

# Urban Solutions that can create vibrant communities

-NTT Group as a regional partner-

October 16, 2018



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# 1. Issues and Future of Cities

# Trend of the Times and Issues Faced by Cities

## 1. Issues and Future of Cities

Rapid population decline  
Dwindling birth rate

- By 2050, more than 60% of the inhabited grid squares will lose half or more of its population and 20% of the grid squares will become non-inhabited.
- Population outflow from rural areas to Tokyo continues

Hyper-aging society

- Population aging rate of 40%, a rate that has never been experienced by any country in the world
- Different areas will experience the peak of senior population at different times
- Healthy life-span gets longer and there will be increasing number of senior citizens seeking ways to be active

Intensifying competition between cities  
Globalization

- Intensifying competition between nations and cities due to growth of emerging countries in Asia
- Change in logistics structure on a global scale
- Growth in demand for international tourism along with economic growth in emerging countries

Impendence of catastrophes  
Ageing of infrastructure

- Seventy percent probability of an earthquake directly hitting Tokyo area and Nankai megathrust earthquakes within 30 years
- Increasing disaster risk resulting from climate changes and global warming
- Aging of infrastructure that was built intensively during and after the rapid economic growth period

Energy restrictions  
Global environmental issues

- Exponential growth in food, water and energy demand due to global population increase
- Intensifying global environmental issues such as advance of global warming and crisis of biodiversity

Progress in technology innovation

- Everyone and everything are always connected to network via various devices
- All data is tagged with location information and IoT is accelerated
- Social and systematic response to proactively work on technology innovation

# Future Vision of Each City and Direction of Urban Development

## Kanazawa

- City that is oriented towards the young generation and where child rearing is enjoyable
- Taking advantage of college town Kanazawa, the city to which students feel attachment and where people gather

(Kanazawa City's comprehensive strategy)

## Hiroshima

Create an urban area where it is safe and comfortable to live anywhere

(Hiroshima wide area urban development vision)

## Fukuoka

- A city that attracts people with the charms of culture and history shaped by the sea
- A major city in Asia brimming with vitality and strong presence

(Fukuoka City Basic Concept)

## Matsuyama

Matsuyama - a city with smiles where people gather and feel happy

(Matsuyama City's comprehensive plan)

## Osaka

An Osaka Full of Bright Smiles

(Future Vision of Osaka)

## Kyoto

- Kyoto: An international city with a Japanese heart
- The environment-friendly and the living fun on foot are made important with a person by healthiness

(Flying into the future! Miyako Plan, Constitution of "Arukumachi Kyoto" )

## Sapporo

- Becoming a world-leading city that shapes a bright future for all Hokkaido
- A community-focused city where people work together hand in hand

(Sapporo City Development Strategic Vision)

## Sendai

- A charming metropolis that is sustainable and in harmony with nature
- A university town that nurtures and creates the future

(Sendai City Basic Vision)

## Tokyo

"A highly developed mature city that is relaxing and full of vitality" <Creating Tokyo's future>

(The Grand Design for Urban Development)

## Yokohama

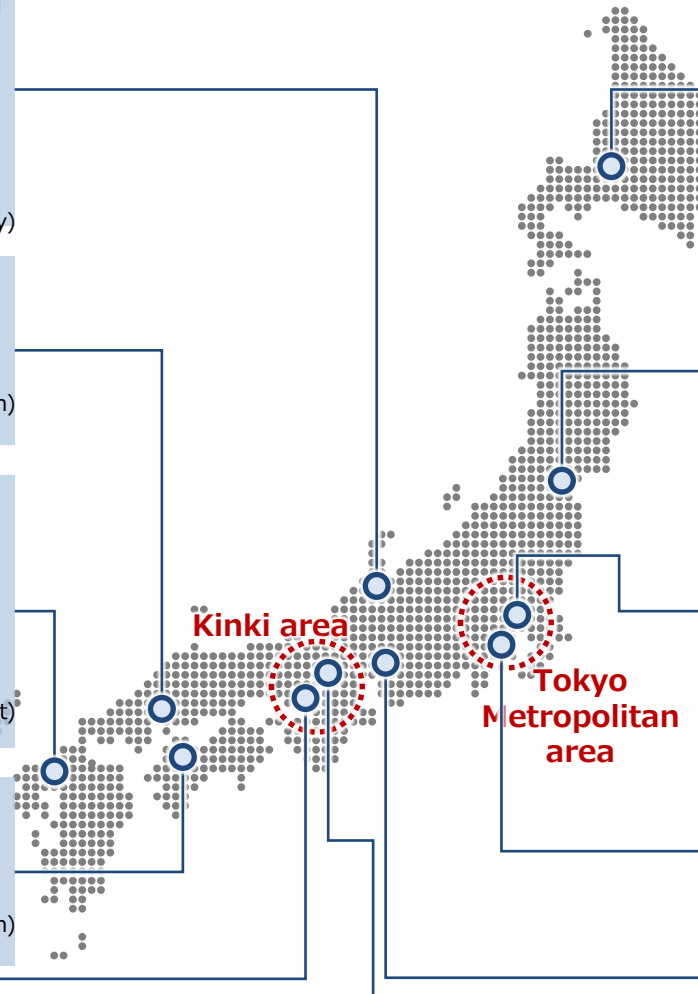
Urban development that supports creation of new identity of Yokohama

