

920 MHz Wi-Fi HaLow Business Reality

2026.6.4

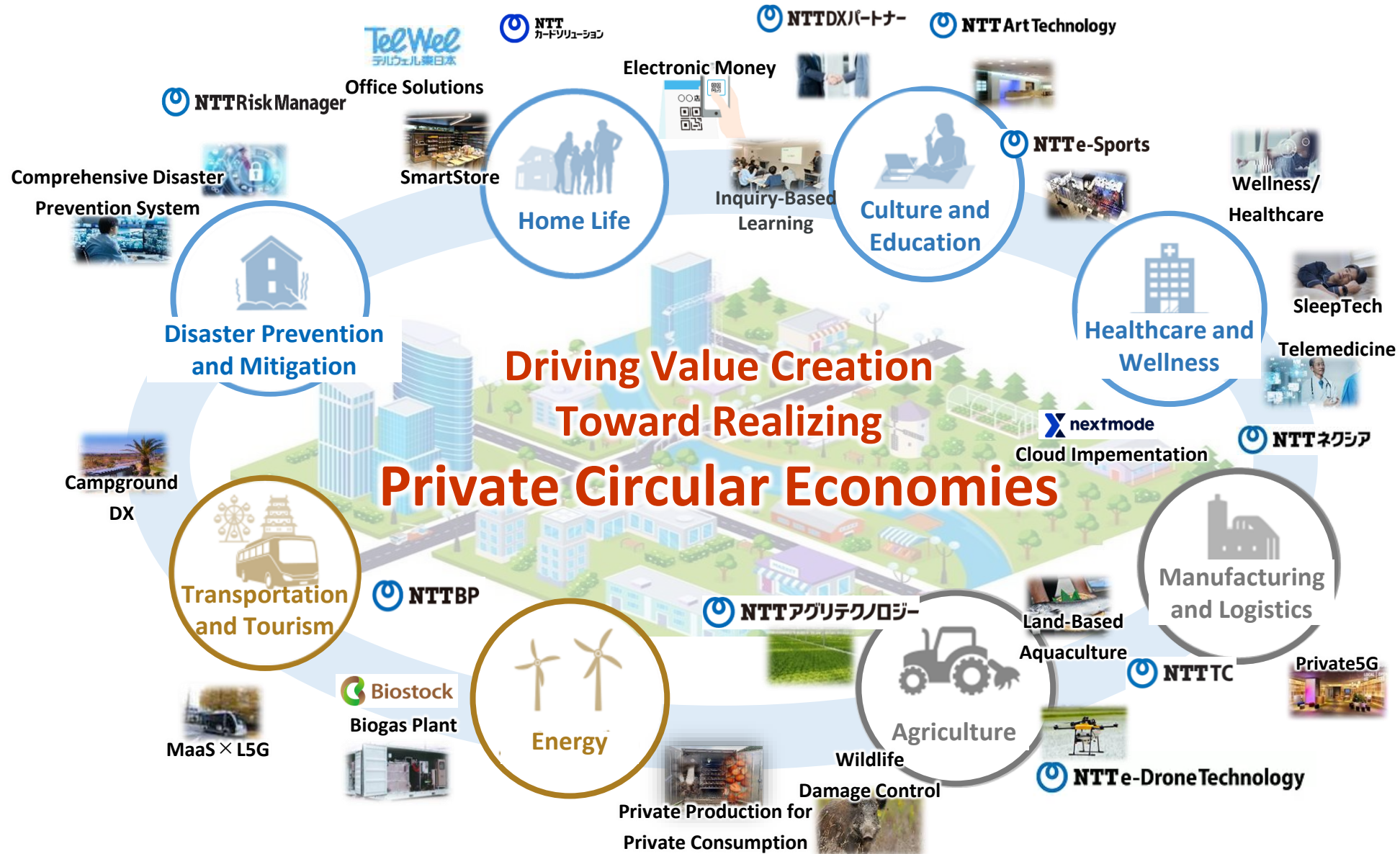
New Business Development Headquarters
Norikazu Watanabe

- I . Introduction to NTT East Inc.**
- II . Latest Topics of Wireless + DX Solutions**
- III . 920 MHz Wi-Fi HaLow Business**
- IV . 850 MHz: Future Outlook and Key Initiatives**
- V . Conclusion**



I . Introduction to NTT East Inc.





NTT East Group's wireless business

- Expanding into **IoT/robotics** with strengths in **connectivity** –especially optimized private wireless–.
- Solving labor shortages via **connectivity × AI/digital twins × on-site execution**.

■ Existing Capabilities
 ■ Core Domain (LAN/Wireless)
 ■ Growth Domains triggered by LAN/Wireless





II . Latest Topics of Wireless + DX Solutions



IOWN/APN + Private 5G (GigaRaku 5G Select) Ultra-remote teleoperation for heavy equipment Labor shortage + remote-site constraints addressed

< Challenges in mountain tunneling >

- High-risk worksite, aging workforce, labor shortage
- Network quality limits: video lag + image degradation poor depth perception, slower teleoperation



IOWN/APN × Private 5G

End-to-end low latency, high-capacity transport
Off-site operation without traveling to site
Video latency: 0.2sec

NTT Central Training Center (Chofu, Tokyo)



Ultra-remote cockpit

Nishimatsu test site "N-Field" (Nasu-Shiobara, Tochigi)



Private 5G

Mock tunnel

Ultra-remote teleoperation



Ultra-Remote Operation of Construction Equipment

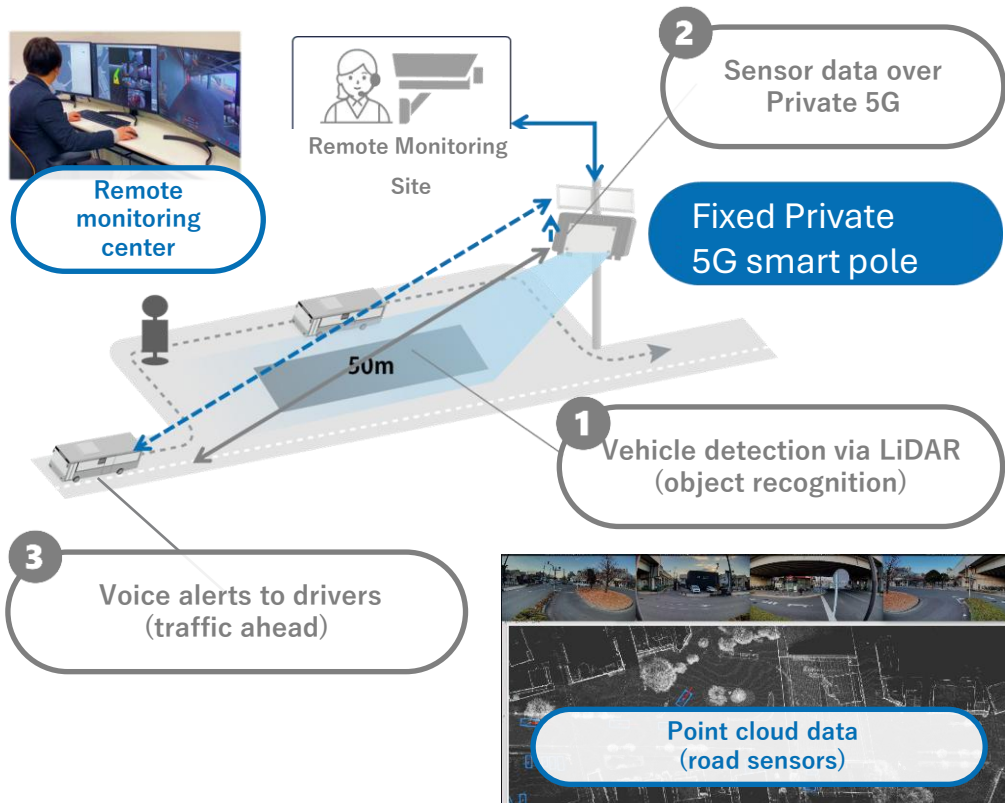


NTT East Group: Autonomous Driving Initiatives

Private 5G

- Deployed advanced **road comms** in Komae, Tokyo using carrier + private 5G.
- Used **private 5G** where **carrier coverage is limited** (stations, dense areas) .
- Enhancing L4 autonomy via **V2X with real-time road data**.

