■ The driving entity, consisting of public, private and academic entities that share the vision and independently join the project, takes the initiative in developing a concrete plan (strategy) for the implementation of the project and introduction of data platform (including the need for the introduction).

➢ **Form a project driving entity (consortium)**
・A project driving entity (consortium) may be formed by regional stakeholders, including a local government, advisers, local universities, local business community, and residents' groups, as well as private companies etc. listed below, which share the vision and independently join a smart city project.
　…Private companies that provide technologies, systems and services (IT vendors, communications, transportation, finance...)
　…Urban developers that develop a good-quality town utilizing technologies and services
　…Academics and other professionals that provide expert knowledge in priority areas etc.

・For private companies, this step may take a form of public invitation from the standpoint of requiring participating companies to share the vision and independently join the project.

➢ **Consider / draw up a concrete plan (strategy) for realizing the project**
・The driving entity draws up a plan (strategy) that specifies concrete steps to realize the vision etc.

・The contents of a plan (strategy) may include project goals, challenges to be solved and new value to be created, concrete activities, the direction of data collection / management / utilization, systems to be built, a financial plan, process planning and the division of roles among entities.

・In addition, the points below will need to be considered in drawing up a plan (strategy).
　① Ensuring the flexibility of a plan (agile plan)
　② Properly identifying the needs of residents
　③ Clarifying governance rules in the project driving entity

➢ **Develop the basic design of data platform**
・Consider whether data platform should be introduced or not on the basis of the regional challenges and details of activities that were clarified

○ Form a project driving entity (consortium)

Collection of organizations that support the vision (Niigata City)

・To give a concrete form to the 'Niigata City urban design' developed by Niigata Prefecture / Niigata City, the driving entity, consisting of public, private and academic entities, was formed by collecting members that support the smart city initiative utilizing ICT technology etc. and are motivated to implement the project to promote the 'Niigata City urban design'.

Niigata City Smart City Council

Provision of technology	Private companies / organizations (26 organizations)
Local government	Niigata City
Those responsible for smart city in the community	Niigata Furumachi town development corporation * Urban renewal corporation Niigata Station / Bandai: considering responsible organizations
Experts	Niigata University, Graduate Institute for Entrepreneurial Studies

> Enhance the practicability and sustainability of the initiative in collaboration with the community

■ Source: Realizing a creative city using smart planning as an engine (Niigata City Smart City Council)

Concentration of Toyosu-related companies and technology provider companies (Toyosu)

・Companies related to Toyosu (major landowners and companies) and technology provider companies formed the driving entity in collaboration with Tokyo Metropolis and Koto Ward.

Toyosu Smart City liaison conference
Board members: Tokyo Metropolis, Koto Ward, IHI, Shimizu Corporation, Tokyo Gas Real Estate, Mitsui Fudosan
Non-board members: Shibaura Institute of Technology, the members of promotion council other than the board members

Toyosu Smart City promotion council
Members: IHI, NTT Data, Shimizu Corporation, TIS, Tokyo Gas Real Estate, Tokyo Metro, The Japan Research Institute, NEC, Hitachi, Sumitomo Mitsui Banking, Sumitomo Mitsui Card, Mitsui Fudosan, Mitsubishi Estate

Tourism WG, Mobility WG, Data Platform WG

Partner

The University of Tokyo

Collaboration

Local organizations

■ Source: Toyosu Smart City implementation plan (Koto Ward)

Additional invitation of applications from those that want to participate, to embark on initiatives in new areas (Ustunomiya City)
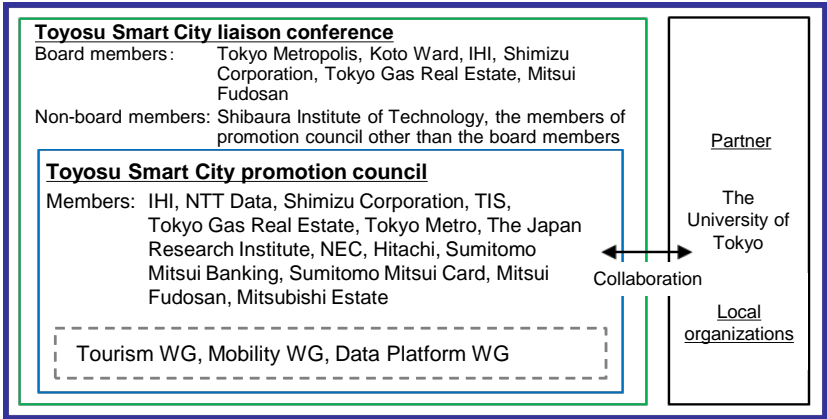
・The 'U Smart promotion council' was started by eight organizations, but **participating organizations were additionally collected to strengthen the 'Smart Mobility' initiative**; 16 organizations meeting the application conditions below were additionally selected.

■ **Application conditions (the roles that the Council expects organizations ,etc. to play)**
An organization etc. that supports the objectives of the Council and independently carries out concrete activities, including the development, verification and research of new technologies and systems that help solve challenges, by making the most of the strength of each organization etc.

Enrollment in the U Smart promotion council

Invitation of applications for enrollment in the 'U Smart promotion council' (we closed applications on 11 October 2019.)

We invite applications from companies / organizations (hereinafter called Organizations etc.) that want to take part in the promotion of the council's initiative, which includes addressing, or providing necessary support for, the development / verification / research of new technologies and systems in the city that contribute to realizing smart city in the city (the 'Making the life and town vibrant with ICT' project in the 6th Utsunomiya City Comprehensive Plan).
This fiscal year, we invite applications from Organizations etc. for 'Mobility', an area that needs to be strengthened to achieve the goals of the council.

■ Source: Utsunomiya City's website

38

(3) Examples of Initiatives at Planning (Strategy) formulation Stage

○ Consider / draw up a concrete plan (strategy) for realizing the project

Major matters that should be included in a plan (strategy)

· Examples of descriptions in smart city model projects by the Ministry of Land, Infrastructure, Transport and Tourism

Goals of the district	Defining the future image of the city, setting goals that are aligned with the city's challenges in light of the improved lives of residents
Challenges of the district	Challenges facing the district, advanced technologies and data to be used to address those challenges
Setting of KPIs	Setting target values, which are aligned with the district's goals and challenges and indicate the effects on cost reduction and the improvement of the district's value / profits, as well as setting the fiscal year in which the set target values are expected to be achieved
Contents of the initiative	Overall picture of the initiative, details and characteristics of the initiative
Road map for implementation	Time frame for research, planning, verification and implementation, with the target fiscal year in which each of them is achieved
Division of roles among members	Consensus formation and division of roles among the stakeholders as well as the driving structure
Policy to make the initiative sustainable	Proper public-private cost sharing as well as a financial plan and payout time based on estimations, with initial investment to maintenance / operation in consideration
Data utilization policy	Policy for the development and utilization of the data and platform that are expected to be used in the initiative
Policy for horizontal deployment	Describing a model for horizontal deployment after clearly showing a common initiative for nationwide deployment

Kashiwa-No-Ha Smart City Action Plan

Kashiwa-No-Ha Smart City Action Plan
March 2020

Kashiwa-No-Ha Smart City Consortium

- In March 2020, an action plan aimed at building a 'Station-centered Smart Compact City' utilizing data and new technologies, such as AI and IoT, was prepared and announced.

