

一部抜粋

NTT EAST Regional and Industrial Revitalization Initiatives

2024 / 06 / 05

NTT EAST
Norikazu Watanabe

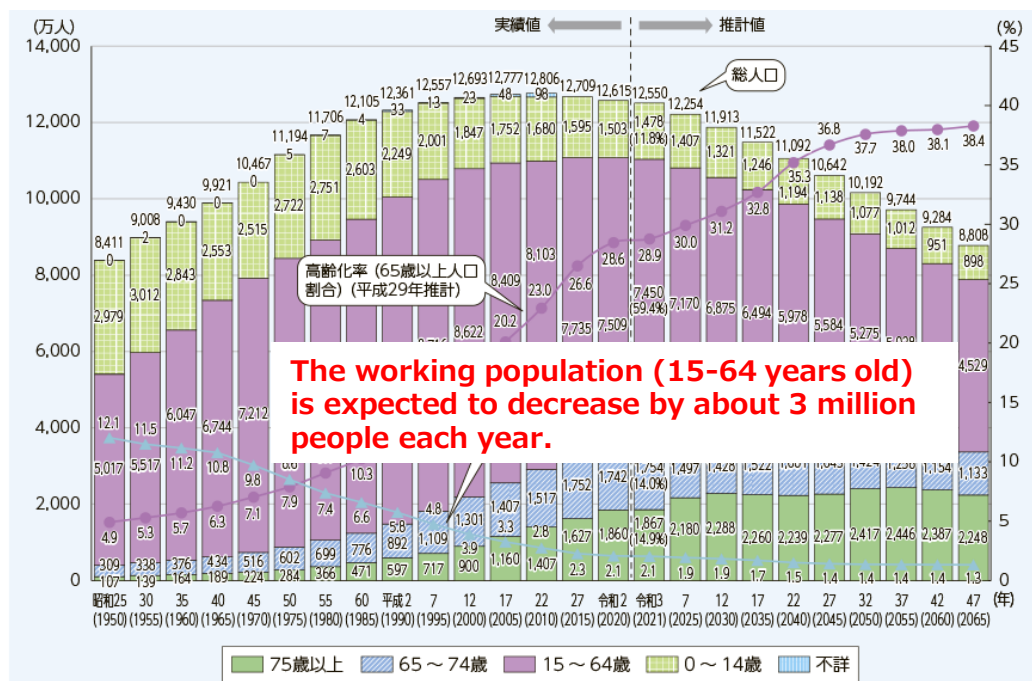
- I . The World Aimed for by NTT East Group**
- II . NTT East Group's self-owned wireless lineup**
- III . Self-owned wireless + DX solution Case Study**
- IV . Summary**

I . The World Aimed for by NTT East Group

NOW

- Decrease in working population (including the future※)
- Difficulty in going to work due to COVID-19

※Aging trends and future prospects



FUTURE

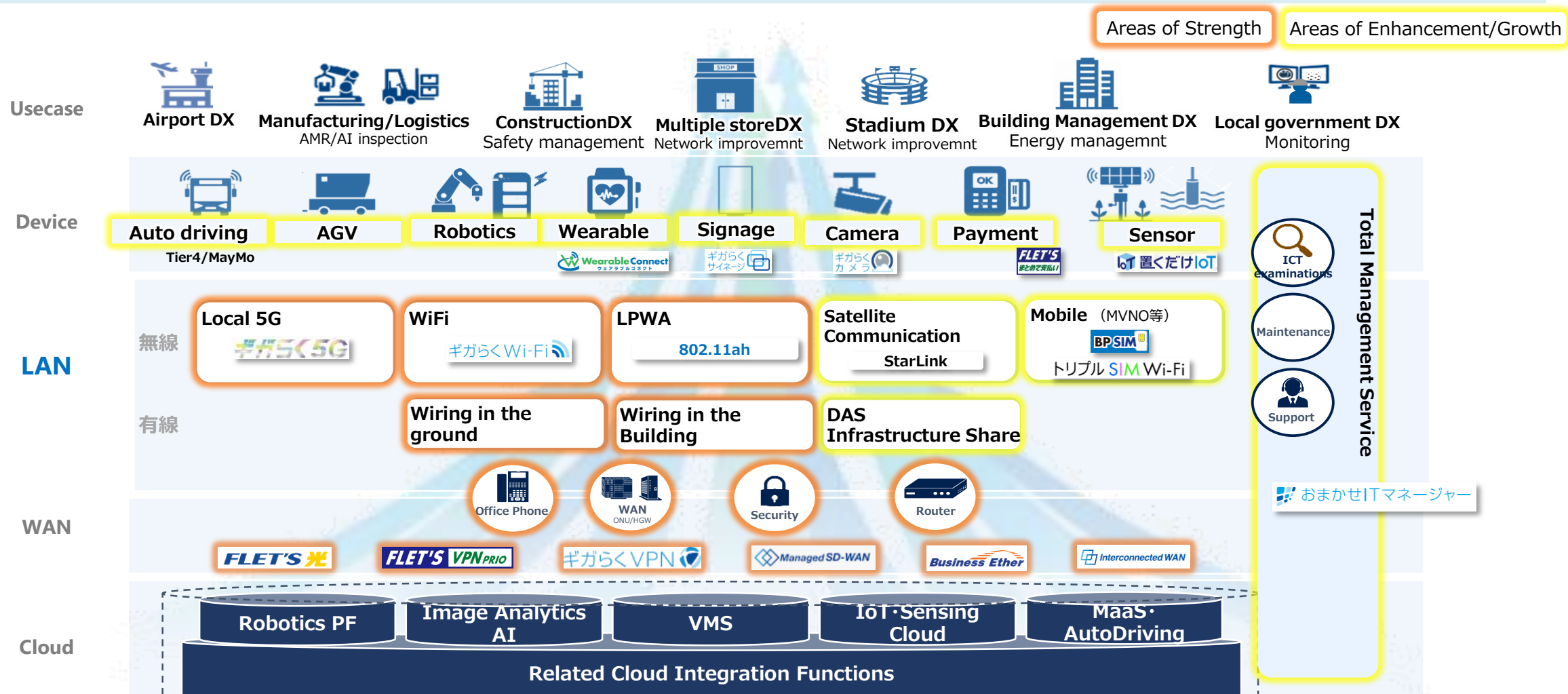
- Promoting automation by utilizing the characteristics of IoT and AI
 - ✓ Expand business scale without increasing manpower
 - ✓ Business can be maintained even if human resources cannot be secured