Network design: vehicles / roadside / control center



Hybrid network (carrier + Private 5G) / public road deployment



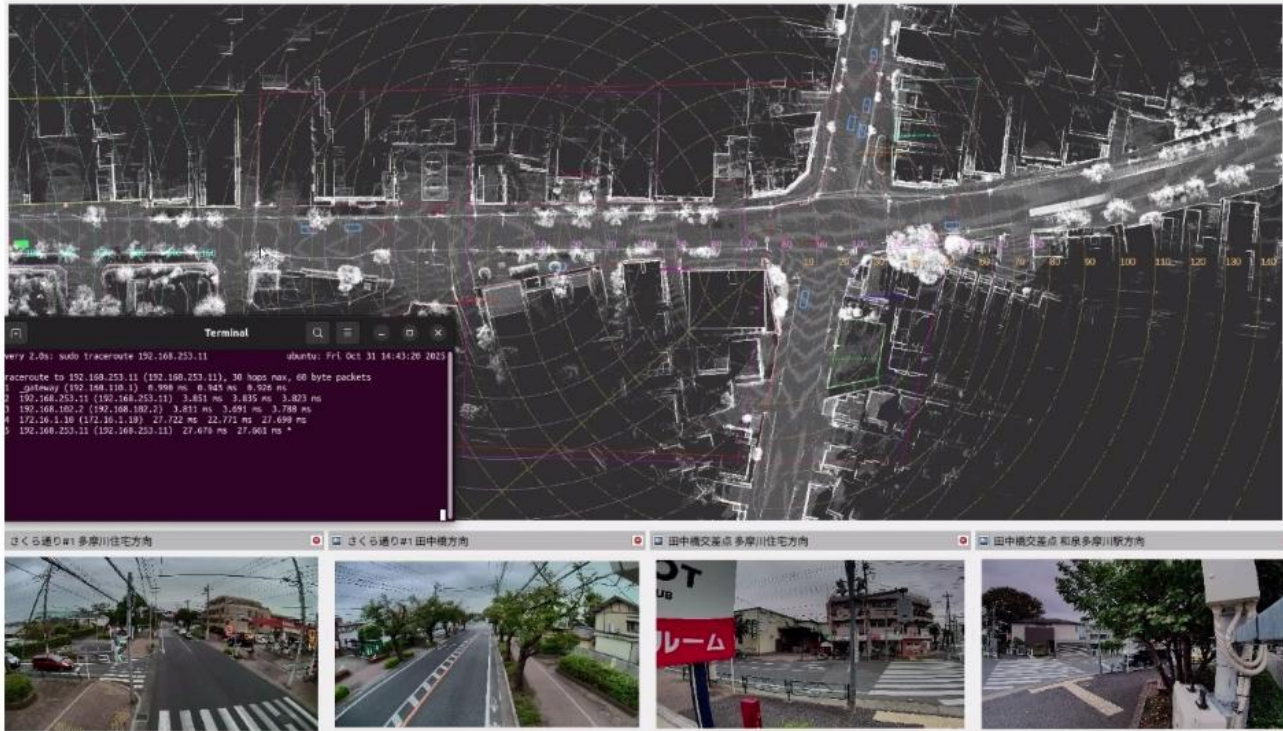
Route planning aligned with city traffic plans

Roadside sensors + 5G deployment (existing poles)



- 3D IR LiDAR
- High-resolution camera
- 5G terminal

Infrastructure-Coordinated Autonomous Driving



Integrated Control Center (Top View)

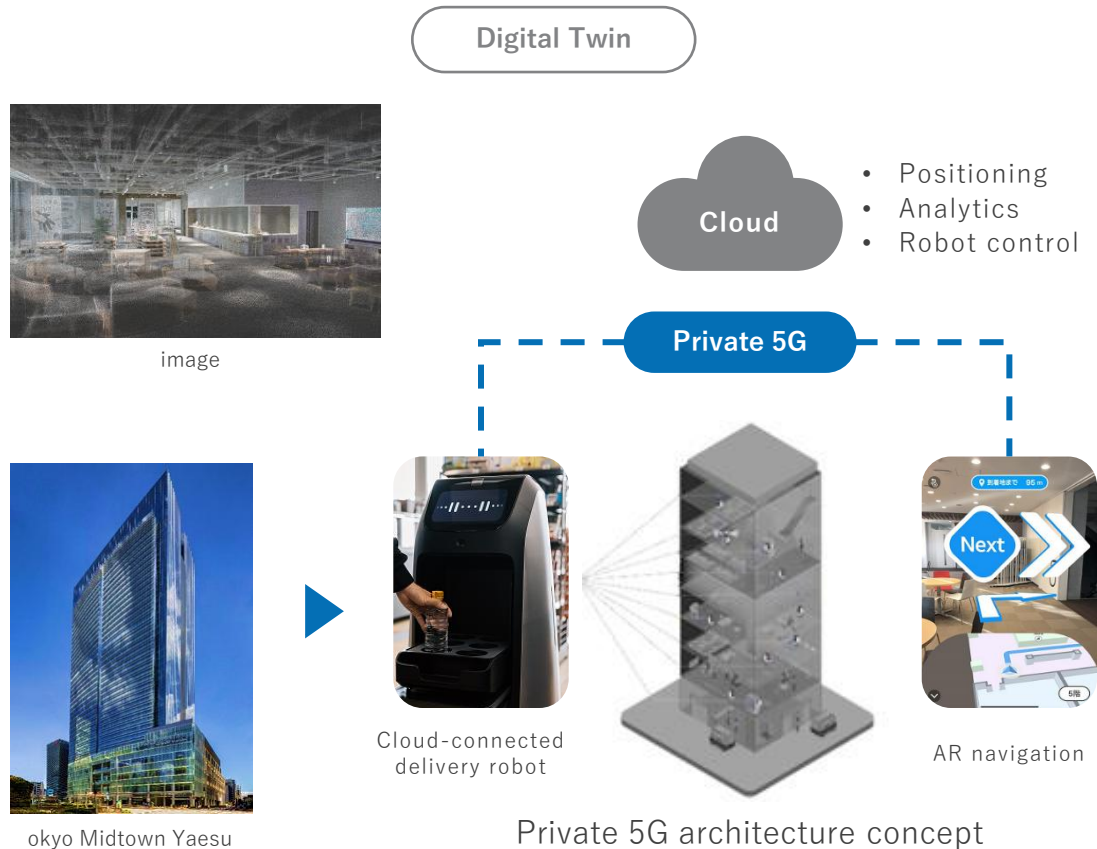


Autonomous vehicle using roadside sensor data

Use Case: Large Mixed-Use Complex

- Private 5G deployment + joint solution trial at Tokyo Midtown Yaesu.
- Digital twin-based use cases: delivery robots + AR promotion / attraction.