(Yokohama City urban planning master plan)

## Nagoya

- A city where nature and comfortable urban environment are in harmony
- A city that is safe and resilient in disaster

(Nagoya City's basic vision)



# Values of Future Urban Development

## 1. Issues and Future of Cities

### -Roles of city-

Gather

Live

Work

Support

### — Future of cities — (keywords)

Richness of spirit  
Smile

Convenience

History

Culture

Vitality

Civic pride

Learning  
Education

Unique

Identity

Growth

Industry  
creation

Employment

Secure  
Safe

Harmony  
with nature

Sustainable

Environmentally  
friendly  
Low carbon

### Urban solution values proposed by NTT Group

A unique and  
appealing city that  
attracts people  
Community

A city where everyone  
lives energetically  
Diversity

A city with vitality  
from new industry  
creation  
Innovation

A city that is resilient  
to disaster and  
environmentally  
friendly  
Resilience

# Urban Solutions That Realize Society 5.0

By supporting each city in their pursuit of unique and vibrant urban development with its own urban solution values, the NTT Group, while achieving both economic development and solution of social issues in regional communities, will contribute to the realization of Society 5.0, a people-centered society where everyone can live a comfortable, vibrant and high quality life.

## Community

**Offer attractive space and contents for the creation of unique and vibrant communities**

- Generate liveliness through area and town management
- Commercial facilities that enrich residents' lives
- Hotels that carve the memories of the city in visitors' minds
- Renovation that passes on the local history and culture
- Housing that enables different generations to co-exist

## Innovation

**Utilize cutting-edge technology to contribute to solutions to urban issues, generation of new industries and improvement of productivity at companies**

- Creative offices that bring out employees' creativity
- Next-generation intelligent buildings
- Office FM that promotes communications
- Workplace that creates open innovation
- Field for test marketing, demonstration

## Diversity

**Develop urban environment that facilitates diverse lifestyles of people who gather, work and live there**

- ICT infrastructure that realizes teleworking
- Facilities to support child rearing incl. daycare
- Personal mobility
- Health management using wearable devices
- New workplaces for realizing diverse ways of working

## Resilience

**Create a city where residents can live with peace of mind by reducing environmental burden and building disaster response capability**

- Adoption of ZEB for office buildings, ZEH for conventional homes and condominiums
- Energy savings and decarbonizing by utilizing people traffic information, etc.
- Offering of efficient information
- Building facilities with cutting-edge solutions
- Optimal control of energy resource in emergency

## 2. NTT Group as an Urban Solution Partner



# NTT Group's Resource and Contributions to Urban Development

In response to broad urban development issues, NTT Group offers resources and knowhow it owns in ICT, real estate and energy fields to local communities through a wide range of collaborations with municipalities and companies to contribute to the realization of Society 5.0. Through this process, NTT Group aims to become a partner that would be chosen and trusted by the regional community.