【Ex:Automation of conveyor belt sushi】

Leading conveyor belt sushi companies are early adopters of on-site automation

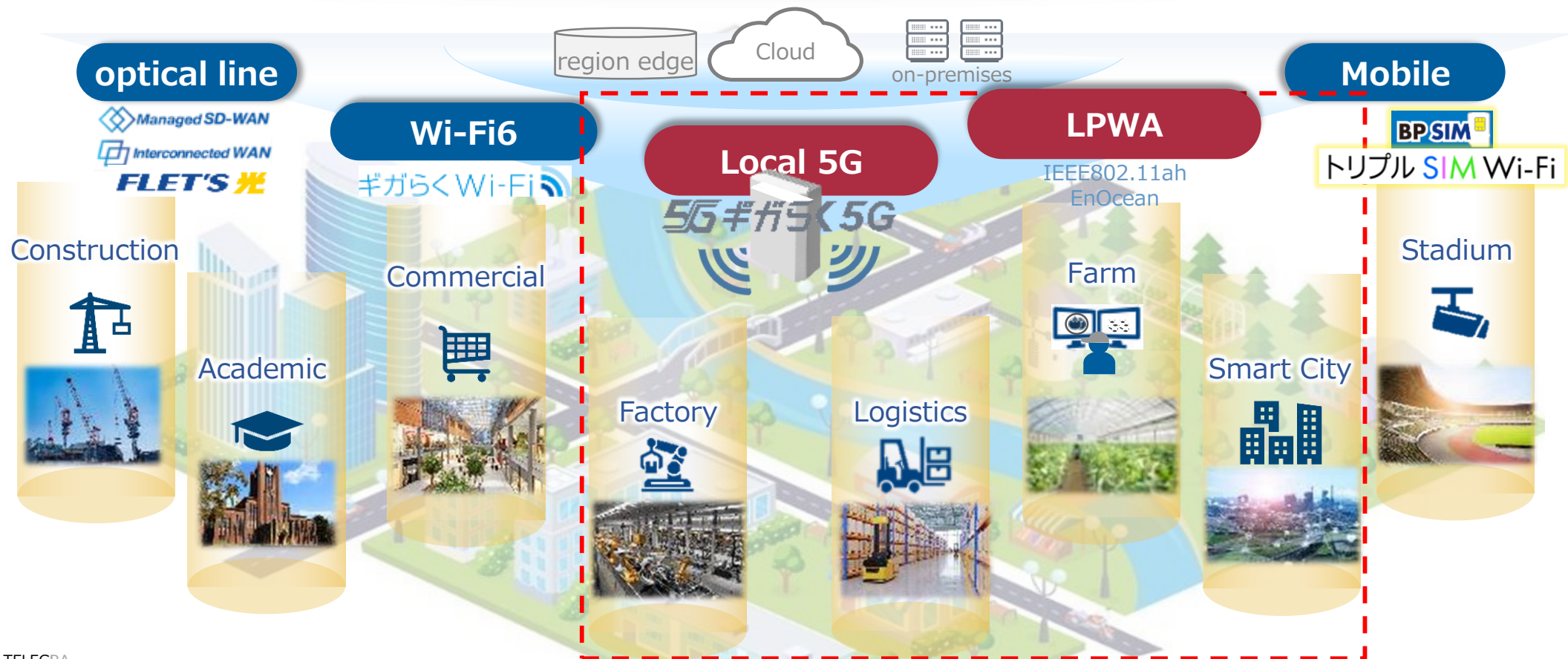


- DX solutions : Wireless technology , AI , IoT , Robotics will enliven Japan and the region
- Developing concrete the greatest challenge **“Labor shortage and manpower shortage”**



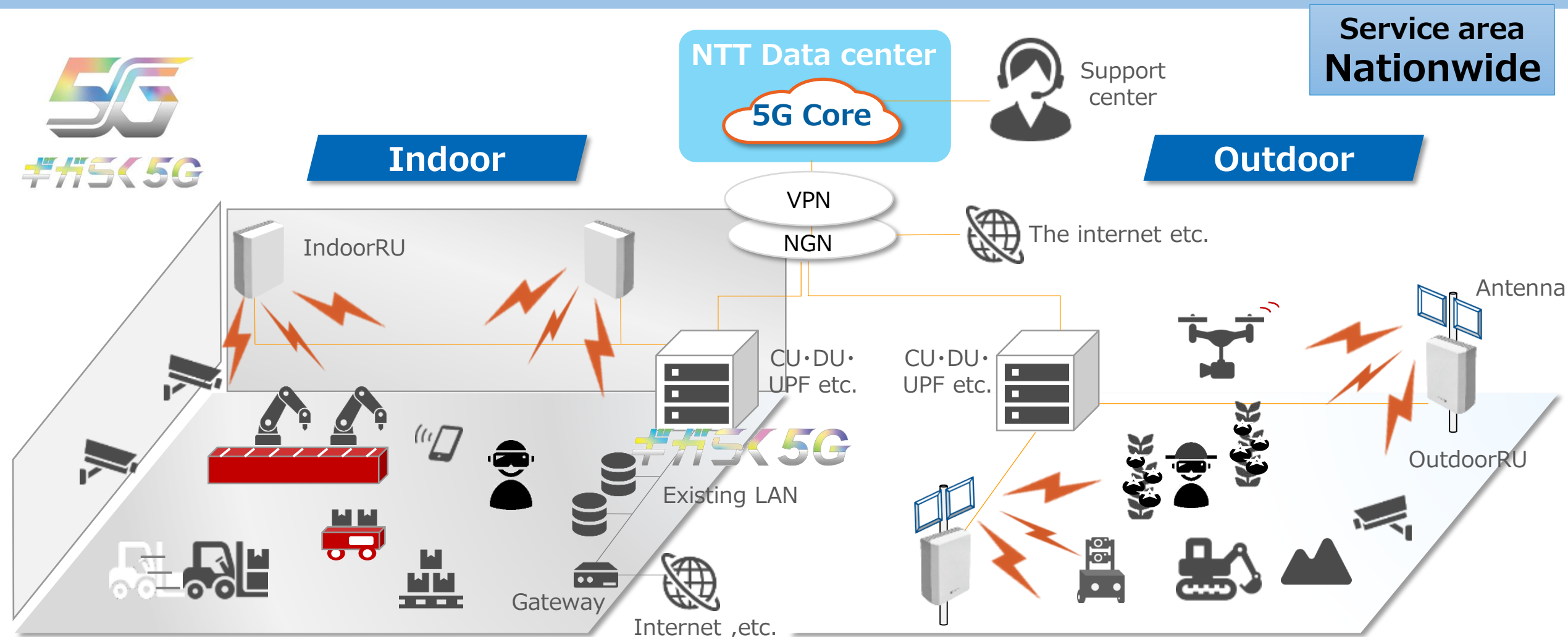
II. NTT East Group's self-owned wireless lineup