Architecture Overview



Use Case Scenarios

AR Promotion / AR Attraction

- AR content: coupons / navigation / visitor guidance
- Enhanced user experience via AR
- AR can run on Wi-Fi



Floor guide / store promotions (coupons)



AR Attraction

delivery service

- Robot dispatch via app (e.g., LINE); delivery service
- Cloud-based system → control ~100 robots
- High-res video → scalable via Private 5G



Order via app



Delivery robot operation



Brainless Delivery Robots Go Live in Yaesu

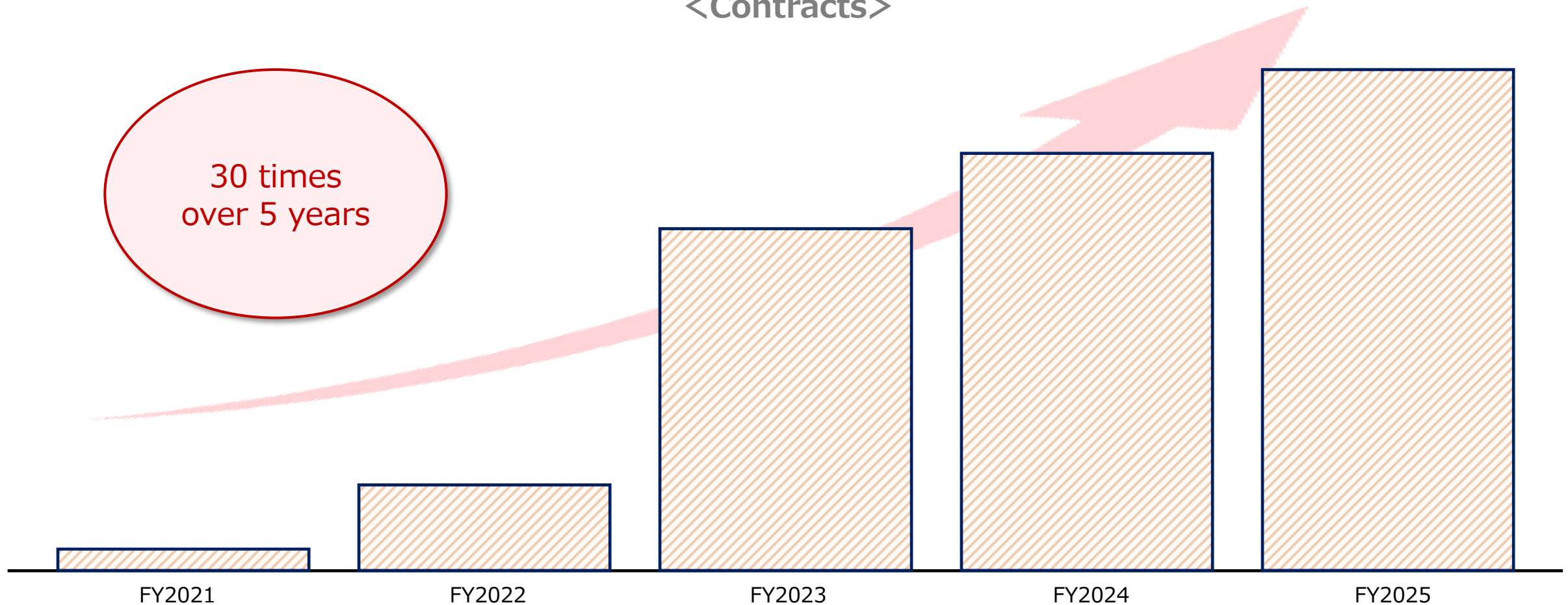


Ⅲ. 920 MHz Wi-Fi HaLow Business



- Providing **LPWA** (802.11ah, LoRaWAN, etc.) as **basic infrastructure to municipalities**.
- Since 2021, we have accumulated **many cases of municipal and wide-area IoT**.
- From 2023 after, projects utilizing 802.11ah (Wi-Fi HaLow) has been increasing.

<Contracts>



- Wi-Fi HaLow pilot to reduce property management workload.
- HaLow is “well-suited” for covering entire buildings and wide premises.

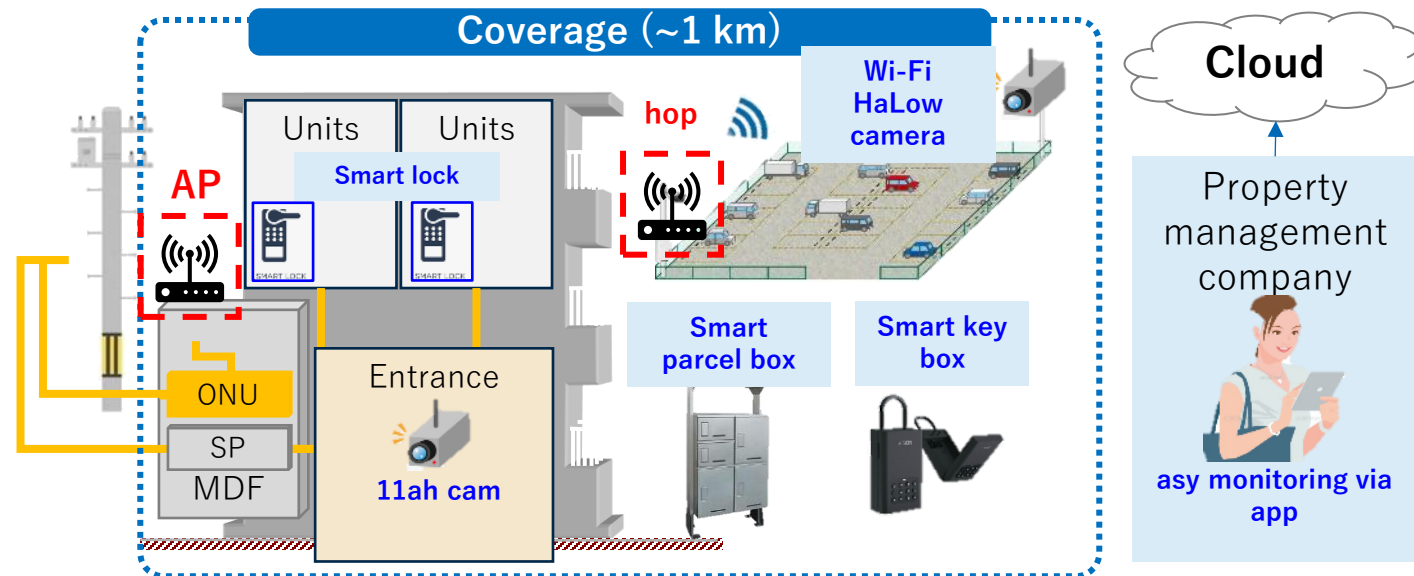
On-site response & asset value improvement → key DX challenges

Single AP covers entire building → remote monitoring

- Remote checks via tablets → fewer site visits
- No dedicated system → low-cost monitoring & security

Retrofit-ready wireless devices (low cost)

- IoT devices reduce onsite workload
- Improved tenant experience → higher asset value



Press Release: First in Real Estate —
Wide-Area Wi-Fi (IEEE 802.11ah) Pilot for Management Efficiency
& Asset Value Improvement (Nov 2024)



(報道発表資料)

2024年11月5日

武蔵コーポレーション株式会社
東日本電信電話株式会社 埼玉事業部

不動産業界初！広域 Wi-Fi“IEEE802.11ah”を活用した 管理業務の効率化および物件価値向上に向けた実証実験を開始

武蔵コーポレーション株式会社（代表取締役：大谷 義武、以下「武蔵コーポレーション」）と東日本電信電話株式会社 埼玉事業部（事業部長：市川 泰吾、以下「NTT 東日本」）は、不動産管理業務の効率化および物件付加価値の向上を目的として、武蔵コーポレーションが保有する賃貸管理物件 10 棟において、従来の Wi-Fi と比較して広範囲に電波が伝搬し、簡易な画像や映像転送も可能とする広域 Wi-Fi 『IEEE 802.11ah^{*1}（以下、「11ah」）』とカメラを活用した実証実験を 2024 年 11 月 19 日より開始します。これは不動産業界初^{*2}となります。

<実証イメージ>

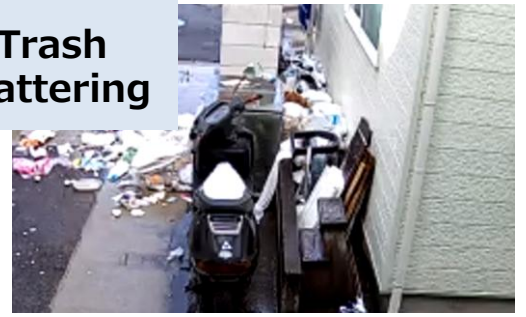


- **Wi-Fi HaLow pilot:** wireless coverage + reduced site visits.
- **Camera-based monitoring** → issue detection & prevention.
- **Next:** AI anomaly detection + compact solar devices under evaluation.
- **Customer shows strong intent for full-scale deployment;** evaluation is underway.