Society 5.0

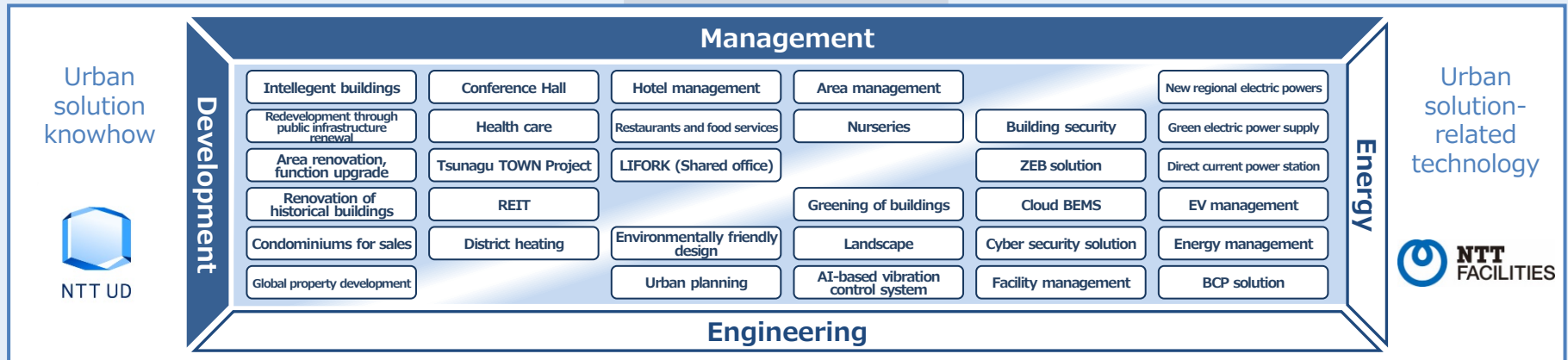
Collaborations with municipalities and companies

(Municipalities; corporations; transport services; shopping districts; shops; educational, medical, and cultural facilities, etc.)

NTT Group's resources

Real estate located in regional hub cities

ICT (AI, robot, IoT) technology



Trend of the times and issues faced by cities

# NTT Group's Initiatives So Far

## 2 . NTT Group as an Urban Solution Partner

### Urban solution knowhow

#### -Shinagawa Season Terrace-

Utilization of publicly owned properties that form the core in environmentally friendly urban development and creation of liveliness through area management



#### -Akihabara UDX-

Base for industry-government-academia collaboration and information network



#### -“SHIN-PUH-KAN” redevelopment-

Urban development leveraging historical buildings



### Urban solution-related technology

#### -Kindai University ACADEMIC THEATER-

Academic hub where students, businesses and community interact



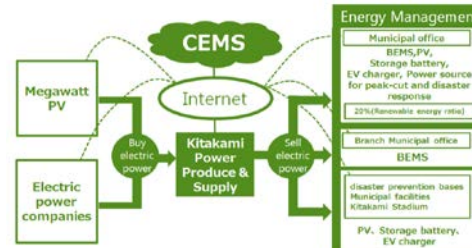
#### -Building safety judgment support system-

Visualization of building safety in disaster



#### -Kitakami Power Produce & Supply-

Model of energy local production for local consumption with CEMS



### ICT technology

#### -Sapporo City-

Review meeting for ICT utilization platform in Sapporo



#### -Fukuoka City-

Comprehensive partnership agreement regarding local coaction project



#### -Yokohama City-

Comprehensive partnership agreement regarding realization of ultra smart society through utilization of public and private data



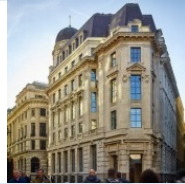
# Initiatives in Global Market

## 2 . NTT Group as an Urban Solution Partner

NTT Group will combine the knowhow the group gained in working on solutions for Japanese social issues, which are ahead of the rest of the world, with its track record in urban solution so far and proactively deploy the expertise in urban solution in the global market

1 King William Street  
-London-

Utilization, revival of  
historical buildings



### Key issues

- Shaking free from economic doldrums caused by Brexit
- Chronic traffic jam
- Protection of historical townscape, etc.

Smart City Initiatives  
-Las Vegas-

Provision of predictive and  
diagnostic analytics to improve  
response times for public safety  
incidents



1015 18th Street  
-Washington DC-

Creation of advanced  
workplace



### Key issues

- Development of safe and secure urban area
- Creation of innovation led by IT companies
- Diversification of needs (millennial generation), etc.

U.K.

Germany

## Knowhow that can be deployed

- Data utilization in urban development
- Public safety solutions
- Energy management
- Environmentally friendly design
- Mobility service
- Utilization of historical buildings, etc.

U.S.

Australia

Smart community  
demonstration

-Speyer-  
Energy's local production  
and local consumption



Annadale Project  
-Melbourne-

Large-scale urban  
development



### Key issues

- Lack of resources due to advance of urban development
- Housing supply shortage due to population increase
- Impact of development on natural environment, etc.