- Under the concept of 'TRY the Future -- the ever-evolving town', the plan states the promotion of town development by listing four themes and on the basis of three strategies.

Otemachi-Marunouchi-Yurakucho district Smart City Vision / Action Plan

Otemachi-Marunouchi-Yurakucho district Smart City Vision / Action Plan

As of March 2020

Otemachi-Marunouchi-Yurakucho District Smart City Consortium

- In March 2020, an action plan to 'update and redesign existing cities' through 'a public-private partnership (PPP) and area management' was developed and announced.

- The plan states how the district's value can be enhanced through smartification and how the data utilization-type area management can be achieved toward the district's goals / vision.

■ Pursue social implementation in line with the plan (strategy), while enhancing the degree of maturity and social acceptance of the plan for introducing systems and providing services mainly through verification tests.

■ In addition, aim to realize a smart city that is firmly rooted in the community by improving services etc., introducing new services etc. and linking the initiative to data platform while properly monitoring the effects of implemented services etc.

➤ **Conduct verification tests for implementation**
・Conducting verification tests by clarifying subjects to be studied / verified, such as concrete needs, social acceptance and the adequacy of a financial plan, to avoid only carrying out experiments for experiments, will enable you to take steadier steps to social implementation.

➤ **Flexible and elastic social implementation**
・In pursuing social implementation, it is expected as a matter of course that not everything goes according to plan (strategy).
・It is effective to take a flexible and elastic approach by, for example, giving priority to a project in a particular area, such as the introduction of mobility services, according to the status of progress or preparation of projects of each area, or by introducing services gradually from a particular district.
・If successful experiences can be shared with residents and a smart society can be realized even if gradually through such an approach, it may be possible, as a result, to realize a plan (strategy) earlier.

➤ **Finalize the operation of data platform**
・Services / apps will never gather only by making data platform and waiting for them. An active stance is needed to understand desired data, search for such data and perform matching.

> **'Constant upgrading'**

・The goal would be not the social implementation of services etc, but the firm establishment of smart city in the region.

・Technological innovation is rapidly advancing. It is effective to try to constantly 'upgrade' smart city by improving services and introducing new services while properly monitoring the effects of implemented services etc.
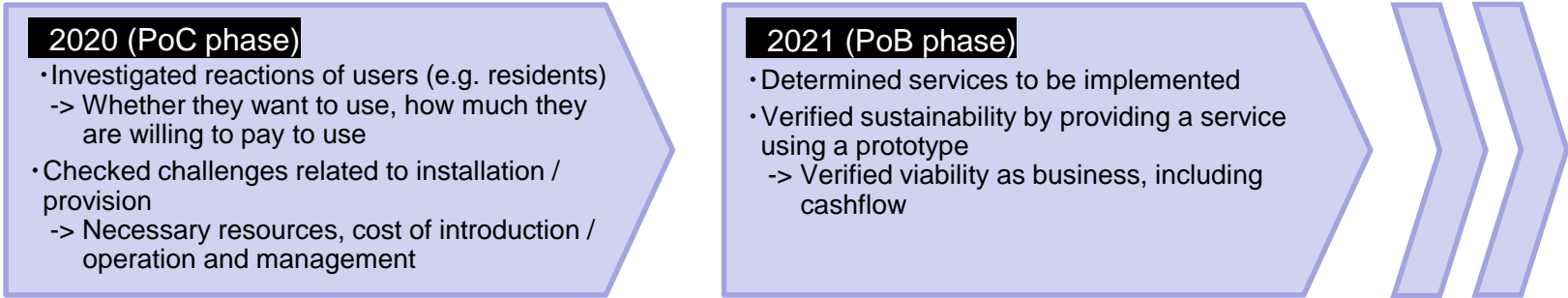
> **Need for long-term initiatives**

・In order to reach a state in which smart technologies are efficiently used at various levels, including the government, private sector and residents, and smart city is rooted in the community, it is necessary to aware of taking long-term and continuous efforts, as those measures, such as improvement of IT literacy of each level, the reforms of conventional systems and processes of the government, society and economy are not something that produces immediate results in a short period of time.

・Therefore, with the future addition of functions in mind, data platform needs to be constructed using a building block approach, which provides easiness of expansion, from the beginning. In addition, precisely because it will be operated for a long term, attention needs to be paid to avoid vendor lock-in.

・It is also necessary to change the real urban space (physical space) to a form appropriate to a smart society in stages, such as a town that responds to autonomous driving mobility and a town that variably responds according to the lives and actual behaviors of residents.

・In this sense, smart city may be considered to be initiatives that are matured from a long-term perspective.
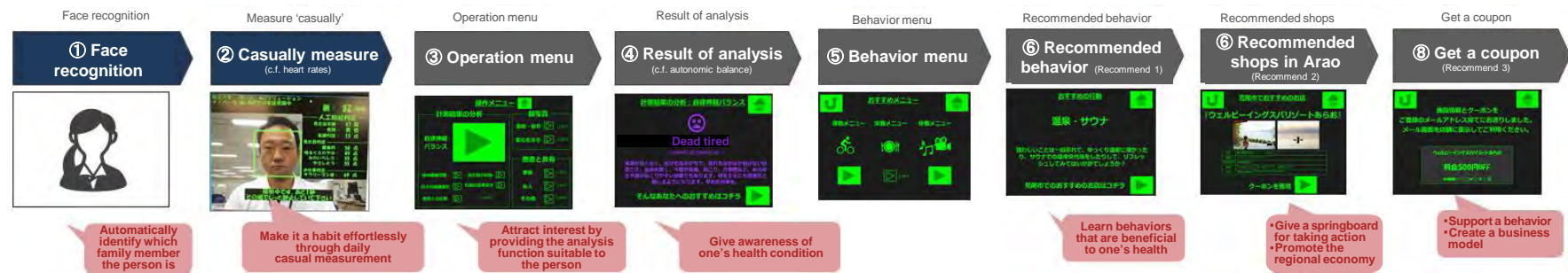
O Verification for social implementation

Casual sensing and daily complete medical checkup (Arao City)

- Arao City faces the challenges of low rates of residents undergoing a special health checkup and high treatment costs of lifestyle-related diseases for those not undergoing a health checkup. The city aims to extend healthy life expectancy by enhancing health awareness and making it a habit to engage in activities beneficial to improve mental and physical health through smart healthcare services, such as a daily health control recommendation service.
- Toward social implementation, the city **verified social acceptance** in FY2020 **by considering it the PoC (proof of concept) phase**. The city **verified the business model** in FY2021 **by considering it the PoB (proof of business) phase.** The city now aims to improve services etc. through verification tests and achieve social implementation in FY2023.