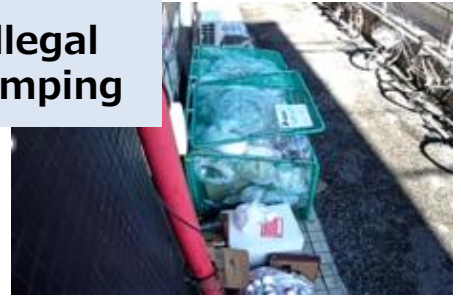
Results

Live video → remote resolution (no site visit)
→ ~48 hrs/year workload reduction per building

Trash scattering



Illegal dumping



Bicycle parking violations



Next Steps

Image-based detection with GenAI

Still images



Analysis

Trash area clutter → cleaning required

Alerts

- Pre-defined incidents
- AI detection → app alerts

Compact solar-powered devices



Mobile app access (remote use)



Property manager

- Infrastructure maintenance, reduced road inspections, and safety are key challenges.
- 802.11ah enables stable camera operation and cost-efficient networks across wide areas.
- **Commercially deployed in March(36 cameras). Expansion to other areas is being explored.**

Current Situation and Challenges

- The internet environment is mixed (fiber/ADSL).
- The current camera specifications are varied, and at certain times, recording does not work well, necessitating patrols.



Solution

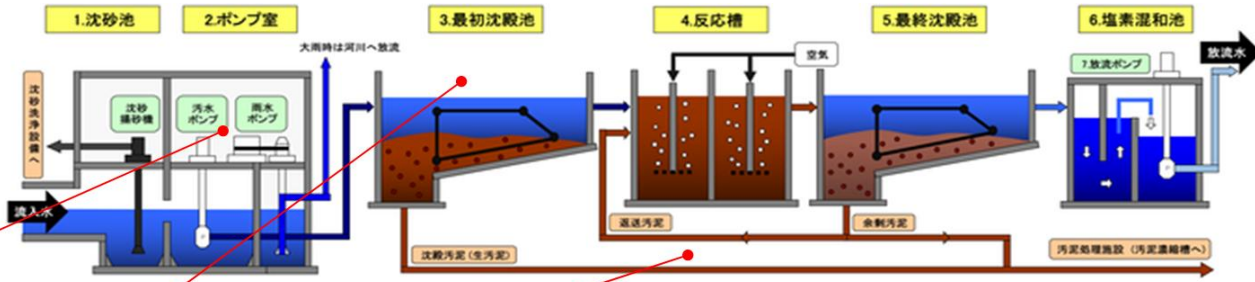
- improve the network environment and achieve stable camera operation.
- consider vehicle number recognition and infrastructure sensing.



<Smart Infrastructure> Water Treatment Plant DX

- Manual inspection across many assets (~3,000 checks/day).
- Cameras / sensors / AI → workload reduction (PoC in Utsunomiya).
- Scaling nationwide with Metawater.

Nikkei (Feb 23, 2026)
日本経済新聞 2026年2月23日

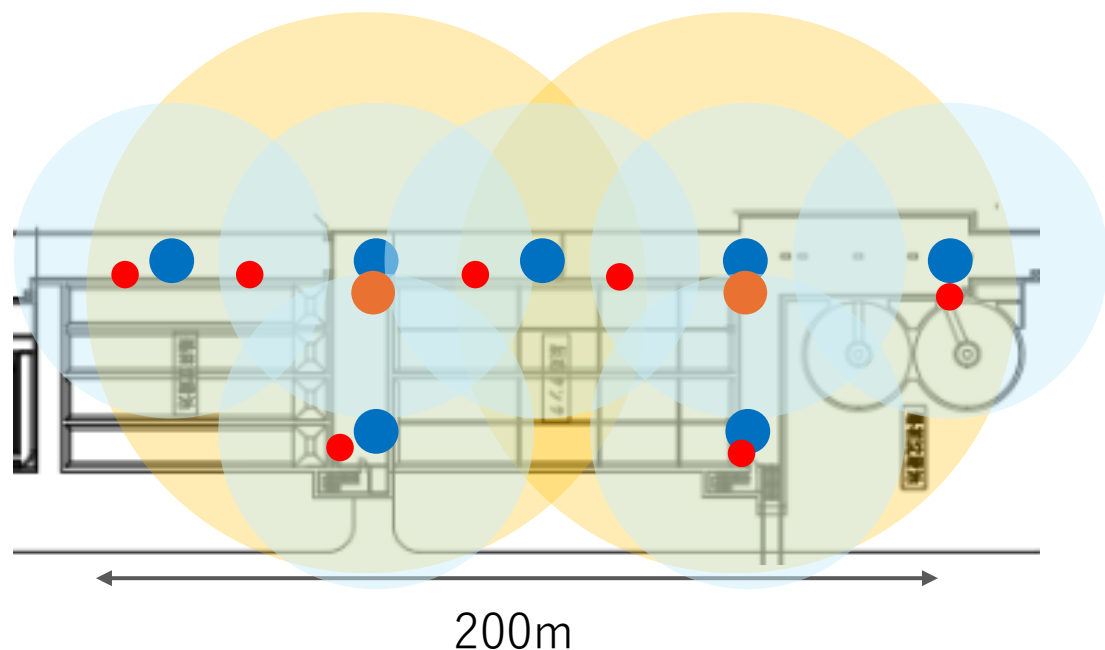


Pump equipment	Belt thickener	Pipelines	Distributed assets	
<ul style="list-style-type: none"> Vibration monitoring temperature check 	<ul style="list-style-type: none"> Noise anomaly check 	<ul style="list-style-type: none"> Visual inspection (leaks / faults) 	<ul style="list-style-type: none"> Normal/anomaly check 	<ul style="list-style-type: none"> Loose fasteners
Vibration / IR temperature sensors	Acoustic / monitoring sensors	Camera / drone	Camera / drone	Camera / drone

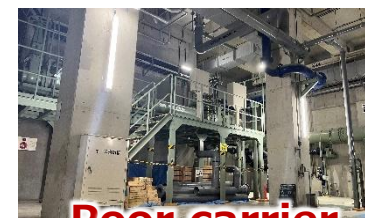
- **Wi-Fi HaLow excels** in wide-area coverage across large facilities.
- Power constraints & scale → fewer, higher-quality APs via 850 MHz.
- Use cases: voice, tablets, drones → **migration to Wi-Fi HaLow**.