HVDC demonstration

-Texas-

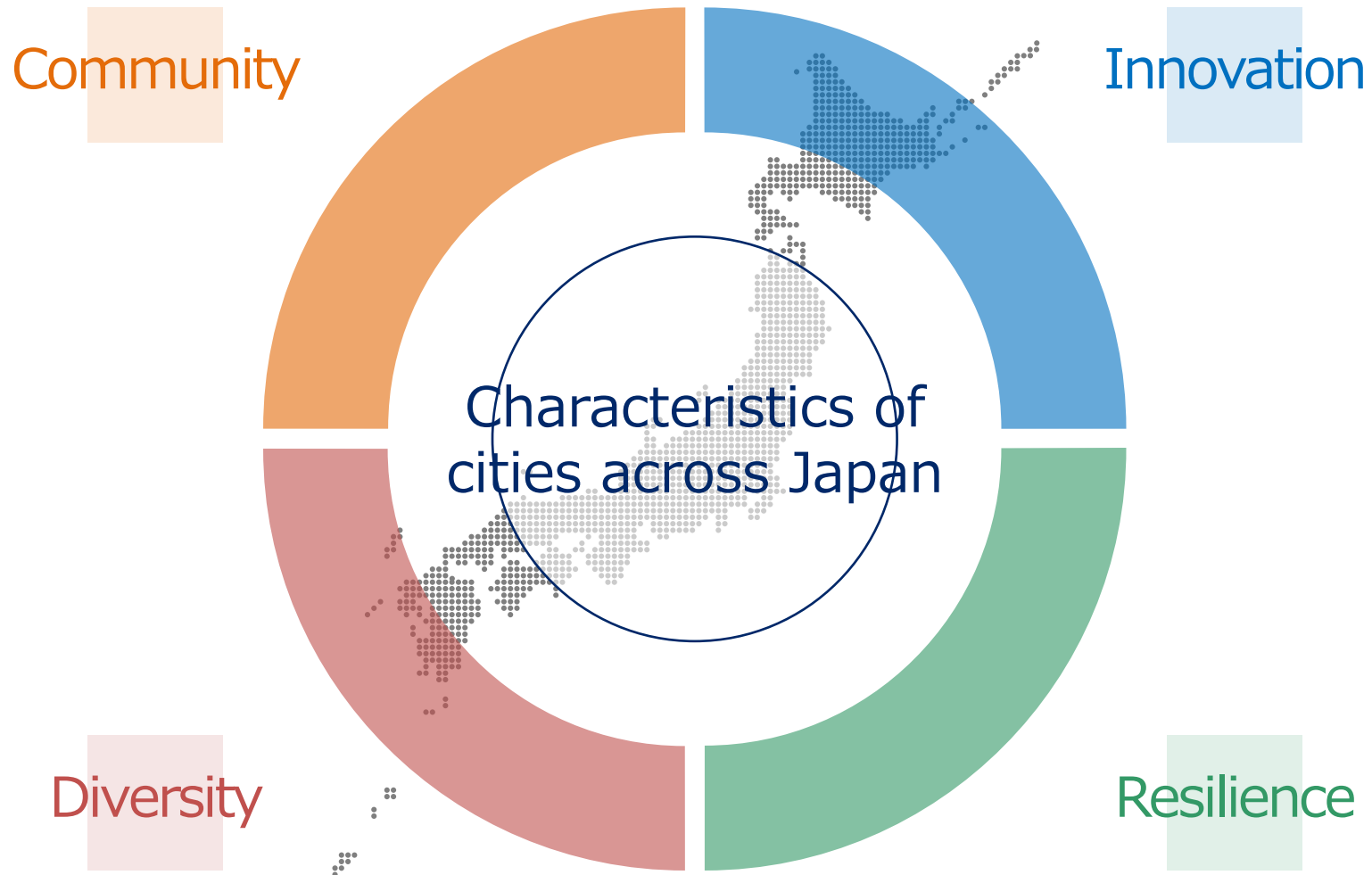
Establishment of highly  
efficient, highly reliable  
direct current supply  
technology



### 3. Urban Solution Goals to be Jointly Achieved with Regional Communities

## Towards Urban Solutions for Unique and Vibrant Communities

As an urban solution partner, NTT Group consolidates the diverse resources it owns to support the further improvement of the characteristics and attractiveness of the cities across Japan, ultimately contributing to the development of attractive urban areas where each city exhibits its potential to the maximum extent.