Contributing to industrial DX and solving regional issues through **local 5G and other multi-access private networks** providing optimal network solutions that combine wired and wireless. **Combine the optimal NW according to the application**



『Giga-Raku 5 G』 : Service overview

Service area
Nationwide



Provide Full-scale 5G SA functions as one-stop solution.

Radio simulation

NW design

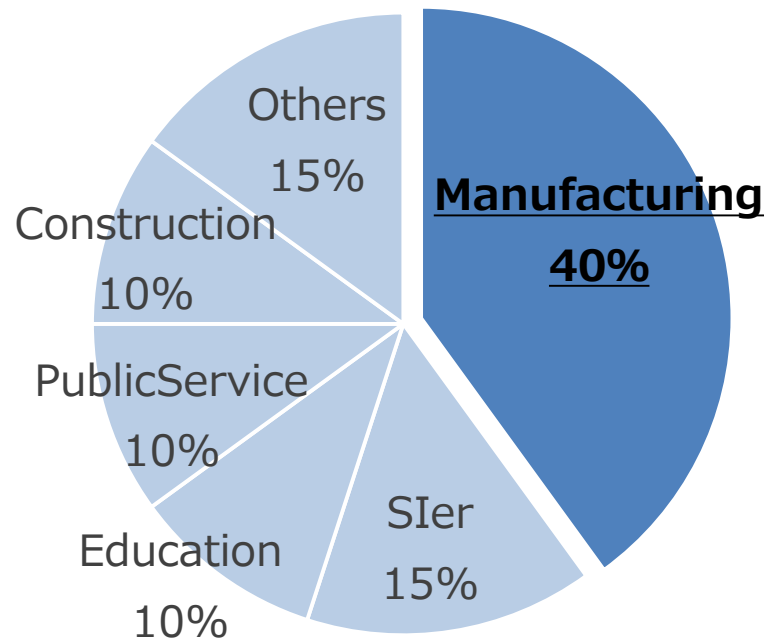
License
 acquisition

Solution
 construction

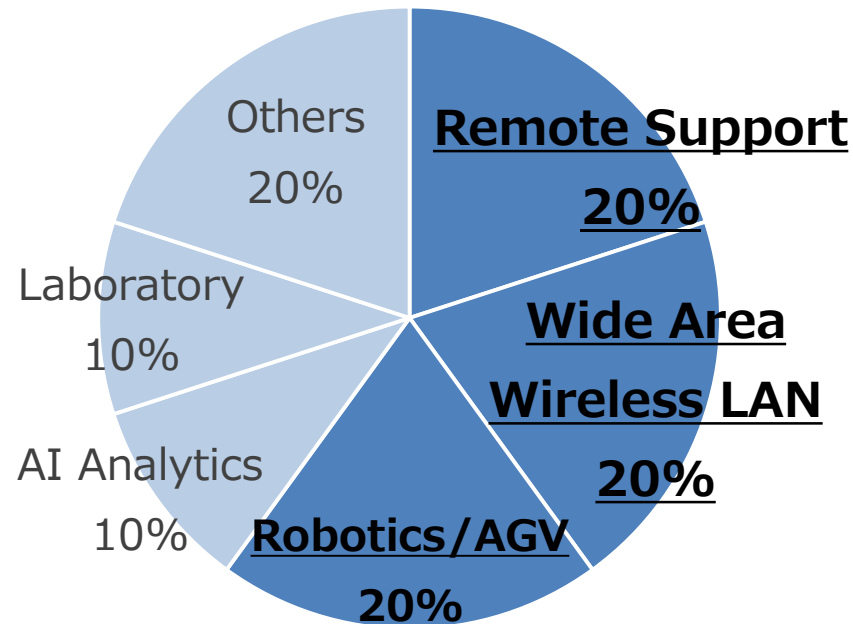
Operation
 outsourcing

- Approximately 40% of customers are from the manufacturing industry
- Local 5G applications include
: “Remote Support” “Wide Area Wireless LAN” “Robotics/AGV”
- Market survey shows NTT East leading in Local 5G builds share with 25%.