Wi-Fi HaLow Deployment in Water Facilities

Superior wide-area coverage for large inspection zones
Fewer base stations → lower wiring / piping / power costs



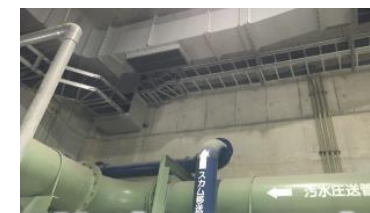
- inspection points
- Wi-Fi HaLow
- Wi-Fi



Poor carrier coverage



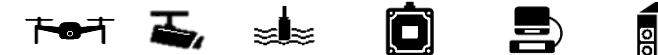
Complex layouts with distributed assets



Underground wiring challenges



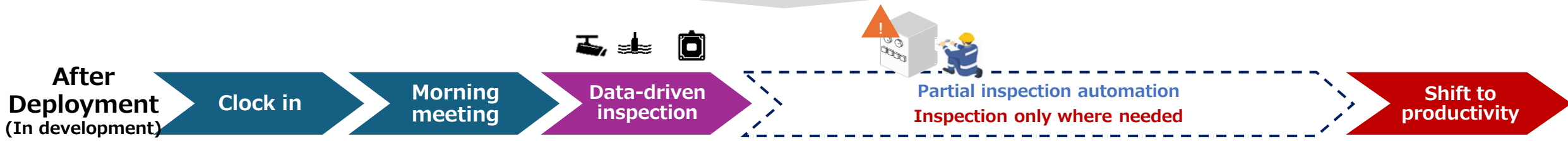
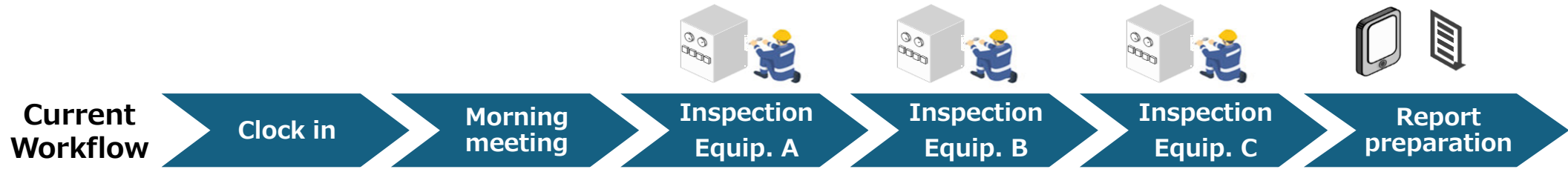
Power availability (cost reduction)



Similar inspection DX needs across manufacturing, real estate, and transport

Daily Inspection Workflow

- **Data-driven anomaly detection** enables inspection only when needed.
- **Seamless automation with Metawater cloud, from inspection to municipal reporting.**



アラート名	発生日時	デバイス名	グループ名
FS-2	2026-04-23 7:00:00	騒音センサ (音-汚-2) 温度センサ (赤温-汚-1)	汚泥棟
圧力水ポンプ	2026-04-22 1:00:00	温度センサ (マ温-沈-1)	沈砂池ブロワ棟

アラート名	発生日時	デバイス名	グループ名	現在の状態
FS-2	2026-04-23 7:00:00	騒音センサ (音-汚-2) 温度センサ (赤温-汚-1)	汚泥棟	- 発生 -
圧力水ポンプ	2026-04-22 1:00:00	温度センサ (マ温-沈-1)	沈砂池ブロワ棟	- 発生 -

Analyze sensor and camera data for anomaly detection and prediction.



項目	機器全般	点検状況	IoTセンサ	自動取得接続	作業手順書
FS-2 給気77 (排水機室系統)	異常	マグネット温度センサ (マ温-汚-1)	40°C	75.4dB	→
FE-2 排気77 (排水機室系統)	給油	騒音センサ (音-汚-1)			
FS-1 給気77	給油				
FS-3 給気77	給油				

Auto-generate reports for local governments from analysis results.

High-Resolution 3D Modeling & Field Visualization

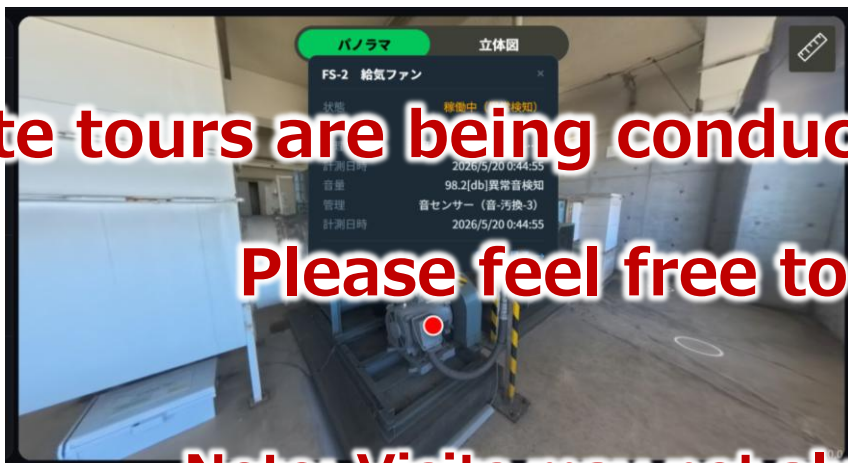
Next steps and future outlook

- PoC for the first site has been launched, with **regular external tours held since May**.
- Joint proposals with Metawater for **commercial deployment at additional sites are underway**.
- Targeting 100 Metawater sites, 2,300 affiliates, and 12,000 nationwide (incl. municipal).

Site tours are being conducted for municipalities and partner companies.

Please feel free to contact us if you plan to visit Japan.

Note: Visits may not always be accommodated due to site conditions.



River Monitoring → Enhanced Disaster Resilience

- Performance comparison: LoRa vs Wi-Fi HaLow (heavy rain).
- Clear quality gap; Wi-Fi HaLow rated higher (especially night).
- FY2026 deployment under consideration (3→20 cameras), expanding to rivers and citywide.

Test distance: ~480m from base stations

LoRa Camera

- Size : QVGA(320x240)
- Throughput : 5.47kbps

Configurable resolutions


VGA
(640x480)

XGA[max]
(1024x768)

Normal conditions 




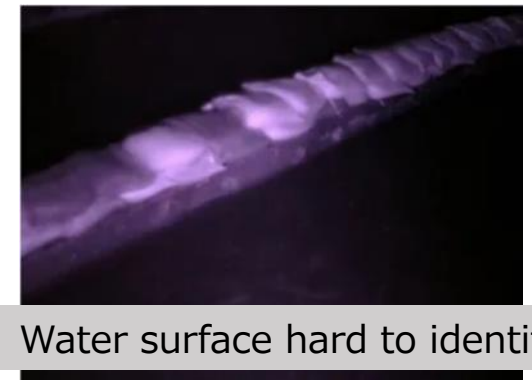
Blurry overall

Heavy rain 



Flood level not visible

Nighttime (Light Rain) 



Water surface hard to identify

Wi-Fi HaLow Camera

- Size : HD(1280x720)
- Throughput : 350kbps

Configurable resolutions

VGA[min]
(640x480)



Water level clearly visible



Flood depth visible



Clear visibility even at night

- A five-party partnership was established to advance disaster-focused digital twin initiatives.
- Water level conditions are visualized on a digital twin dashboard.

Source: NHK News Web (Aug 6)