# Shinagawa Area -Tokyo-

## 3. Urban Solution Goals to be Jointly Achieved with Regional Communities

A technology city that creates new city values with industry clusters and innovation

### Area characteristic

- Improvement in **convenience of wide area transport** with the new station and the start of linear motor train service
- **Cluster of HQ functions** of major corporations primarily in manufacturing
- **Clustering and sophistication of functions** due to redevelopment around the station
- **Abundant natural environment** (water and green)



### NTT Group's initiatives

- Redevelopment that contributes to **development of favorable environment** and **improved value of the area** (Shinagawa Season Terrace)
- Creation of bustle **in area management collaboration** with surrounding facilities
- Urban development through utilization of **NTT assets** in collaboration with the community



### Service menu of urban solutions for supporting regional communities

#### Community

- Area, park management
- Cultivation of civic pride

#### Diversity

- Shared mobility
- Lifestyle of living closer to work

#### Innovation

- Sandbox demonstration
- Industry-government-academia collaboration, promotion of exchange

#### Resilience

- Introduction of wastewater heat recycle
- Building local disaster prevention base function

# Tenjin Area -Fukuoka-

## 3. Urban Solution Goals to be Jointly Achieved with Regional Communities

Asia's exchange hub city aiming for another growth by attracting customers from a wide area and by clustering urban functions

### Area characteristic

- Enhanced domestic, international transport network (**gateway to Asia**)
- **The trend of population increase** continues as young population flows in from Kyushu area
- Increasing development projects thanks to **Tenjin Big Bang**
- **Intensifying competition** with redevelopment area in and around Hakata Sta.



### NTT Group's initiatives

- Promotion of **solutions for social issues using ICT** under a comprehensive partnership agreement with the city
- **Development of attractive commercial facilities** that create bustle in the area (Resola Tenjin, Resola South Terrace)
- **Collaboration with community** (We LoveTenjin association, etc.)



## Service menu of urban solutions for supporting regional communities

### Community

- Commercial/multipurpose development in collaboration with the community
- Area/park management

### Diversity

- Offering of personalized tourist information
- Office sharing (LIFORK)

### Innovation

- Industry-government-academia collaboration, promotion of exchange
- Optimization of city through analysis of people traffic and commercial distribution

### Resilience

- Building local disaster prevention base function
- Smart energy network

# Karasuma Area -Kyoto-

## 3. Urban Solution Goals to be Jointly Achieved with Regional Community

International cultural city that inherits Japanese history and culture and creates new industries

### Area characteristic

- World-class **international cultural tourist city**
- Switchover to **a city for walking** with priority on people and public transport
- Existing stock with **history and culture** incl. Machiya Townhouses
- A city where industry and life are combined and where **work and living coexist**



### NTT Group's initiatives

- Creation of **bustling points** in business district ("SHIN-PUH-KAN", LAQUE Shijo Karasuma)
- Utilization of **historical buildings** ("SHIN-PUH-KAN", En no Gyoja)
- Improvement of **ease of getting around** (public passages in premises, subway station connection)
- **Community collaboration** (Karasuma Dori Machizukuri Kyougikai, etc.)



## Service menu of urban solutions for supporting regional communities

### Community

- Renewal, use of historical buildings
- Accommodations leveraging local attractions

### Diversity

- Multilingual service for inbound tourists
- Offering of personalized tourist information

### Innovation

- Industry-government-academia collaboration, promotion of exchange
- Interior/fixture leveraging traditional craft

### Resilience

- Seismic strengthening of historical buildings
- Energy management



## 4. NTT Group's Knowhow, Technology That Support Urban Solutions

# Value of Urban Solutions (Community)

Creating vibrant place to meet the needs of the present age by utilizing NTT's assets

"SHIN-PUH-KAN", Kyoto

With our concept of "tradition and innovation", NTT Group is currently working on the re-development and design project of multipurpose facility, which will become Kyoto's landmark, by converting the usage of former Kyoto Central Telephone Exchange, a historical building, into hotel and commercial facility, and inviting a global hotel brand.

1926  
Kyoto Central Telephone  
Exchange



2001 - 2016  
"SHIN-PUH-KAN" (commercial facility)



2019\*-  
"SHIN-PUH-KAN" Redevelopment PJ  
(hotel and commercial facility)

\* Scheduled to open



Telecommunication  
Building

Local commercial place

Conversion of usage of historical  
building

Exchange hub for travelers from all  
over the world and local residents

Ace Hotel, a new trend in the global hotel industry,  
enters Asia for the first time

# Value of Urban Solutions (Diversity)

Realizing work and life styles reflecting one's preference

LIFORK shared office

NTT Group launched shared office "LIFORK"; series of places that offer diverse spaces and services in response to feature and characteristics of each city, connects person to person and person to the city to offer support for realizing new lifestyle.