2020 (PoC phase)
- Investigated reactions of users (e.g. residents)
  -> Whether they want to use, how much they are willing to pay to use
- Checked challenges related to installation / provision
  -> Necessary resources, cost of introduction / operation and management

2021 (PoB phase)
- Determined services to be implemented
- Verified sustainability by providing a service using a prototype
  -> Verified viability as business, including cashflow

* From the beginning, the initiative has been challenge-oriented rather than technology-oriented; the city has been taking a stance of adopting opinions of Arao City residents from the planning stage

(Image of the daily health control & recommendation service) * One of multiple hypotheses

Face recognition	Measure 'casually'	Operation menu	Result of analysis	Behavior menu	Recommended behavior	Recommended shops	Get a coupon
① Face recognition	② Casually measure (c.f. heart rates)	③ Operation menu	④ Result of analysis (c.f. autonomic balance)	⑤ Behavior menu	⑥ Recommended behavior (Recommend 1)	⑥ Recommended shops in Arao (Recommend 2)	⑧ Get a coupon (Recommend 3)
Automatically identify which family member the person is	Make it a habit effortlessly through daily casual measurement	Attract interest by providing the analysis function suitable to the person	Give awareness of one's health condition		Learn behaviors that are beneficial to one's health	•Give a springboard for taking action •Promote the regional economy	•Support a behavior •Create a business model

42

○ Verification for social implementation

The gradual service area expansion of the delivery of purchased goods by drone (Ina City)

・Ina City is facing a situation in which those living in mountainous areas without a private car, including elderly people, have difficulty in moving around / going shopping.
(The nearest supermarket is 11 km away and it takes 40 minutes each way by bus, which runs only twice a day)
・In FY2020, the city implemented drone delivery services for shopping. Those who place an order by 11:00am for goods from about 300 items on the cable TV screen using the remote control, with which elderly people are familiar, can have them delivered by a drone etc. by evening.
  * The drone is remote-controlled by Shinshuinasora at its base facility. It automatically flies on set routes.

January 2017 (Fact-finding survey on shopping)
・Inconveniences of shopping and an increasing number of people with limited access to shopping facilities, including those requiring nursing care and elderly people living alone, were recognized as regional challenges.

-> Areas with high demand were selected

From FY2018 (Development / technological verification)
・Technological development of drones that fly over rivers, and collaboration procedures / specifications etc. were finalized.
・One month before launching the service, a free trial campaign was conducted to provide a period in which people 'were encouraged to try' without paying registration / usage fees.

August 2020 (Project launch)
・The project started in four villages in Hase District.

・33 of about 600 households (of which about 150 are those with only elderly people)

October 2020 Area expansion
・The area was expanded to nine villages **(Personnel such as volunteers were secured)**
・47 of about 900 households (of which about 300 are those with only elderly people)

(Identification of residents' needs through a questionnaire survey)

Areas with high rates of those who feel inconvenience in shopping

Means of transportation for shopping by region

■ Source: 'Ina City Survey on shopping of foods' (January 2017)

43

(5) Points to Note regarding the Area Management Type

-- The division of roles and relationships between the local government and the supporters of community development, including the community development organization, vary among target districts according to whether the district is located in a newly developed area or a built-up area, or whether it is in a large city or local city. However, mainly in light of the points below,
  ① initiatives in the district are directly linked with administrative themes, such as solving administrative challenges facing the local government and realizing the vision to be achieved, and
  ② the introduction of services etc. in the district is a test case that leads to a citywide smart city initiative,

it is considered necessary for the local government to independently join smart city initiatives in the target district in collaboration with a community development organization.

➢ **Give a clear status to the district that pursues smart city initiatives**
・ It is possible that taking preferential measures for the target district, which will not apply to the other districts, may be needed, including the flexible and elastic operation of systems / rules as well as personnel, financial or other support.
・ Therefore, it is considered effective to give a clear status to the target district in the administration policy by, for example, taking the opportunity of revising the comprehensive plan to specify that smart city initiatives are pursued in the target district as a test case of the citywide initiatives.

➢ **Share an awareness of issues / a sense of purpose between the community development organization and the local government**
・ As a precondition for the local government to promote smart city in collaboration with the community development organization etc., it will be necessary to share an awareness of issues / a sense of purpose with the reason of pursuing smart city between both parties while harmonizing smart city initiatives with the existing initiatives of the organization etc.

➢ **Build a promotional / support structure involving all sections**
・ It is also effective to undertake initiatives in various fields as test cases in the target district.
・ Therefore, it will be effective to build a promotional / support structure involving all sections, including departments that implement policies, at the local government and to improve staff members' knowledge even when the community development organization plays a leading role in the district.
・ Building such a structure is also beneficial in speeding up decision making at the government to respond to the speed of 'private sectors'.

➢ **Provide support to the community development organization**
・ Some community development organizations may be weak in terms of both financial and human resources. If they need to be developed as organizations that support smart city in the district, it is necessary to assist them in securing independent source of funds and improving the structure.
・ It is also a good idea for the local government to join a public-private-academia community development organization from the standpoint of strongly driving smart city.

(5) Points to Note regarding the Area Management Type (Example)

○ Haneda Innovation City in Haneda zone 1 promotion council (Ota Ward)

At the Haneda Airport site zone 1, the Haneda Smart City promotion council, consisting of Ota Ward, which is the landowner, Haneda Mirai Kaihatsu Co., Ltd., which owns and manages Haneda Innovation City (HIcity), Kajima Corporation, which is the largest shareholder in Haneda Mirai Kaihatsu, and other organizations, was set up; the council promotes initiatives that contribute to solving challenges facing Ota Ward by forming test beds suitable for the verification of leading-edge technologies / services that address various 'industry' challenges.

Smart City council / **Ota Ward**

① Extract challenges
② Select challenges
③ Present challenges
④ Planning
⑤ Verification testing
⑥ Verify
⑦ Propose measures
⑧ Consider measures

Highest policy formulation body (Ward assembly) — Confirm policy etc.

Airport and town development headquarters, Planning and management department

Related department / Related department — Collaborate among related departments

Three-layer structure within the ward office

Sessions of staff training — Enhance staff capabilities

Position of the district
・In July 2015, the ward developed 'Haneda Airport site 1st zone development policy' stating the development policy of the Haneda Airport site.
・It states that the district is aimed at building a 'creation and dissemination base for new industry, in which people, companies and information at home and abroad gather and interact with each other, under the concept of "Building a 'creation and dissemination base for new industry' that connects the city with the world".

