government, disaster prevention, crime prevention, medical care, nursing care, education, transportation etc.) _ Economic fields _ (tourism, agriculture/forestry/fisheries, commerce etc.) _ Environmental fields (energy etc.)	○ No. of data platform (data linkage platform) implementations: 100 regions by FY2025 ○ No. of linkages with local government data platforms ○ No. of Smart City service operators	Promotion of data linkage
○ No. of users providing services using data platform (data linkage platform)	○ No. of cases of Smart City collaboration ○ No. of local governments / regional organizations that have carried out technology implementation: 100 regions by FY2025	Promotion of public-private partnership and resident participation
○ No. of local government and private businesses / regional organization engaged in the creation of Smart City (No. of public-private partnership platform members / observers): 1,000 bodies in FY2025	○ Results of public relations activities by the Japanese Government and local governments targeting private businesses and residents	
○ No. of citizens / related population participated in the resolution of social challenges or community development activities through initiatives led by universities etc.	○ No. of dissemination / promotion activities at universities etc., helping local contribution and resolution of social challenges	Human resource development
○ No. of talents that lead the creation of Smart City	○ No. of people who received Smart City human resources development programs	

Source: https://www5.cao.go.jp/keizai-shimon/kaigi/minutes/2020/1218/agenda.html

(Reference) Reform Timetable 2020: KPI examples

■ Introduction of data platform (data linkage platform)
Currently, 13 areas (as of end of FY2019) ⇒ Target: **100 areas** by FY2025



Fiscal year	Municipalities
FY2015	Aizuwakamatsu City
FY2017	Sapporo City, Saitama City, Kakogawa City, Takamatsu City
FY2018	Toyama City, Masuda City

Fiscal year	Local government
FY2019	Fujisawa City, Ina City, Kan-onji City, Ayagawa Town (Kagawa Prefecture), Niihama City, Iizuka City
FY2020	Tsumagoi Village (Gunma Prefecture), Kashiwa City, Ota Ward, Kaga City, Urasoe City

* Only data recognized by the Ministry of Internal Affairs and Communications is included. Values may be subject to change in the future.

Guidelines/Guide books

Title	Summary	URL
Smart City Reference Architecture White Paper (Cabinet Office)	Systematically summarizes the components and guiding principles for implementation necessary to realize Smart City.	https://www8.cao.go.jp/cstp/stmain/20200318siparchitecture.html
How to use Smart City Reference Architecture (Cabinet Office)	Explains the method of utilization by providing concrete procedures for solving regional challenges on the basis of the above Architecture.	https://www8.cao.go.jp/cstp/stmain/20200318siparchitecture.html
Report of the review meeting about ensuring Super City / Smart City interoperability (Cabinet Office)	Compiles matters necessary to ensure interoperability between cities / services in Super City and Smart City.	https://www.kantei.go.jp/jp/singi/tiiki/kokusentoc/supercity/pdf/sogowg_houkokusyo.pdf
Guidelines for MaaS-related data linkage ver.2.0 (Ministry of Land, Infrastructure, Transport and Tourism)	Summarize matters that related people should refer to in linking data for Maas in each region, etc., in order to facilitate MaaS related data linkage.	https://www.mlit.go.jp/report/press/sogo12_hh_000181.html
Smart City Security Guidelines (Ver. 1.0)	Classify the layers defined in the Smart City Reference Architecture into four categories from the standpoint of security, and describe the idea of security and security measures in each of the four categories.	https://www.soumu.go.jp/main_sosiki/cybersecurity/ * Ver. 2.0 to be released around June 2021
Regional Public Body Open Data Promotion Guidelines	Summarize the basic idea and other matters of open data promotion, in order to promote open data initiatives by local governments.	https://cio.go.jp/policy-opendata

References

Title	Summary	URL
Ministerial Meeting on Strategy relating Infrastructure Export and Economic Cooperation. Smart Cities catalogue (Office of Prime Minister)	Documents for Ministerial Meetings on Strategy relating Infrastructure Export and Economic Cooperation and Smart Cities catalogue	https://www.kantei.go.jp/jp/singi/keikyou/kaisai.html
Smart City Public-Private Partnership Platform (4 government agencies)	Support smart city activities through project support, holding subcommittees, matching support, promotion of wider use, etc.	https://www.mlit.go.jp/scpf/
Society 5.0 (Cabinet Office)	Summary of Society 5.0	https://www8.cao.go.jp/cstp/society5_0/index.html
Ministry of Land, Infrastructure, Transport and Tourism. Development of 'Toward the realization of smart cities (preliminary report)'	Chiefly concreate smart city measures promoted by the City Bureau of the Ministry of Land, Infrastructure, Transport and Tourism	https://www.mlit.go.jp/report/press/toshi07_hh_000126.html
G20 Global Smart Cities Alliamce Global Policy Roadmap	Examine the development of basic principles for smart cities while connecting local / central governments, private providers, and local residents	https://globalsmartcitiesalliance.org/?page_id=90
Data strategy	Comprehensive data strategy including nation-wide public and private activities in addition to administration to develop a digital platform suitable for the digital nation in the 21st century	https://www.kantei.go.jp/jp/singi/it2/egov/
Digital government execution plan	Plan to build a safe, secured, fair, just, and affluent society by materializing and implementing the directions suggested by the Basic Act on the Advancement of Public and Private Sector Data Utilization and Policy for the promotion of digital government	https://cio.go.jp/digi-gov-actionplan