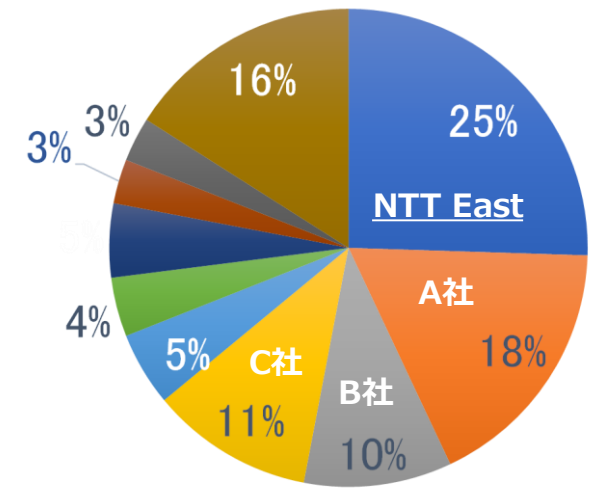
(Industry)



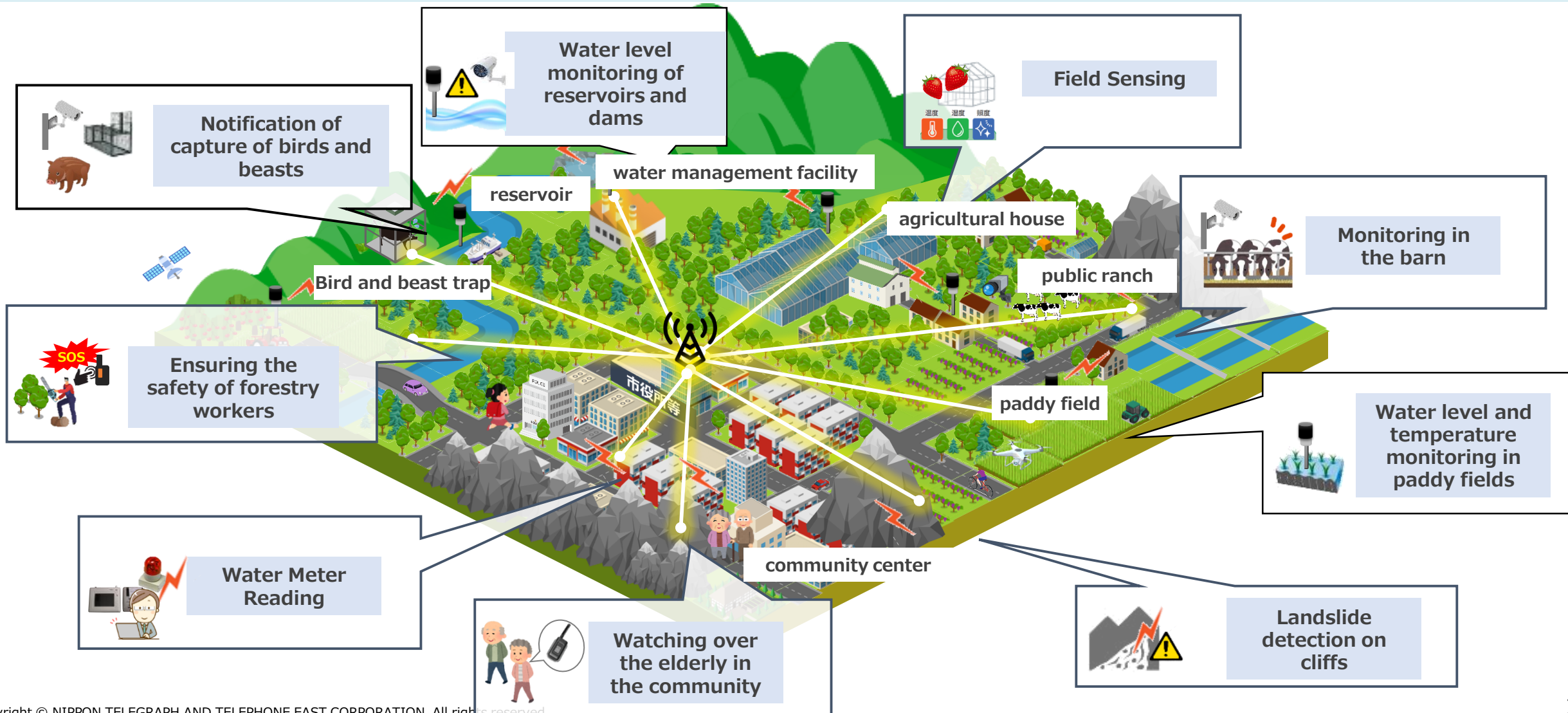
(Usecase)



(Vendor Market Share)



■ We work in local governments and build our own wireless networks to meet the needs and issues of the region.



Ⅲ. Self-owned wireless + DX solution Case Study

Wide Area Wireless LAN

～Plant , Port～

Wide Area Wireless LAN solution using Local5G in a large site

Local 5 G



- Customers with large sites, such as plants and ports, are experiencing weak or inadequate signal coverage.
- Providing wide-area coverage, high-speed, large-capacity, stable communications, and a basic communications environment (e.g., tablet use) by utilizing high-power, licensed local 5G.

Solution Summary



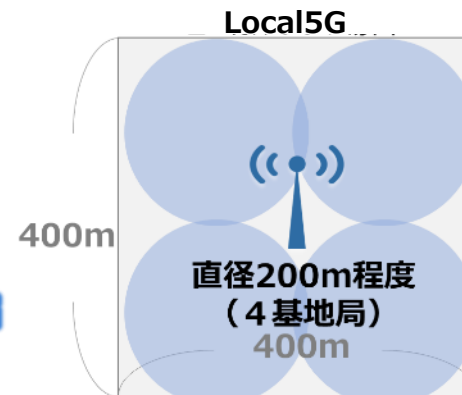
Providing a basic communication environment
for customers with large sites



Local 5G

Higher power local 5G has an advantage
in covering a large site

<Image of Area coverage>



Local 5G strength

High power ⇒ Wide area coverage

Self-owned ⇒ Installed at any location

License system ⇒ Stable Communication

5G ⇒ Large capacity , Low delay

Small and lightweight dongles make Local 5G
connectivity for tablets and laptops more practical



Image of connection with
tablet and notebook PC



- Build a local 5G at Yumeshima Container Terminal in the Port of Osaka, the site of the 2025 Osaka-Kansai World Expo.
- Providing radio coverage of the entire container terminal area with 13 Local 5G antennas

<Panoramic view of Yumeshima>



<Image of antenna installation>



<Container Terminal Administration Building and Gate>



Rooftop : 20 m



50m×30m

Manufacturing , Logistics

■ High-speed (400 Mbps or more) uplink communication enables advanced remote assist and remote monitoring.