Sharing an awareness of issues / a sense of purpose
・The ward extracted challenges mainly from the Comprehensive Strategy for Overcoming Population Decline and Vitalizing Local Economy and provided them. The promotion council reviewed the policies and contents of the smart city initiatives.
・The ward, Haneda Mirai Kaihatsu Co., Ltd., Kajima Corporation and the Japan Research Institute served as the secretariat and promoted the sharing of an awareness of issues / a sense of purpose between public and private sectors, including the consideration of the overall plan.

Building a promotional / support structure involving all sections
・The highest policy formulation body for administrative management confirmed the 'Realization of sustainable city Ota' through smart city projects, and developed a PDCA system, which includes the extraction of further challenges.
・Training sessions were planned so that each staff member can gain deeper understanding and knowledge of the effectiveness of smart city and view the initiatives as their own issue.

Providing support to the community development organization etc.
・Lively discussions were invited through 'Analysis of outcomes' and 'Proposal for improvement', and both the public and private sectors came up with ideas beneficial to the community development.
・Being a green field type project in a site adjacent to an airport, which is unprecedented in and outside Japan, the initiative is being promoted in close collaboration.

2-2 Key Points in Proceeding with Smart City and Ways to Address Them

(1) Building functional and flexible driving entities

・Clarification of guiding principles to be shared within the driving entity

・Need for organization s/ personnel that drive and coordinate a project

・Clarification of governance

(2) Ensuring financial sustainability

・Basic ways to address the burden of cost

・Consideration of various ways to raise funds etc.

(3) Active Public Participation

・Need to encourage residents to actively participate in an interactively way, including proposals of their needs and policies etc.

(4) Introduction of data platform

・Linkage between cities

・Enhancement of data distributed on data platform etc.

(5) Appropriate project evaluation(e.g. KPI)

・Need to set KPIs etc. as indicators that allow the degree of achievement of goals etc., to be properly evaluated etc.

(1) Building Functional and Flexible Driving Entities: Outline ①

1. Enhance the driving entity's ability to act

-- The driving entity is expected to involve various public and private entities with different organizational logics and interests.

-- Therefore, the driving entity needs to enhance its ability to act so that the local government and the community development organization etc. can promote projects while coordinating interests and forming a consensus by providing various stakeholders with opportunities for discussions.

➢ **Share the vision**
・ It is effective for all the members to participate in a project by sharing the vision, principles and course of action.

➢ **・Secure organizations / personnel that drive and coordinate a project**
・ It is also effective for the driving entity to internally secure neutral organizations and personnel that play a role in coordinating opinions among members and driving a project in order to prevent the project from stagnating due to a divergence of views and to promote cross-sectoral initiatives.
 Examples: the government, specialists such as advisers and academics
   A community development organization based on a public-private-academic partnership (Urban Design Center: UDC)

➢ **Clarify the governance of the driving entity**
・ In addition, it is effective to clarify the governance rules in advance by a consensus of the members in order to make reasonable and proper decisions and execute them appropriately while coordinating the interests of the members with different behavioral principles and risk-return preferences, including the government, which puts a high value on the enhancement of public welfare, and private companies, which are profit-making organizations.
・ One way of doing this may be to compile organizational management rules as statutes etc., which include a decision-making process for forming a proper consensus while considering the needs of residents, rules to adjust conflicting interests, members' compliance rules on agreed matters and crisis management rules to address security risk.
・ In this step, from the viewpoint of creating innovations by combining various data and technologies, it may be a good idea to establish rules among the members on the sharing of data / technologies that can be provided as well as their management and utilization.
・ In addition, it is necessary to ensure that these rules can be revised as needed when the situation or the composition of the members changed. From this viewpoint, it may also be necessary to ensure that the decisions made by the driving entity are recorded and shared among the members, including the background and reasons behind the establishment of rules ,etc.

2. Clarify data handling rules

-- For the promotion of smart city, it is essential to distribute and utilize various data from public and private sectors with the understanding and cooperation of the community.

-- Personal data in particular is expected to be utilized so that services that meet individual attributes and preferences can be provided for residents.

   However, there is a concern that any problem, such as a leakage, can have serious effects on mental condition and property, and therefore, striking a balance between 'protection' and 'utilization' is crucial.

-- From this perspective, it is necessary to consider data handling rules and risk management rules by referring to various guidelines etc. on the next page and paying attention to a series of process
(acquire -> use -> store -> discard), and to disclose these rules to residents and companies and gain their understanding.

-- In doing this, it is considered effective for the local government, which plays a core role in the driving entity and owns and operates personal information, and the community development organization etc., which is responsible for area management, to lead discussions and ensure the transparency and safety of the utilization process by, for example, taking the measures below.

   ✓ Before beginning to use personal data, analyze risks and carry out a privacy impact assessment

   ✓ Establish a third-party organization (e.g. a personal information protection council) that serves as a watch dog for data utilization, including reviewing the appropriateness of the provision to a third party

3. Ensure sustainability and potential for development by involving various entities

-- To ensure the sustainability and potential for development of a project, it is necessary to consider the creation of an environment in which an ecosystem is formed through participation by various entities as data / service providers.