## LIFORK OTEMACHI

Creative Platform

-work and connect in your own way-

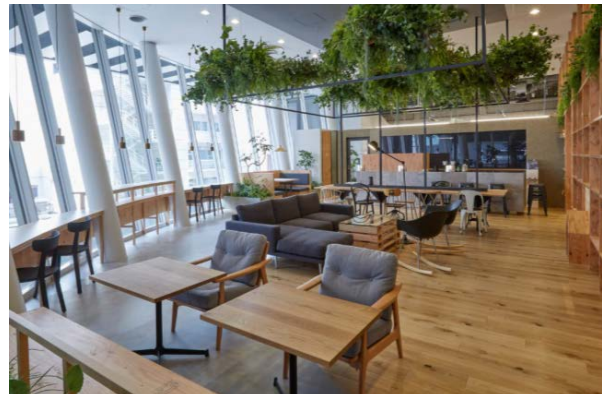
## LIFORK AKIHABARA

Work and play in the center of counter culture

## LIFORK MINAMI AOYAMA

NATURAL WORK & NATURAL STYLE

- In a lush greenery place, work and relax-



Work lounge



Bike port  
(shared garage)



Nursery



Work lounge



"STYLE ROOM"



Nursery



Worker's Garden



Seminar room



Event space



# Value of Urban Solutions (Innovation)

Creating collaboration opportunities for students, companies and local residents

Kindai University Academic Theater

NTT group designed an academic center for solving social problems in an interdisciplinary approach.



**Bldg No. 1 International Field**



**Bldg No. 3 Knowledge Field**

**Bldg No. 2 Practical Science Hall,  
Open Career Field**



**Bldg No. 5 BIBLIOTHEATER**

**Bldg No. 4 Amenity Field**



# Value of Urban Solutions (Resilience)

Realizing decarbonized and resilient energy network

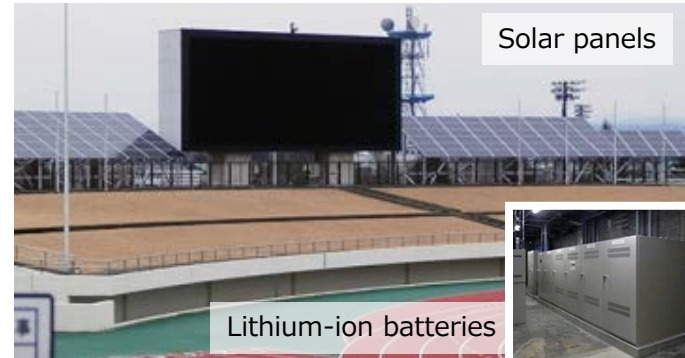
Iwate Prefecture  
Kitakami power produce & supply(PPS)

NTT group provide environmentally friendly & resilient energy network  
by optimal control\* of local renewable energy source, storage batteries and EV.

\*Utilizes community energy management system (CEMS)

Energy sources around in Kitakami city

Kitakami Stadium  
(wide-area evacuation place)



Local community centers (16 centers)



● (Community center)



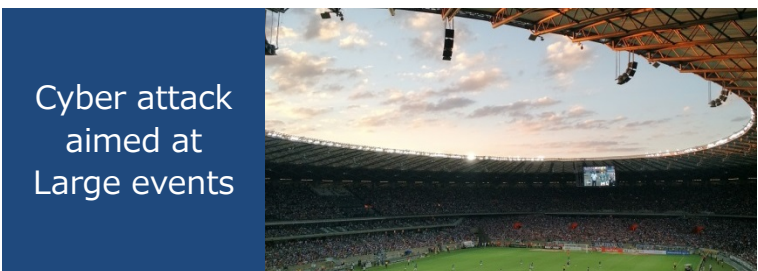
# Value of Urban Solutions (Resilience)