(3) リアルタイムな現場状況の可視化・モニタリング

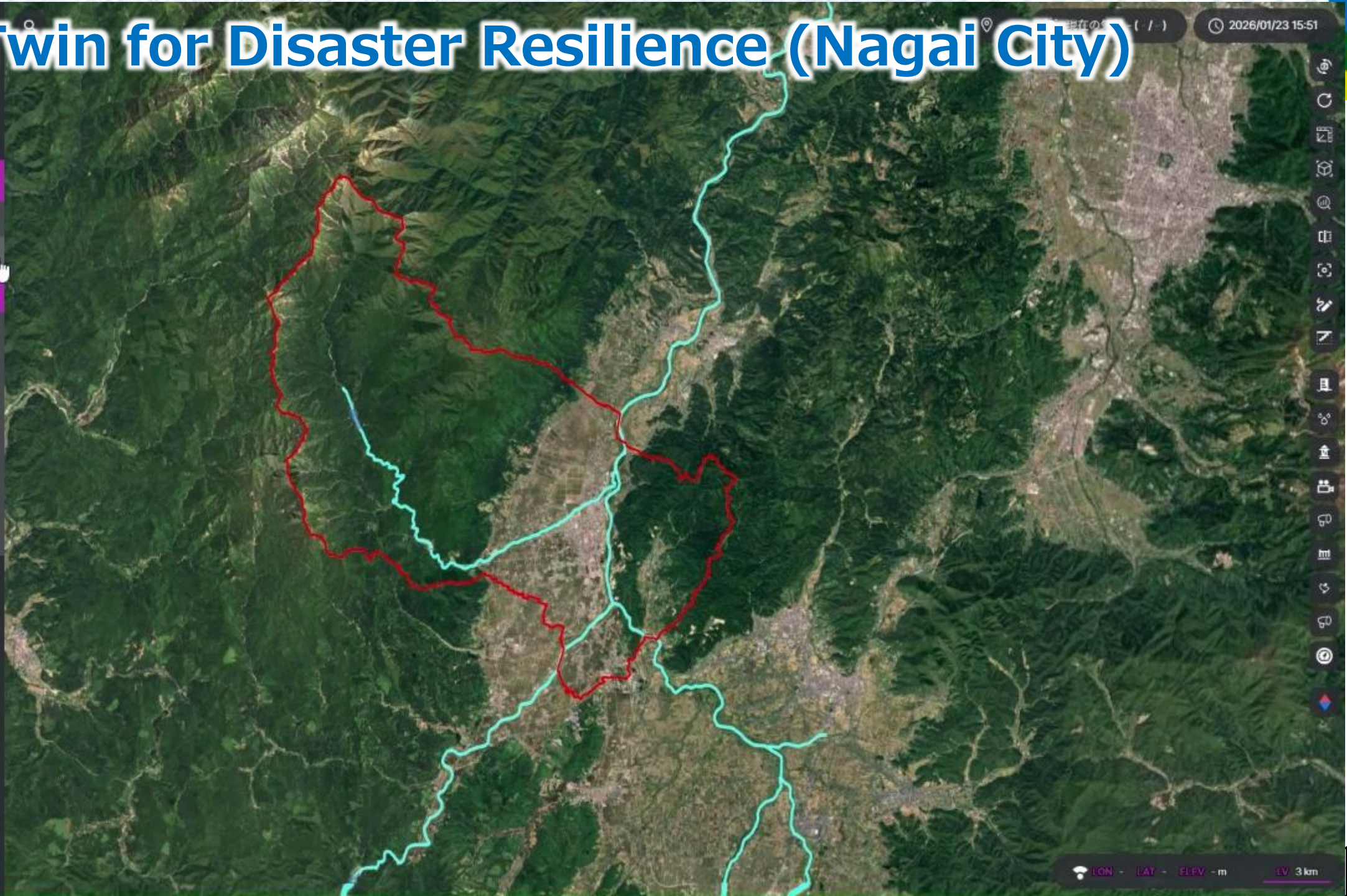
- 長井市を流れる河川の水位状況や氾濫状況など、水位センサーやカメラを組み合わせることで、危険度をリアルタイムに可視化し、モニタリングできるようにします。



Digital Twin for Disaster Resilience (Nagai City)

2026/01/23 15:51

- マップ (レイヤー) ×
- ベースマップ
- 可視化
- 流線
- LOD4
- 主観図
- 河川
- 流域図
- 行政区域図
- 排水路
- 排水路(3D)
- 地下管網
- 洪水ハザードマップ



Digital technologies to strengthen disaster response; partnership with 4 cities & 1 town

Agreement for disaster-resilient regional development

三浦半島4市1町とNTT東日本が災害に強い地域づくりに 関する協定を締結

東日本電信電話株式会社（代表取締役社長：澁谷 直樹、以下「NTT東日本」）は、神奈川県三浦半島に位置する横須賀市、鎌倉市、逗子市、三浦市、葉山町（以下「三浦半島4市1町」）と、半島地域特有の災害リスクに対応し、半島全体で災害に強い地域づくりを推進することを目的とした防災連携協定（以下「本協定」）を2025年5月21日（水）に締結します。

本協定は、三浦半島4市1町が掲げる「三浦半島に暮らす市民・町民の皆さんの安心な生活の実現」をめざし、災害時の孤立リスクなど半島地域特有の課題に官民連携で取り組む協定です。

本協定は三浦半島4市1町が民間企業と締結する初の防災連携協定となります。また、2025年4月に設置した当社「防災研究所」が自治体と締結する初の防災連携協定となります。

ICTや先端技術を活用して三浦半島4市1町の地域防災の高度化を図るとともに、人流データや道路の被災情報などを活用した避難行動・物流の最適化などの研究を進め、持続的な地域の防災力向上をめざします。

三浦半島防災力強化プロジェクトでの取り組みポイント

三浦半島に暮らす皆さんの安心な生活や幸せの実現



<p>通信の応急対策強化</p>	<p>防災力強化支援</p>	<p>次世代の防災DXの共同研究</p>
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Five priority initiatives for resilience

三浦半島4市1町とNTT東日本防災力強化に向けた5つの重点取り組みテーマを設定 ～自治体横断体制で災害に強い地域づくりを推進～

NTT東日本株式会社（代表取締役社長：澁谷 直樹、以下「NTT東日本」）は、神奈川県三浦半島に位置する横須賀市、鎌倉市、逗子市、三浦市、葉山町（以下「4市1町」）と、2025年5月21日に締結した防災連携協定（以下「本協定」）に基づき、5つの重点取り組みテーマを設定し、自治体横断体制で災害に強い地域づくりを推進します。

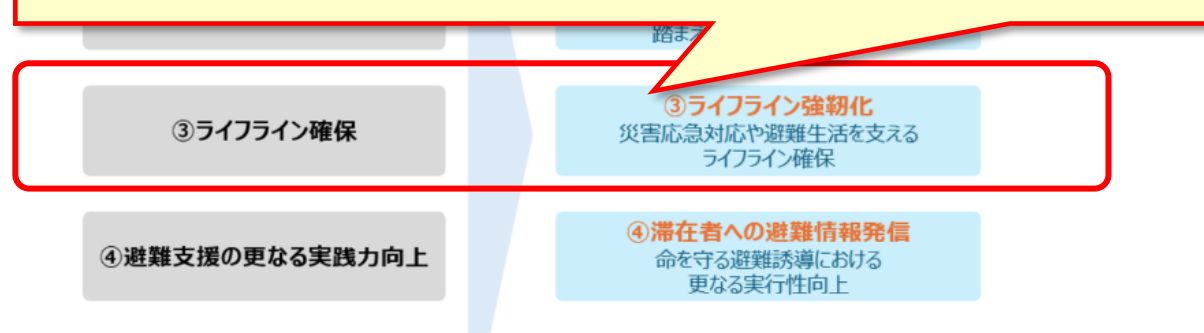
① 防災情報発信	災害発生時の避難誘導や避難生活を支えるための通信、エネルギーなどのライフライン確保・MCA（業務用無線）サービス終了に備え、Wi-Fi HaLowを活用した防災無線の実証を検討	鎌倉市
② 避難支援の更なる実践力向上	災害発生時の避難誘導や避難生活を支えるための通信、エネルギーなどのライフライン確保・MCA（業務用無線）サービス終了に備え、Wi-Fi HaLowを活用した防災無線の実証を検討	三浦市
③ ライフライン強靱化	災害発生時の避難誘導や避難生活を支えるための通信、エネルギーなどのライフライン確保・MCA（業務用無線）サービス終了に備え、Wi-Fi HaLowを活用した防災無線の実証を検討	逗子市
④ 防災情報発信	災害発生時の避難誘導や避難生活を支えるための通信、エネルギーなどのライフライン確保・MCA（業務用無線）サービス終了に備え、Wi-Fi HaLowを活用した防災無線の実証を検討	横須賀市
⑤ 防災力強化支援	災害発生時の避難誘導や避難生活を支えるための通信、エネルギーなどのライフライン確保・MCA（業務用無線）サービス終了に備え、Wi-Fi HaLowを活用した防災無線の実証を検討	葉山町

【 共通課題 】

【 重点取り組みテーマ 】

Resilient Lifeline Infrastructure

Considering **Wi-Fi HaLow** for post-MAC emergency radio systems.