-- From this viewpoint, it may be a good idea to consider creating a system for spurring new entities to join by taking measures, including sharing the vision, clarifying the benefits of participation, such as defining data cooperation fields, and providing an opportunity for personnel exchange among relevant people.
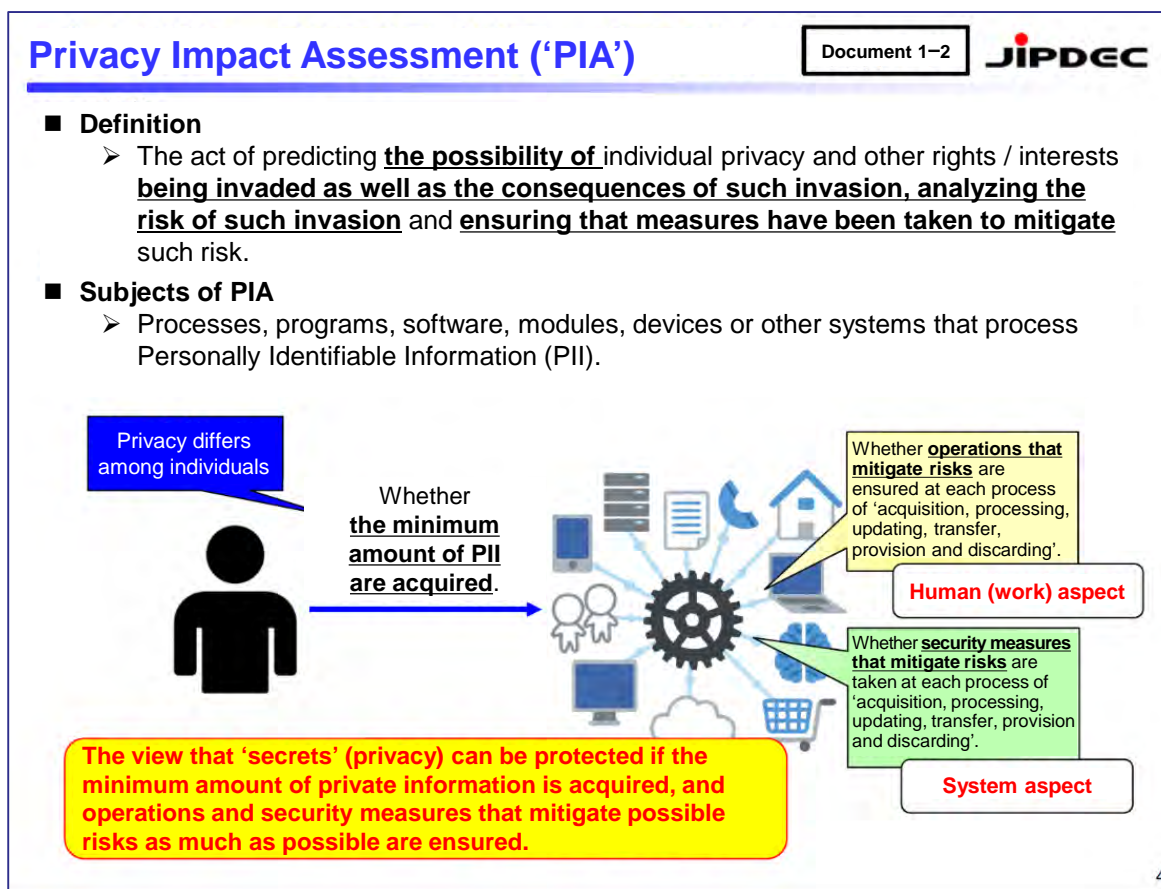
Reference: Existing Guidelines / Guidebooks for Smart City

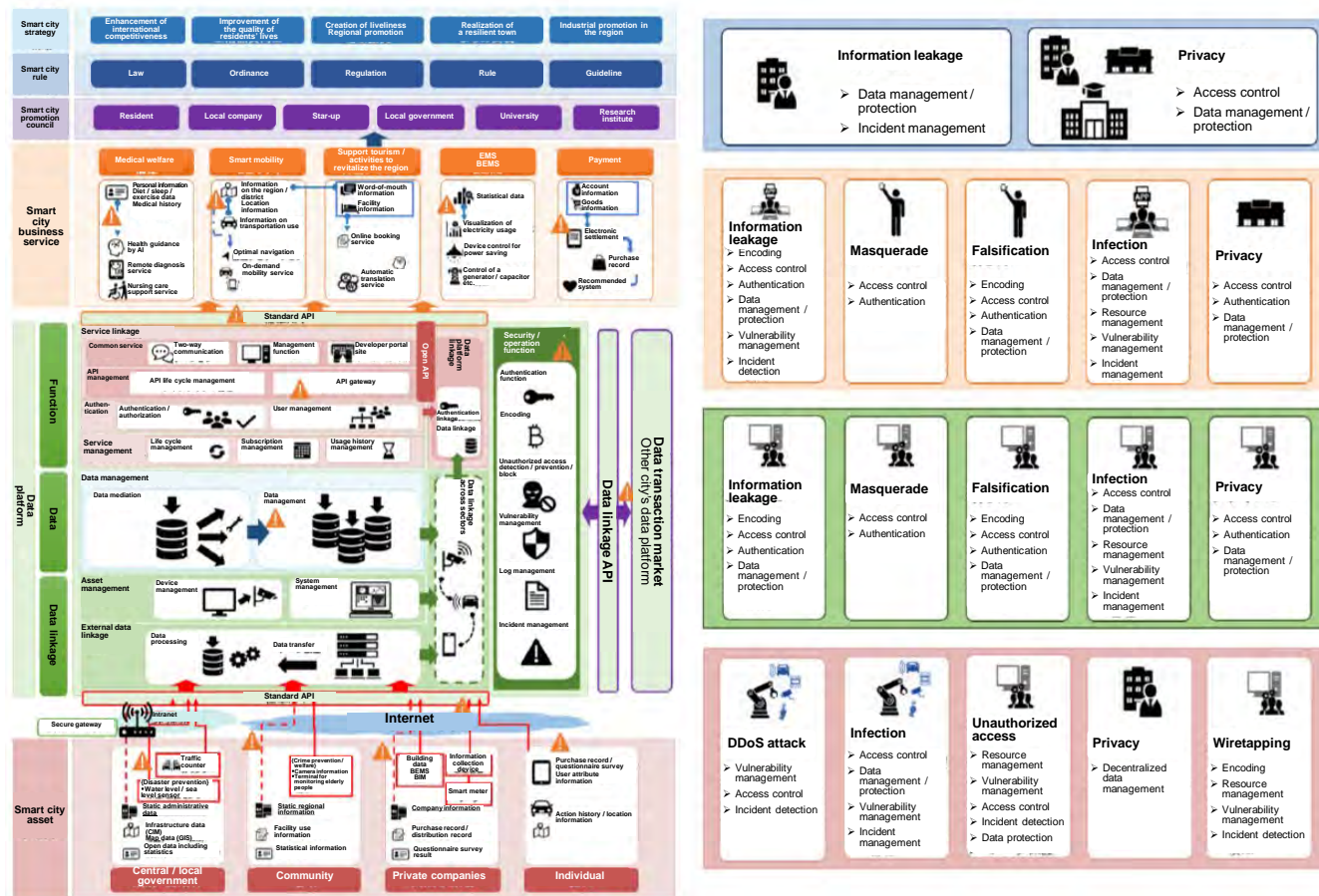| Title	Summary	URL
Smart City Reference Architecture White Paper (Cabinet Office)	Systematically summarizes the components and guiding principles for implementation necessary to realize Smart City.	https://www8.cao.go.jp/cstp/stmain/20200318siparchitecture.html
How to use Smart City Reference Architecture (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
Local Governments 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

Reference: Handling of Privacy in Smart City

While smart city can provide more fine-tuned / advanced services by using various personal data in the city, there is a concern that any incident, such as a leakage, can have irreparable effects (e.g. on mental condition, property).
To address this concern, a method called PIA (privacy impact assessment) was developed to analyze risks associated with the process (acquire -> use -> store -> discard) before using personal data and to prepare countermeasures before constructing systems etc.
* The international standards (ISO/IEC 29134) were established in 2017 and issued as Japanese Industrial Standards (JISX9251) in January 2021

Privacy Impact Assessment ('PIA')

Document 1−2   JiPDEC

- **Definition**
  - The act of predicting **the possibility of** individual privacy and other rights / interests **being invaded as well as the consequences of such invasion, analyzing the risk of such invasion** and **ensuring that measures have been taken to mitigate** such risk.
- **Subjects of PIA**
  - Processes, programs, software, modules, devices or other systems that process Personally Identifiable Information (PII).