Wide area wireless LAN



Remote Monitoring for expert support



Remote Assist



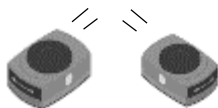
Remote monitoring



Autonomous Robots with remote monitoring



Autonomous Drive for taxi, bus



AMR, Automated transportation



Remote Control for robot



Remote ctrl of robots

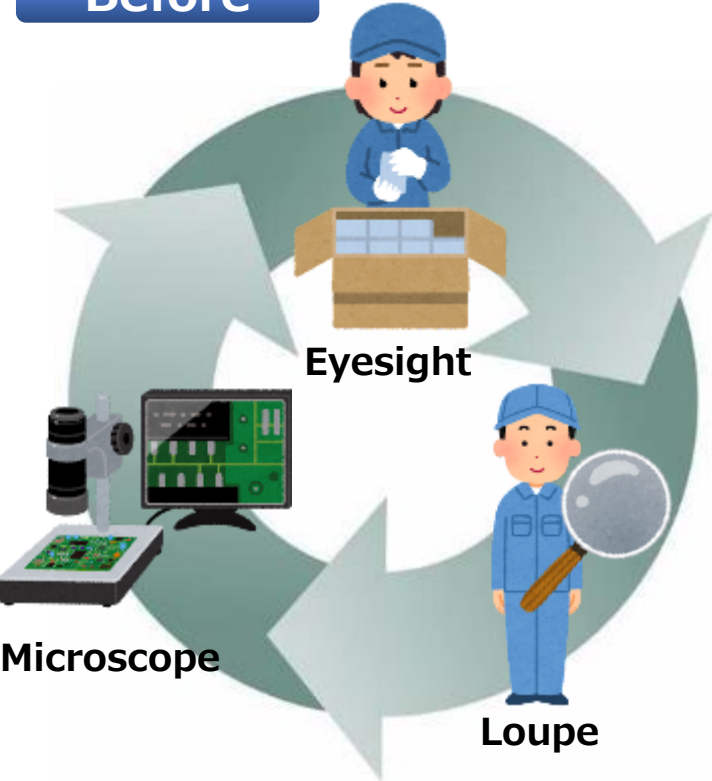


Heavy Industries



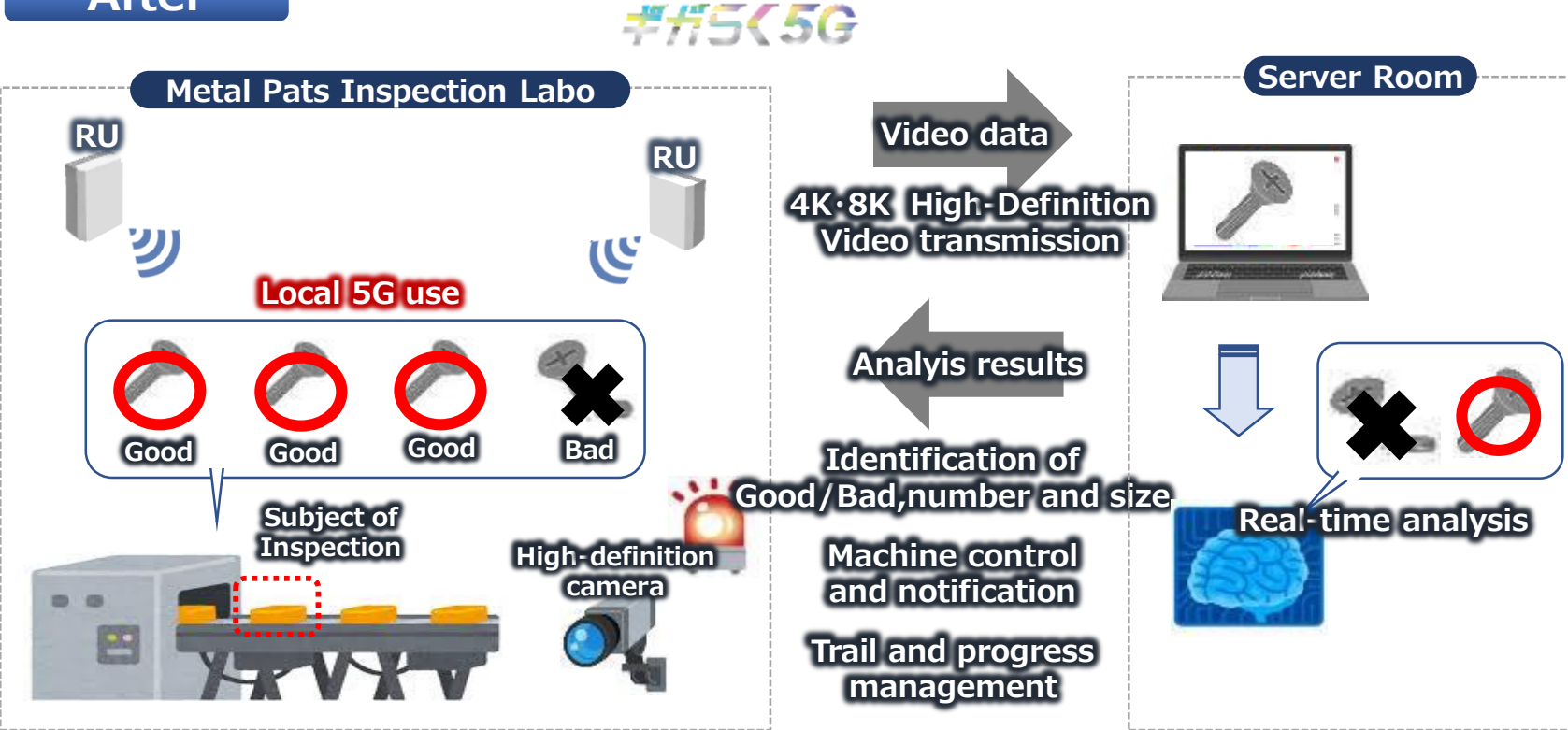
■ Shortened inspection time and improved inspection accuracy with automatic inspection using a high-definition camera and AI analysis