- Service to end May 31, 2029 (MCA Advanced: Mar 31, 2027).
- Used for emergency comms → alternative solutions required.

Use Cases of Disaster Radio

Broadcast: Public alerts

Reliable public information delivery

Outdoor speakers



Home alert terminals



Mobile: Staff communication

Stable comms during disasters

Field communication



BCP connectivity



Vehicle-mounted receivers



Disaster Radio +1 Solution package

- IP radio alternatives face congestion risk → demand for better resilience.
- Expanding use cases: wildlife / road / snow monitoring.
- **Driving through internal sales channels as a disaster radio +1 solution package.**

① Independent of carrier networks

- No congestion in emergencies
- Low interference (850 MHz)

② Wi-Fi-based standard

- IP-based / highly interoperable
- Cost-efficient deployment

③ Wide-area coverage

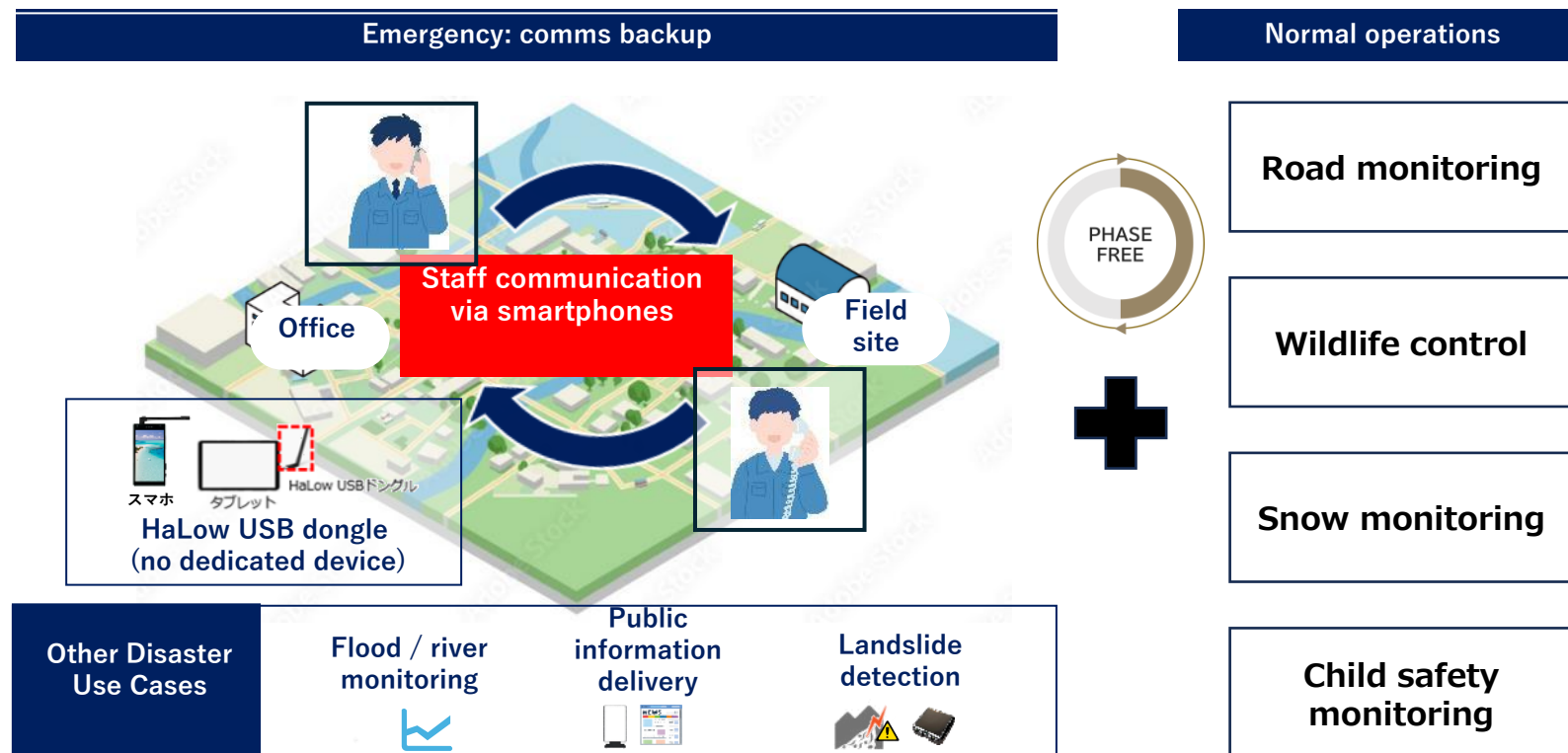
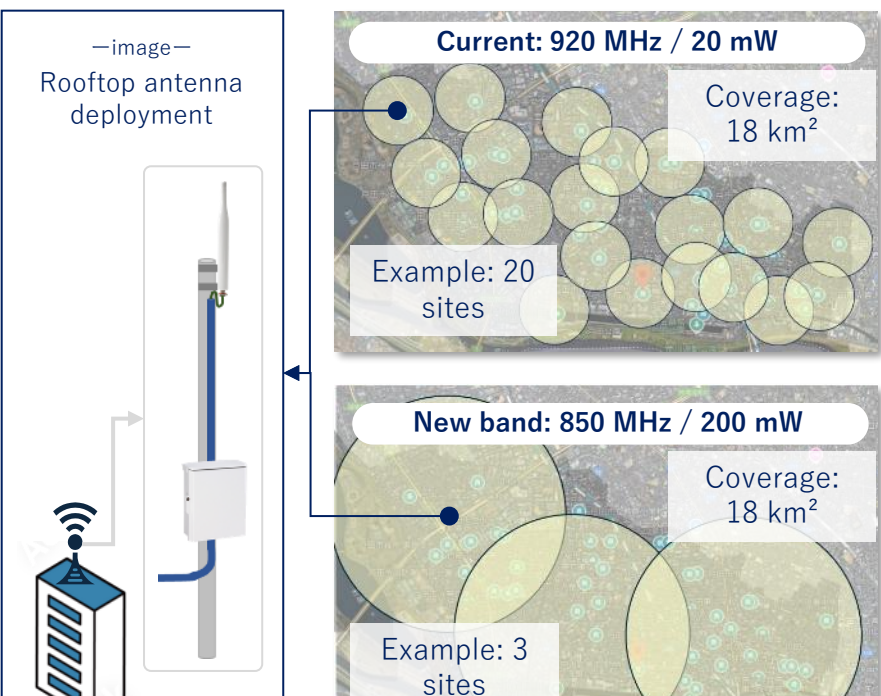
- Expanded coverage via 850 MHz

④ マルチユース

- Reusable across multiple use

< Wide-area coverage via Wi-Fi HaLow >

Use in wide HaLow network



※新周波数帯は2026年4月に電波法改正見込み、カバーエリアは予測値

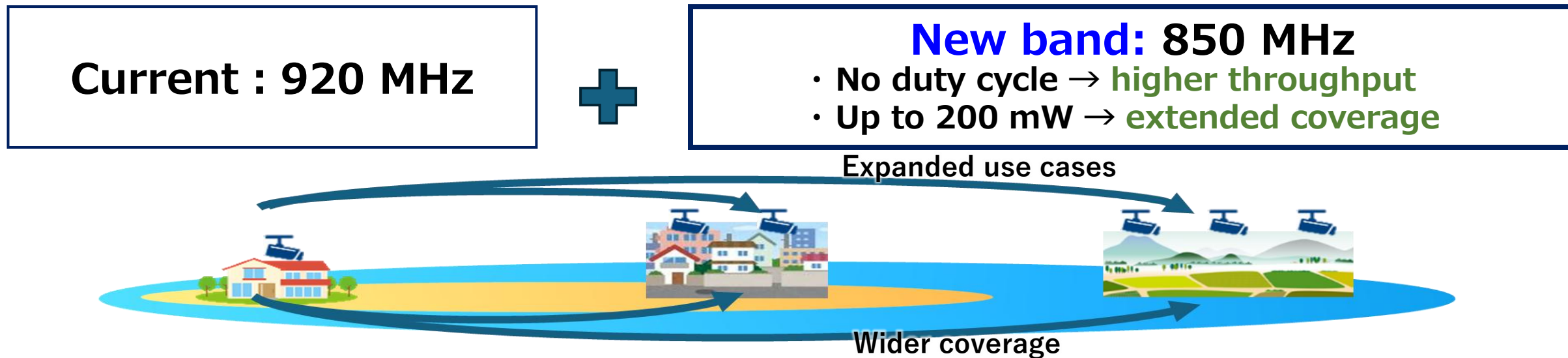


IV. 850 MHz: Future Outlook and Key Initiatives



802.11ah Expansion to 850 MHz Band

- In addition to the current 920 MHz, the **850 MHz band is expected to be introduced in Q2 FY2026**.
- **Early validation to be conducted at vLab and field environments** in line with regulatory rollout.
- **850 MHz for wider coverage** across inspections and municipal use cases.