Privacy differs among individuals

Whether **the minimum amount of PII are acquired**.

Whether **operations that mitigate risks** are ensured at each process of 'acquisition, processing, updating, transfer, provision and discarding'.

Human (work) aspect

Whether **security measures that mitigate risks** are taken at each process of 'acquisition, processing, updating, transfer, provision and discarding'.

System aspect

The view that 'secrets' (privacy) can be protected if the minimum amount of private information is acquired, and operations and security measures that mitigate possible risks as much as possible are ensured.

4

Source: 3rd review meeting about data linkage in Super City / Smart City
https://www.kantei.go.jp/jp/singi/tiiki/kokusentoc/supercity/kentoukai/dai3/shiryou.html

Reference: Ensuring security resilience for smart city

- Guidelines concerning the idea of security and security measures for smart city were established to help build / operate a safe and secure smart city. The guidelines summarize key points of measures and examples of measures for each of the four categories: 'Governance', 'Service', 'Data platform' and 'Asset'.
- To ensure resilience, it is necessary to clarify in advance the significance of a subject that may cause an abnormality or failure as well as its dependence on other organizations / systems, and thereby respond in an optimal way (preventing an error of judgment, ensuring prompt response to an incidence and information sharing).

Source: Smart City Security Guidelines (Ver. 1.0) https://www.soumu.go.jp/main_sosiki/cybersecurity/

52

■ Smart Wellness City Council (Sapporo City, Hokkaido)

- To address declining population and promote industries, the city formulated its ICT utilization strategy.
- One of its core projects is to utilize data from public and private sectors, and extend healthy life expectancy.

Trigger for the initiative

・**To address declining population and promote industries, the ICT promotion department was created** in the city government (in 2016).

Clarification of a sense of purpose / an awareness of issues

Vision	・The expert committee was established in 2016, and the '**Sapporo City ICT utilization strategy' was formulated** in 2017 on the basis of a survey of residents and public comments. (Revised in 2020) ・The policies of the initiative were decided for individual fields, including the utilization of data from public and private sectors, which is the core, health, transportation and tourism.
Policies of the initiative	・Given the current situation in which the city's healthy life expectancy is below the national average and it ranks low among government ordinance-designated cities, the '**Realization of a society of good health and longevity through the promotion of walking' was set as a goal**.

■ Source: Resident participation smart city that realizes health and comfort using ICT (Summary) created by Sapporo City

■ Kakogawa City

- It started with the installation of monitoring cameras, which was a measure to tackle a large number of confirmed criminal cases and many missing persons due to dementia.
- To ensure 'safe and secure' city, various services are provided in addition to the expansion of monitoring services.

Trigger for the initiative

・It was an imminent challenge to **create a safe and secure city with a focus on crime prevention** because the numbers of confirmed criminal cases and missing persons among elderly people with dementia were higher than in other cities in the prefecture.

Clarification of a sense of purpose / an awareness of issues

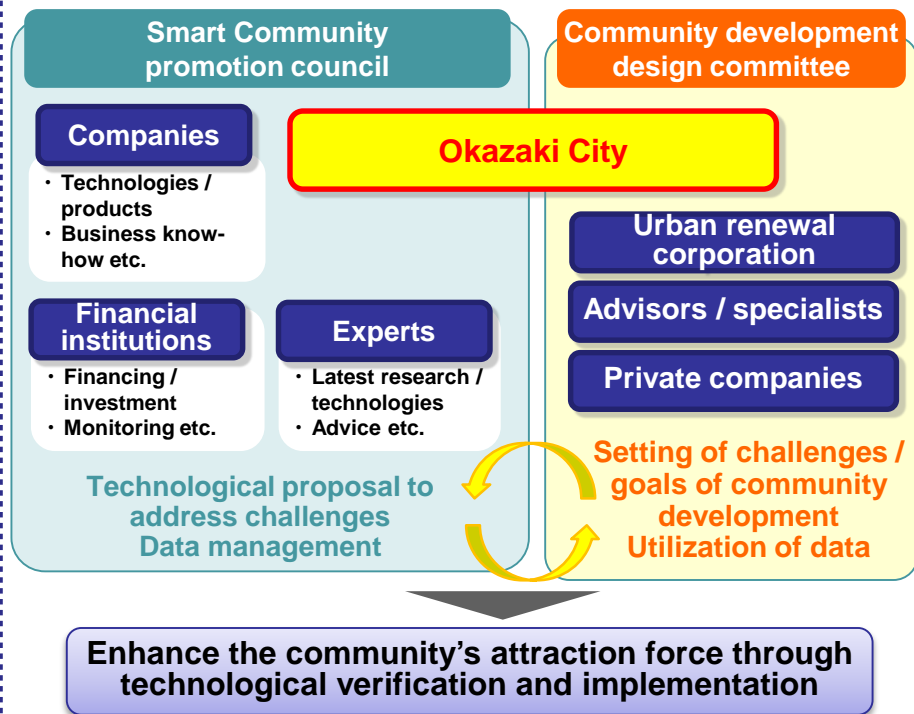| Vision	・Under the theme of 'A city chosen by the child-rearing generation', **aim to create a safe and secure city utilizing ICT**.
Policies of the initiative	・To prevent crimes and resolve problems as early as possible, monitoring cameras were installed at places, including routes to schools and areas around schools, and monitoring services using a BLE (Bluetooth Low Energy) tag are provided through a public-private partnership. ・Prior to the installation of cameras, **open meetings were held between the mayor and residents** to discuss matters such as the necessity of installation and places to be installed.

■ Source: Kakogawa smart city project (Kakogawa ICT community development council) action plan created by Kakogawa City