Before



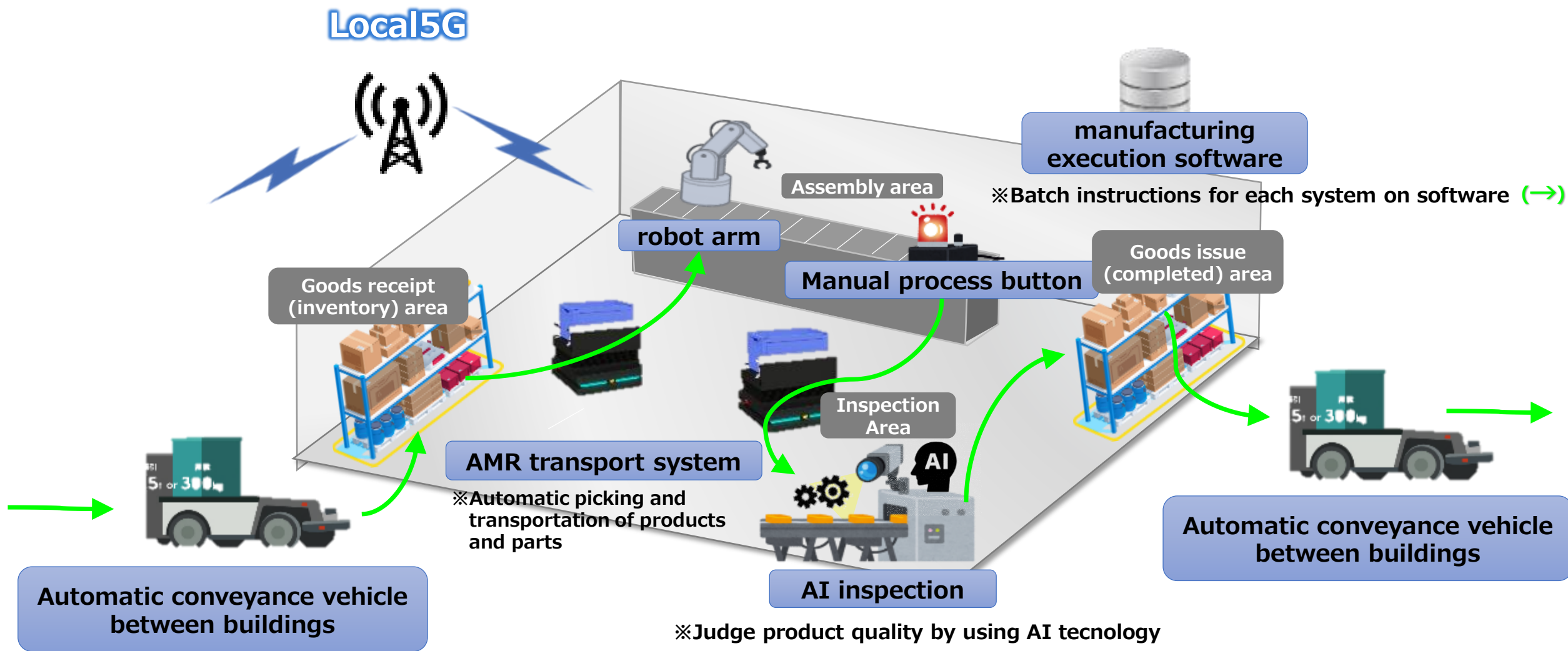
- × 2~3 person operation
- × Huge inspection time
- × Uneven decision accuracy

After



- ◎ Improved operational efficiency and reduced operating costs through automation
- ◎ Uniformity and accuracy improvement of inspection quality

Wireless technology enables flexible process changes



- Build up Local 5G Smart Factory & Logistics at NTTeCity-Labo (Chofu,Tokyo 2024/1~)
- Exhibition and verification environment with a series of manufacturing processes realized in a local 5G environment.→ **Incubate use cases and technology validation**

Exterior View



Interior View



Installed equipment

●Automatic conveyance vehicle



(eve autonomy)

●Autonomous Mobile Robot(AMR)



(Industry Alpha)

●Appearance inspection



(Brains Technology, Inc.)

●Manual process button



(Industry Alpha)

●Process Management



(Design:NTT East
Equipment:FA System &
Technology Corporation)

●Nutrunner (Manual Assembly)



(Atlas Copco)

Municipality

【Field Monitoring】Prevention of crop theft and measures against wildlife damage

LPWA



- To address issues such as illegal dumping, crop theft, and wildlife damage in fields, we utilize real-time video.
- By utilizing 11ah, we achieve video transmission over a wide area. Addressing multiple issues through video utilization.