	FY2026				FY2027		FY2028		FY2029	
	1 Q	2 Q	3 Q	4 Q	H1	H2	H1	H2	H1	H2
Institution	850 MHz regulatory preparation				920 MHz operation		850 MHz band operation (2 MHz bandwidth)		850MHz帯運用 (8 MHz bandwidth)	
Validation & deployment	vLab setup	vLab 850 MHz validation			Product expansion Commercial adoption expansion					
		Facility inspection validation								
		Municipal validation								

Driving multi-use network realization

- 850 MHz enables large-scale multi-use networks with diverse sensor/camera data.
- Forms resilient municipal infrastructure for safety and emergency coordination.

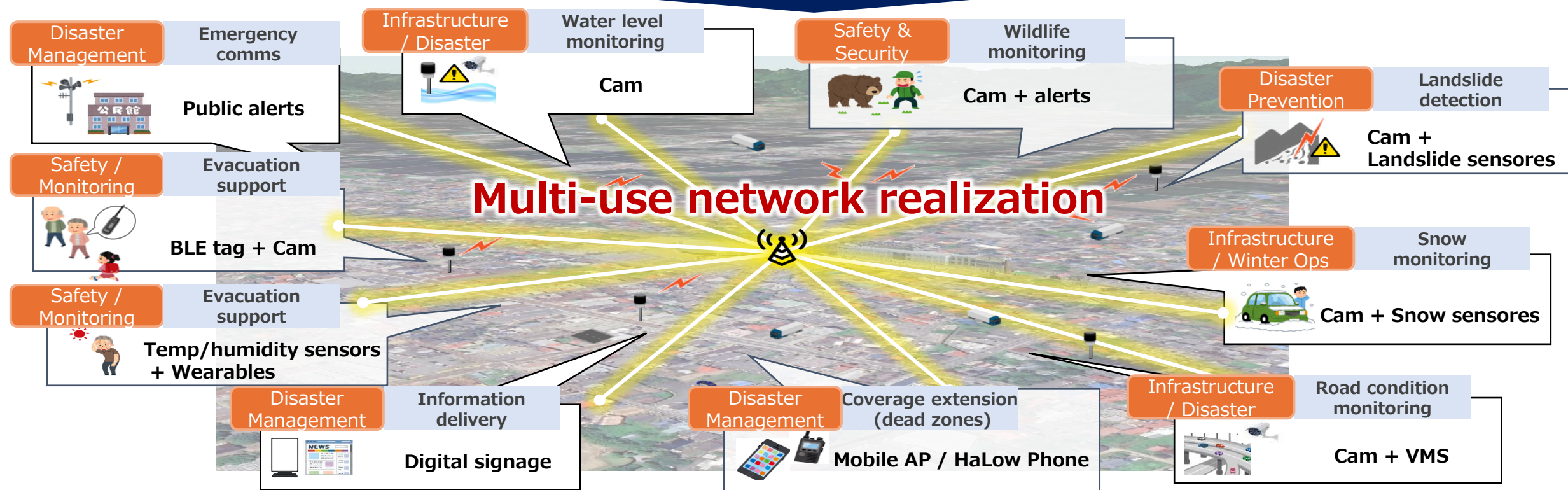
Current : 920 MHz



New band: 850 MHz

Solution Package (1-2 use cases)

Solution Package (3-4 use cases)





V. Conclusion



Conclusion

Dear Partners in Taiwan,

Thank you for providing high-quality Taiwanese equipment.

Wi-Fi HaLow is already being deployed in various real-world environments.

To achieve large-scale adoption and social implementation, the following will be required:

Higher product quality and support

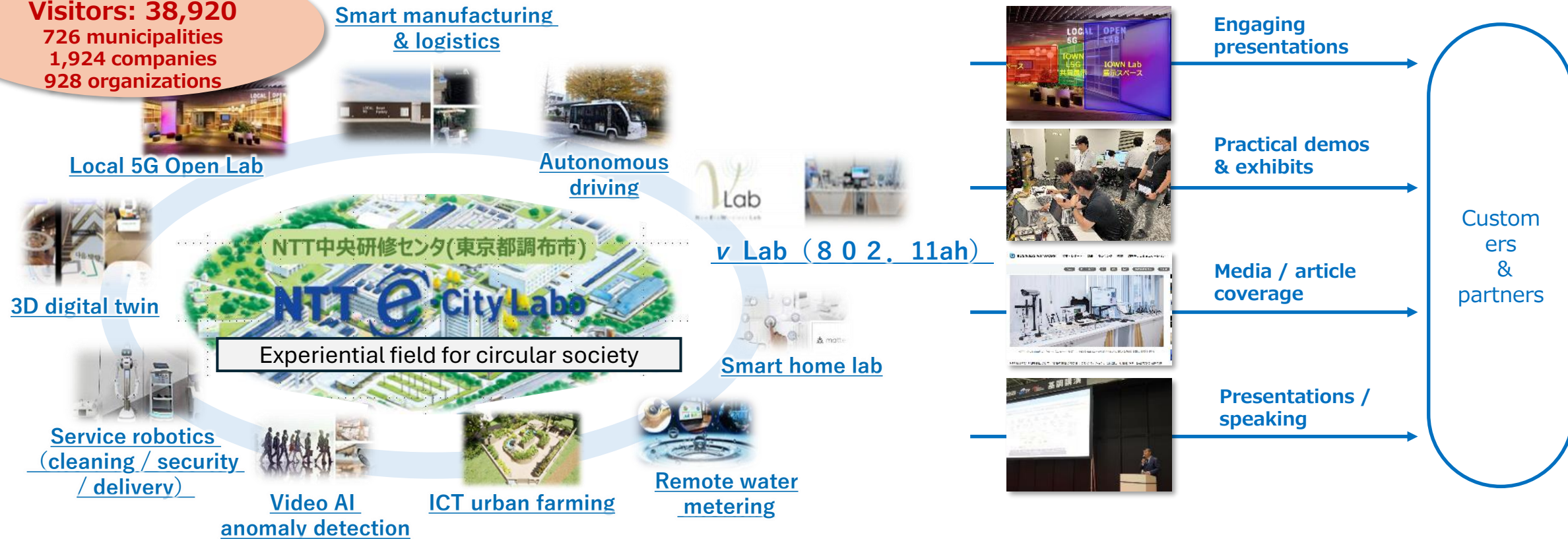
Adaptation to diverse environments

Advanced capabilities, including management functions

We look forward to continued close collaboration.

- **Wireless showcase + customer engagement; technology validation sites in operation**
- **Demo & validation hub; continuous updates; create new business opportunities**

3.5 years since launch
Visitors: 38,920
726 municipalities
1,924 companies
928 organizations



We sincerely appreciate the support of our partners in Taiwan and AHPC.

We look forward to your continued collaboration in creating new business opportunities, including support for lab utilization, validation, and use case development.

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