■ Okazaki Smart Community promotion council
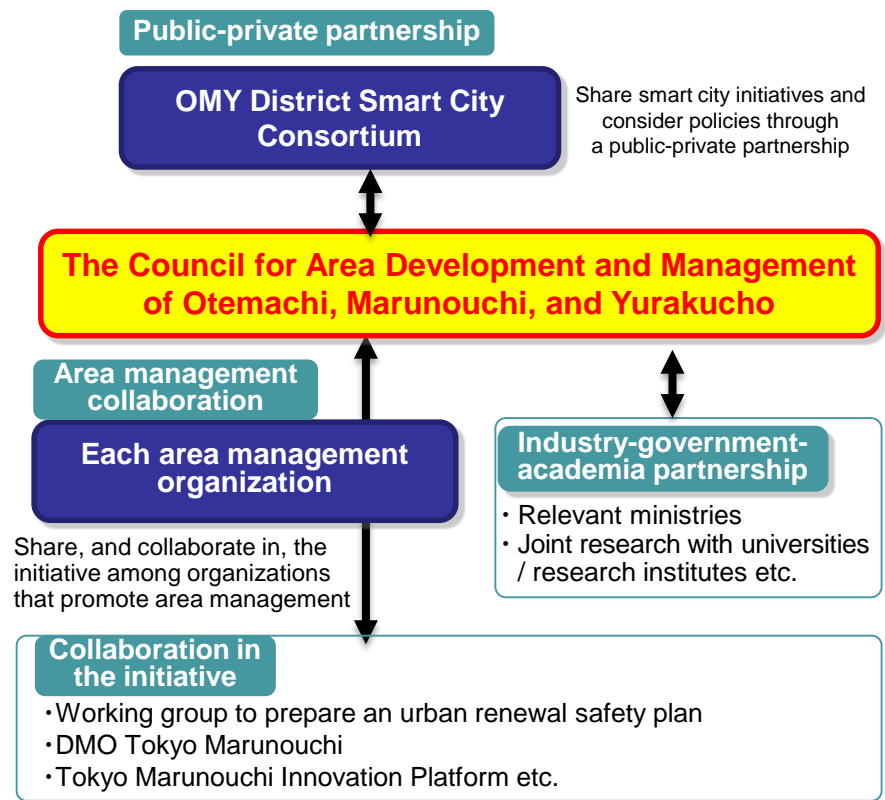**(Otogawa Riverfront QURUWA district, Okazaki City, Aichi Prefecture)**

- **Okazaki City served as a hub for** collaboration **between the Smarty City promotion council, which is responsible for technical proposals for Smart City, and the community development design committee, which assumes responsibility for community development.**
- **With the common goal of 'Enhancing the community's attraction force'** through measures, such as attracting visitors, private investment and opening shops, various activities are carried out, including the collection of data on the flow of people.

Smart Community promotion council

Community development design committee

Companies
- Technologies / products
- Business know-how etc.

Okazaki City

Urban renewal corporation

Financial institutions
- Financing / investment
- Monitoring etc.

Experts
- Latest research / technologies
- Advice etc.

Advisors / specialists

Private companies

Technological proposal to address challenges Data management

Setting of challenges / goals of community development Utilization of data

Enhance the community's attraction force through technological verification and implementation

■ Source: About the Okazaki Smart Community promotion council
https://www.city.okazaki.lg.jp/1550/1551/100500/p018486.html

■ Otemachi-Marunouchi-Yurakucho District Smart City Consortium (OMY Area, Chiyoda Ward, Tokyo)

- The **OMY Council**, which is an urban renewal corporation, **played a central role** in building **a structure for a public-private partnership / area management collaboration**.
- The aim is to 'update and redesign existing cities' through 'a public-private partnership (PPP) and area management' and thereby create one of the most advanced international business city.

Public-private partnership

OMY District Smart City Consortium

Share smart city initiatives and consider policies through a public-private partnership

The Council for Area Development and Management of Otemachi, Marunouchi, and Yurakucho

Area management collaboration

Each area management organization

Share, and collaborate in, the initiative among organizations that promote area management

Industry-government-academia partnership
- Relevant ministries
- Joint research with universities / research institutes etc.

Collaboration in the initiative
- Working group to prepare an urban renewal safety plan
- DMO Tokyo Marunouchi
- Tokyo Marunouchi Innovation Platform etc.

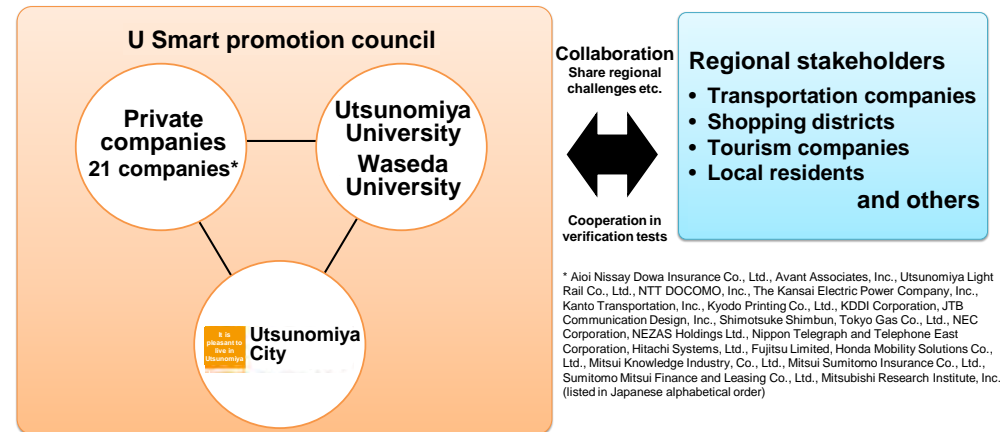■ Source: Otemachi-Marunouchi-Yurakucho district Smart City Vision / Action Plan

■ U Smart Promotion Council (Utsunomiya City)

・In Utsunomiya City, a public-private council was established to realize a sustainable smart city in which public and private sectors can work together to solve social challenges and create new business by utilizing advanced technologies including ICT.
・For the operation of the council, the statutes were created to ensure collaboration and smooth activities among the members under the common vision.

■ Major matters included in the statutes

○Objectives
○Details of operations
- Action plan development and progress management
- Investigation, study and verification testing of advanced technologies
- Project plans, budgets and settlement of accounts
○Eligibility for participation in the council
- Support the objectives, promote activities independently
○Assignment and roles of officials
- Chairperson: Overall management of operations
- Vice-chairperson: Assist the chairperson
○Establishment of the general assembly and matters for decision
- Formulation or change of promotion plans
- Formulation or change of project plans and budgets
- Change of the statutes
○Confidentiality
- Handling of all the information on the details of activities and council members obtained through the council (prohibition of disclosure without permission and divulgence)
○Intellectual property rights
- The holders of rights are clarified in writing

■ Operating structure

U Smart promotion council

Private companies
21 companies*

Utsunomiya University
Waseda University

Utsunomiya City

Collaboration
Share regional challenges etc.

Cooperation in verification tests

Regional stakeholders
• **Transportation companies**
• **Shopping districts**
• **Tourism companies**
• **Local residents**
            and others

* Aioi Nissay Dowa Insurance Co., Ltd., Avant Associates, Inc., Utsunomiya Light Rail Co., Ltd., NTT DOCOMO, Inc., The Kansai Electric Power Company, Inc., Kanto Transportation, Inc., Kyodo Printing Co., Ltd., KDDI Corporation, JTB Communication Design, Inc., Shimotsuke Shimbun, Tokyo Gas Co., Ltd., NEC Corporation, NEZAS Holdings Ltd., Nippon Telegraph and Telephone East Corporation, Hitachi Systems, Ltd., Fujitsu Limited, Honda Mobility Solutions Co., Ltd., Mitsui Knowledge Industry, Co., Ltd., Mitsui Sumitomo Insurance Co., Ltd., Sumitomo Mitsui Finance and Leasing Co., Ltd., Mitsubishi Research Institute, Inc. (listed in Japanese alphabetical order)

■ Source: Utsunomiya City website, Efforts to realize a smart city

■ Kashiwa-No-Ha Smart City
(District around the Kashiwa No Ha Campus, Kashiwa City, Chiba Prefecture)

- **UDCK Town Management (urban renewal corporation) serves as an operation entity,** and the aim is to create a system that allows various players to **utilize data via the Kashiwa No Ha data platform.**
- Because it handles personal information, **the governance is strengthened** by establishing a data ethics committee.