Problem

Prevention of Illegal Dumping



Prevention of theft of agricultural products



Prevention of Damage to Wildlife



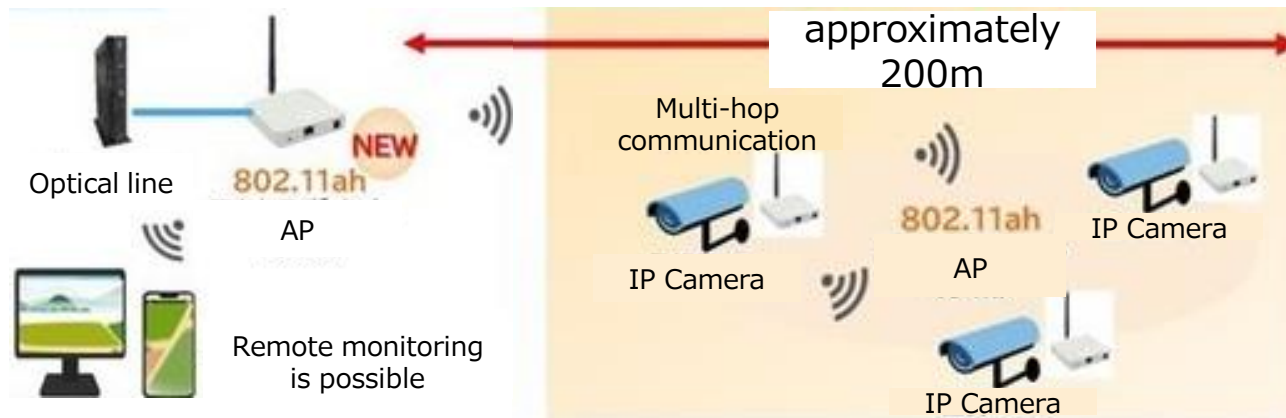
Effect

Remote Situational Awareness and Information Accumulation



Using cameras to solve various problems

[Demonstration image]



Communication environment and camera installation status



Photo③

Monitored fields

- 【Problems】**
- Damage to birds and beasts
 - Theft of agricultural crops



Photo①

field

約120m

field

- 【Problems】**
- Lots of littering
 - Theft of agricultural crops

field

Monitored fields

Photo②

(駐車場)

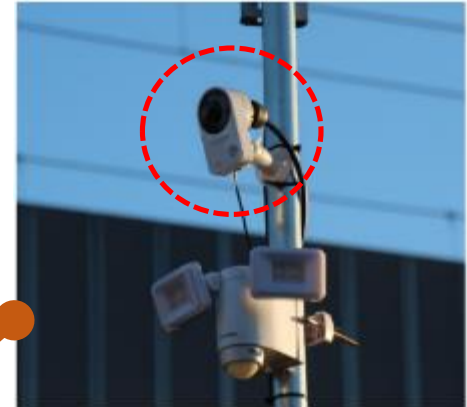
Direct sales

Photo④

home

約60m

field



Advancing demonstrations utilizing 11ah for various applications in collaboration with local partners.

Project	Field	Needs	Points for selecting 11ah
Farm Field monitoring	Farm Field	<ul style="list-style-type: none"> Countermeasures against crop theft Monitoring of illegal dumping 	<ul style="list-style-type: none"> Real-time video
Fishery Monitoring	Lake	<ul style="list-style-type: none"> Deterrence against illegal Fishing Efficiency of water temperature surveys 	<ul style="list-style-type: none"> Real-time video Sensing
Factory Facility Monitoring	Large-scale factories	<ul style="list-style-type: none"> Efficiency of data acquisition through retrofits to existing equipment 	<ul style="list-style-type: none"> Utilization of high-quality still images Sensing
Environmental Monitoring	Golf courses	<ul style="list-style-type: none"> Remote monitoring of environmental turf conditions Confirmation of course progress 	<ul style="list-style-type: none"> Utilization of high-quality still images Real-time video
Water Level Monitoring	Urban areas	<ul style="list-style-type: none"> Reduction of patrol operations in flood-prone waterways near urban areas 	<ul style="list-style-type: none"> Utilization of high-quality still images
Communication means for Forestry Workers	Mountainous areas	<ul style="list-style-type: none"> Communication in areas with poor mobile reception 	<ul style="list-style-type: none"> Wide-ranging use Utilization of IP devices

- Started proposing a single network with wider coverage than Wi-Fi based on 802.11ah.
- We are making proposals to local governments to reduce costs by creating a single network that can cover multiple uses (multi-use).

The following can be achieved with one network

- ✓ Communication speed that is sufficient to use the camera.
- ✓ Wider coverage area than Wi-Fi
- ✓ For implementation at a reasonable cost



Ensuring the safety of forestry workers



Sending SOS and understanding location information by attaching a terminal
⇒ **Preventing industrial accidents for forestry workers**

Watching over children and the elderly



Location information confirmation, life sensing
⇒ **Improving the quality of monitoring**

Water meter reading



Water leak detection and flow monitoring using remote automatic meter reading
⇒ **Improving meter reading efficiency and saving labor**

Utilizing "IEEE802.11ah"

Use Cases for Condominium Management and Developers

- Conventional Wi-Fi (2.4 GHz band) is difficult to cover the entire house and outdoors.
- Since the 11ah uses the 920 MHz band, it flies widely, and has excellent wraparound characteristics, so it is possible to communicate without walls and obstacles.
- Achieving smarter condominium management operations, including around buildings

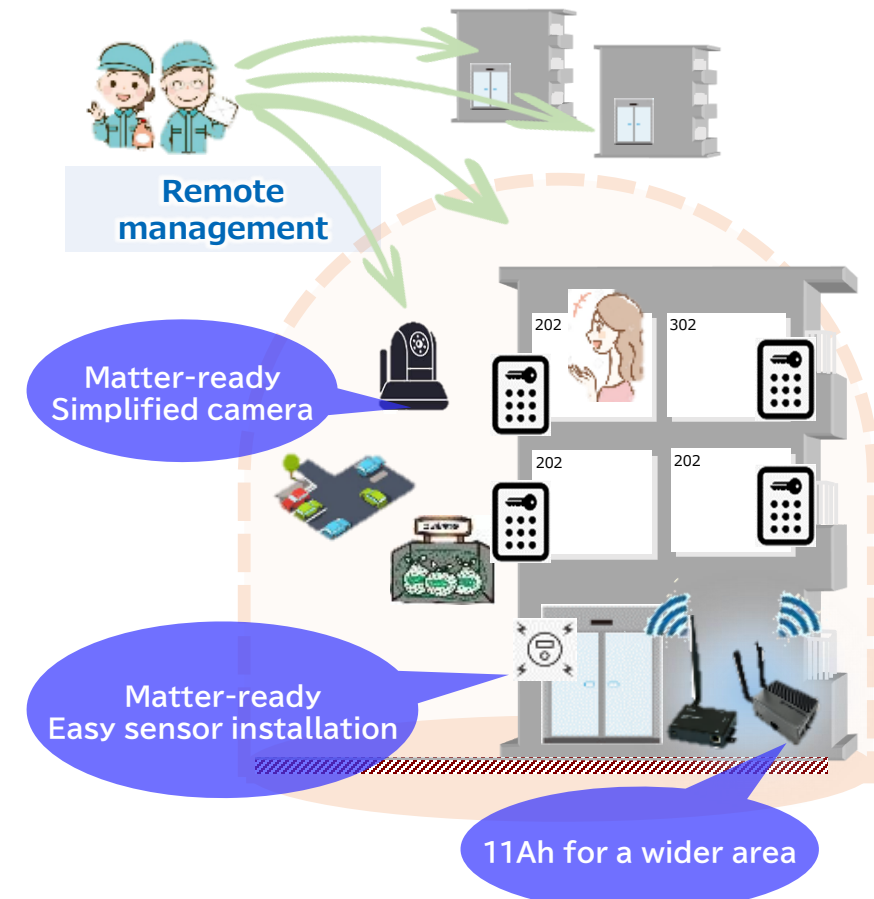
IEEE802.11ah (920MHz band)