Realizing protection of buildings from various types of cyber attacks

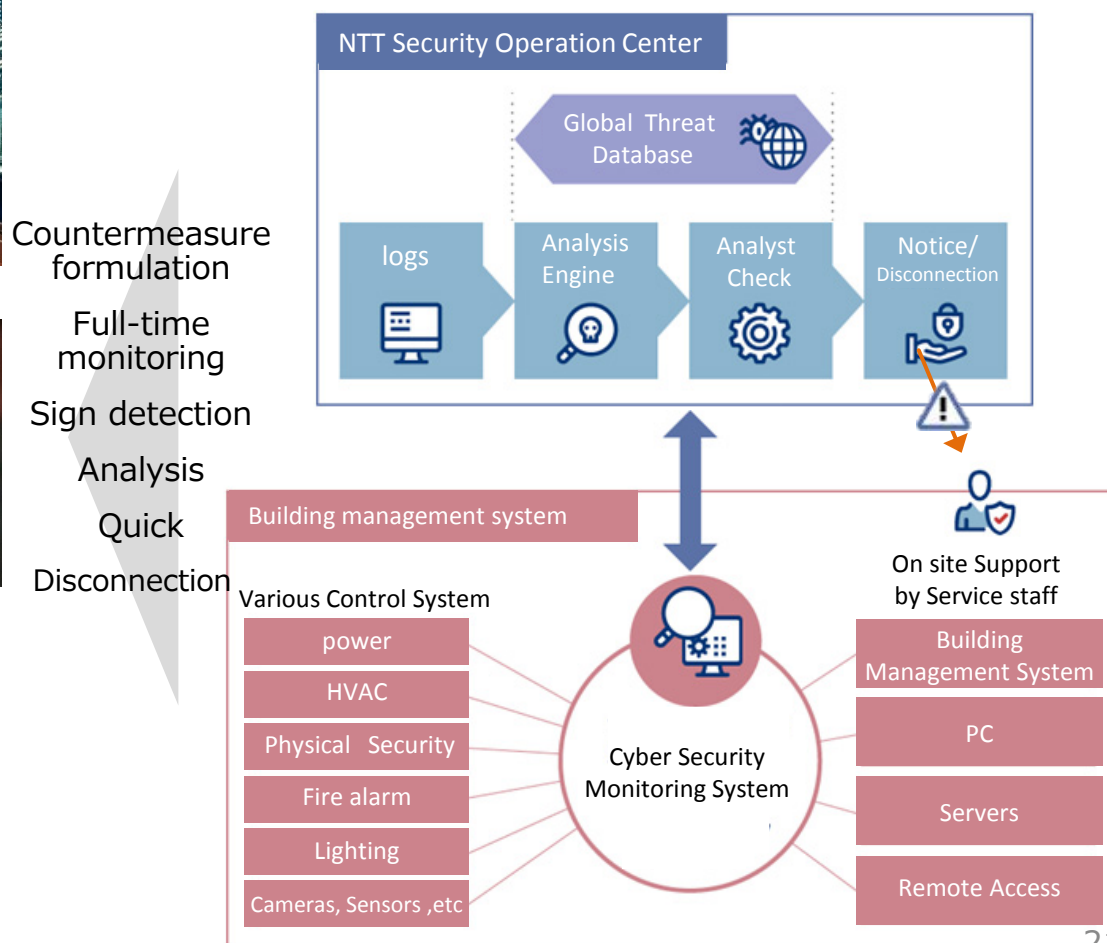
## Cyber Security System for Building

NTT Group provide one-stop service; planning measures to solve problems by visualization of risks, monitoring building system, finding sign and quick disconnection from network.

### ■ Cyber threats



### ■ Response to cyber threats



## Our Organizational Strength that Supports Urban Solutions

Facilities Operation Center, which monitors and controls 24h x 365days

Leveraging our track record of monitoring and maintaining mission critical facilities in a high quality and efficient manner, the NTT Group, using NTT FACILITIES Operation Center and its maintenance bases around Japan, has been contributing to safe and secure cities as an urban solution partner.



Monitoring and control 24h x 365days  
2 operation centers in east and west

[For NTT Group]

200,000 power source and air  
conditioning system for 9,500 buildings  
Monitors security situation of 20,000  
gates

[For data centers, general buildings in  
general]