Kashiwa No Ha data platform consisting of private and public types
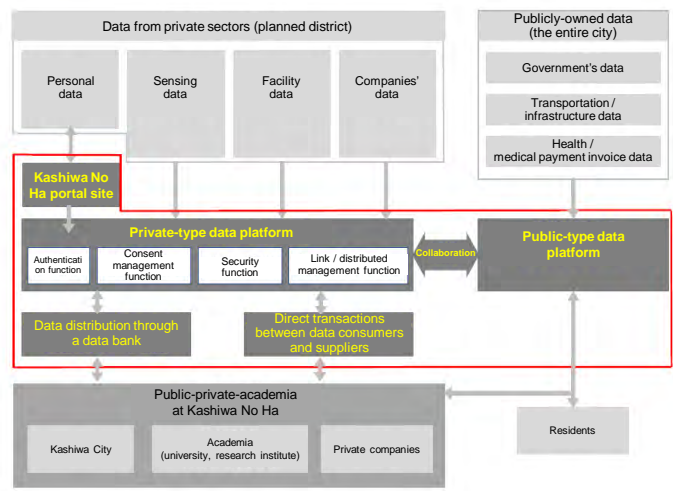
Data ethics committee

- ・Deliberate / advise on the appropriateness of the use of personal information, including the purpose of use and provision to a third party
- ・Sounds out candidates for members using a network of contacts at private companies.

| Background	Expected roles
Security specialists	• Provide views as well as points to note in formulating countermeasures from the perspective of information security
Law practitioner	• Provide views as well as points to note in formulating measures regarding personal information protection / privacy protection and other human rights protection (e.g. defamation, compensation for damage)
Data ethics specialist	• Provide views as well as points to note in formulating measures regarding personal information protection / privacy protection and other human rights protection (e.g. defamation, compensation for damage)

■ Source: Mitsui Fudosan 'About the Kashiwa No Ha data platform' (3rd study session)

■ Smart City Aizuwakamatsu
(Aizuwakamatsu City, Fukushima Prefecture)

- **On the premise that one's data belongs to oneself and using it when and where one wants with one's will (consent) will improve the convenience of one's life, data is** always **collected / utilized in an opt-in basis (a method in which a service user's explicit consent is obtained beforehand).**

Opt-in

Information, such as the type, purpose of use and the user organization of the data to be collected / utilized, is clearly expressed and the user's consent is obtained before the collection / utilization of the data.
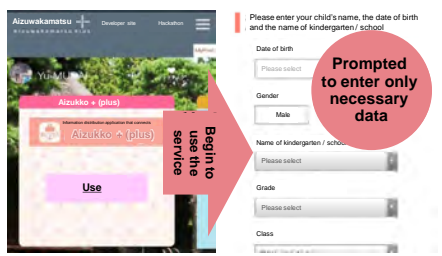
- In the belief that **data belongs to residents, open data is expanded and public awareness of open data are raised** by constructing the 'DATA for CITIZEN', a platform for providing open data, and formulating the 'Aizuwakamatsu City basic policy for open data promotion'.

Open data

'DATA for CITIZEN' posts over 300 data sets and more than 50 easy-to-use apps, including one that graphically shows data.
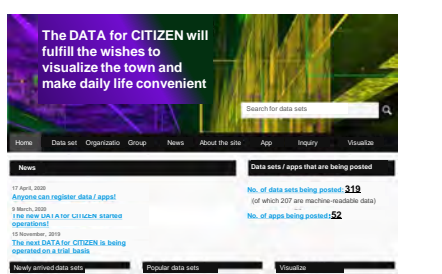
■ Source: Aizuwakamatsu City website, How to use Smart City Reference Architecture

■ Smart City AiCT
(Aizuwakamatsu City, Fukushima Prefecture)

- Smart City AiCT was created as part of a smart city initiative to aim to maintain and enhance the vitality of the region by serving as a facility to which ICT companies can transfer their function and creating the new flow of people.
- Meetings are held every week and attended by representatives of tenant companies, and there is an atmosphere that allows tenant companies to freely visit each other's office, creating an environment in which smart city can be promoted in collaboration.
- In addition to the Aizu Samurai Maas Project, which is being carried out through collaboration between tenant companies or with local companies, verification tests of cashless payment and an autonomous mobile robot are conducted.

An office environment comparable to that in the Metropolitan area was created in the local city in April 2019. It is utilized by companies that reorganize its bases through functional distribution and those that use it as a base for verification.

■ Office building

It is aimed at creating services through collaboration by bringing ICT companies together in one building. In addition to the private space of each office, there is a salon / lounge as well. It is occupied by 29 companies as of February 2021.

■ Exchange building

It can be used as a multi-purpose space that facilitates interactions with residents, universities and companies, which are aimed at creating innovation from the community.

■ Source: Smart City AiCT website

■ Toyama City Sensor Network
(Toyama City, Toyama Prefecture)

- Toyama City has built a sensor network consisting of a LPWA (Low Power Wide Area) network, which covers the entire Toyama City, and an IoT platform.
- In order to revitalize local industries by providing the network as an environment for verification tests to develop IoT sensors and realize new services, applications were invited from domestic private companies etc. that want to conduct verification tests.
- In FY2020, a total of 22 projects (12 new projects and 10 ongoing projects) were adopted; smart city is being promoted with the involvement of private companies etc.

We are receiving applications from those who want to participate in verification tests using the Toyama City Sensor Network

The sensor network can be connected further. Expand further.

Toyama City has built its own sensor network to realize a smart city in which ICT is utilized to increase / advance urban functions and services. The streetcar north-south connection was completed in March 2020, and the town of Toyama, with various people coming and going, has the potential to create new information and value.
What future can you see if the town, people and data are connected via the sensor network? Wouldn't you like to verify your idea or technology?

If you participate in a verification test, we will:
① provide you with the Toyama City Sensor Network for free of charge as an environment for the verification test of IoT devices,
② announce the results of the verification test on the Toyama City website etc. We support collaboration between private organizations. And
③ hold a meeting to report the results of the verification test and support collaboration between the local government and the private sector.

■ Results are being reported (March 2020)

The results of verification tests are reported in meetings and posted on the city's website, promoting collaboration between private organizations as well as collaboration between the local government and the private sector.