< feature >

It is power-saving and can go around to the back when there is a wall or obstacle.



Extended communication distance to 1 km





We will introduce the expectations for private wireless, which has entered a new era, and the new wireless technology devices that form it, such as IEEE802.11ah and Wi-Fi6E, as well as exhibit use cases that combine these wireless systems.

The facility is now open to the public as a facility where you can think of new ways to promote business DX and utilize IoT implementation.

As NTT e-city Labo, we accept inspections from local governments, companies, and organizations.

Actual machine exhibition

Use case exhibition



【location】 **NTT East Central Training Center** (NTT e-city Labo) (1-44 Irumamachi, Chofu, Tokyo)

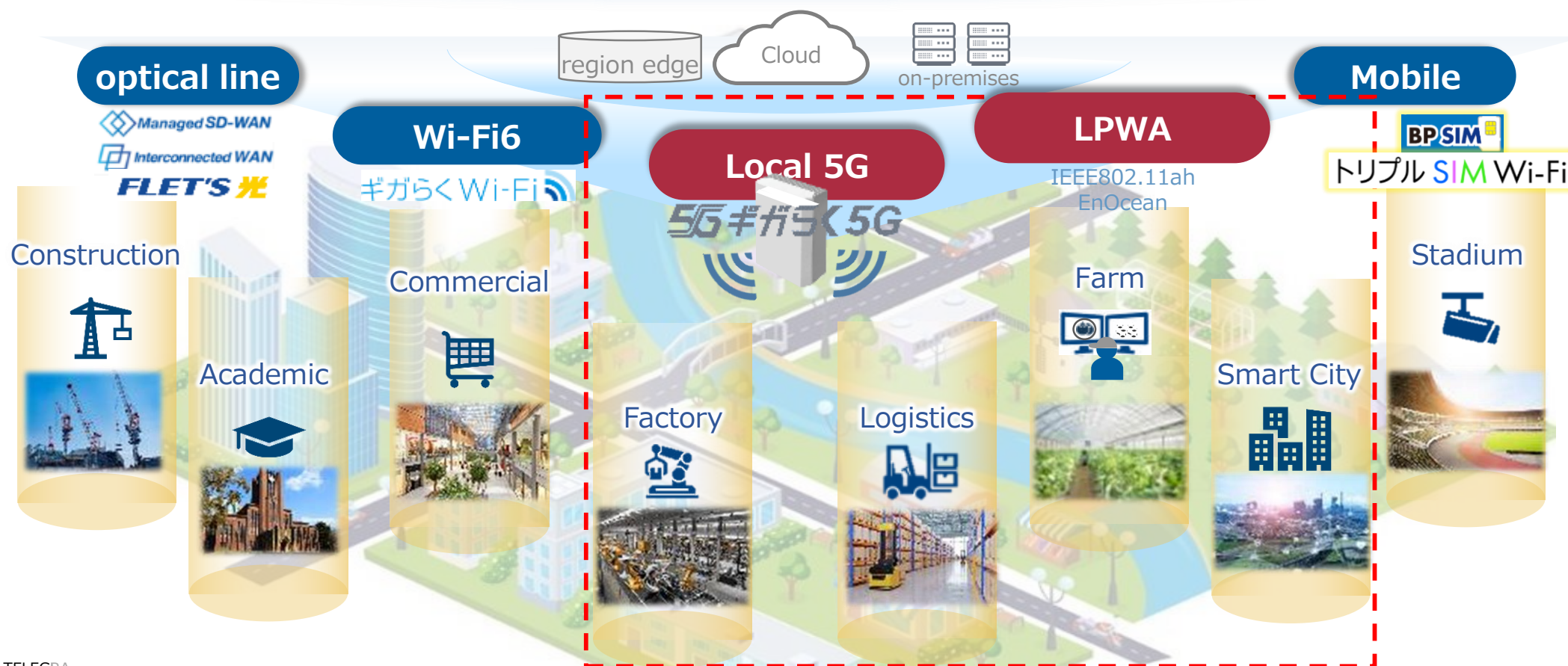
https://business.ntt-east.co.jp/content/regional_revitalization/labo/

IV. Summary

Contributing to industrial DX and solving regional issues

through **local 5G and other multi-access private networks**
providing optimal network solutions that combine wired and wireless.

Combine the optimal NW according to the application





2 years since established

12,499 Visitors

**278 local governments
(65 Chiefs)**

**720 Private Companies
Others 314**

NTT e-City LaboConcept

Reality

Experience the real thing
with all five senses

Sympathy

Showcasing live images of
themselves sweating it out

Co-Creation

Link communities and regions, and
communities and companies

地域の価値創造企業へ

**SOCIAL
INNOVATION
パートナー**

NTT東日本グループ