Monitoring various functions of 4,000  
buildings

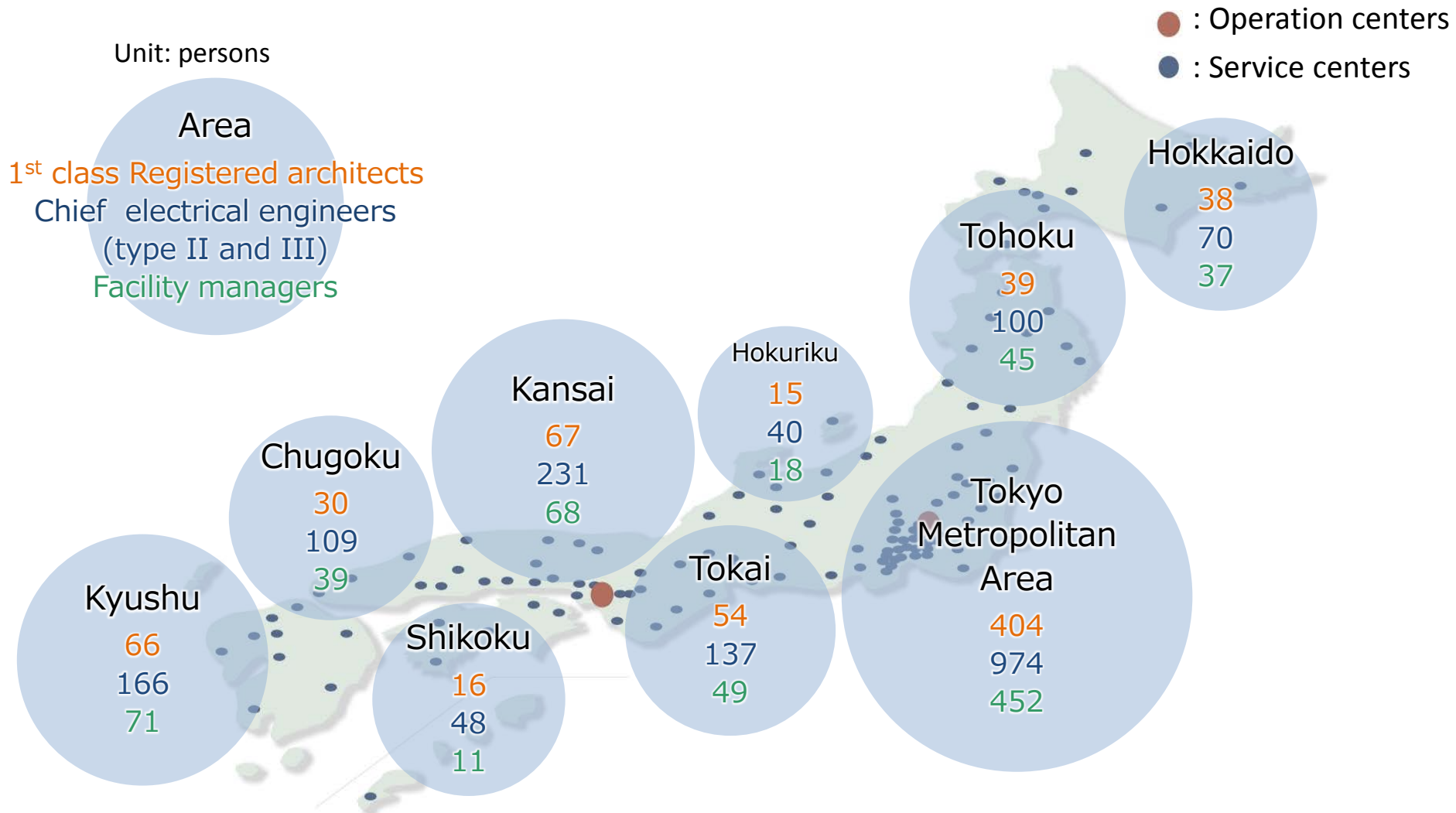


West Japan  
Operation center

NTT FACILITIES Operation  
Center

# Our Organizational Strength that Supports Urban Solutions

Supporting urban solutions around Japan  
with 136 bases and a number of licensed specialists



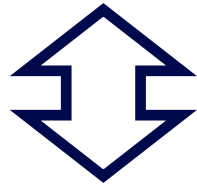


## 5. Promotion Structure

Build a Group structure positioning NTT Urban Development and NTT FACILITIES as a pair of wheels

### Ownership of City Planning (by Regional Community)

Municipalities; corporations; transport services; shopping districts; shops; educational, medical, and cultural facilities, etc.



## Urban Solutions Business Promotion Company

Promote unique new urban solutions by NTT Group, leveraging on our collective strength

- Contact for NTT Group's urban solutions business
- Centralized management of urban solutions information
- Coordination of NTT Group and partner company's products

Collaboration



NTT Urban Development

Real estate  
development/management



NTT FACILITIES

Integrated facility service and energy  
management for the ICT platform

NTT Group Companies

Asset ownership, ICT services,  
etc.

Planning to launch a takeover bid from 16<sup>th</sup> Oct  
to make it a wholly owned subsidiary.

There's a possibility that the promotion structure will change by future discussion