# NTT DOCOMO's AI and Data-Driven Innovation

Creation of new values by leveraging DOCOMO's AI and Big Data such as:
AI-powered healthcare service, AI-driven roadwork detection solutions and DOOH advertising
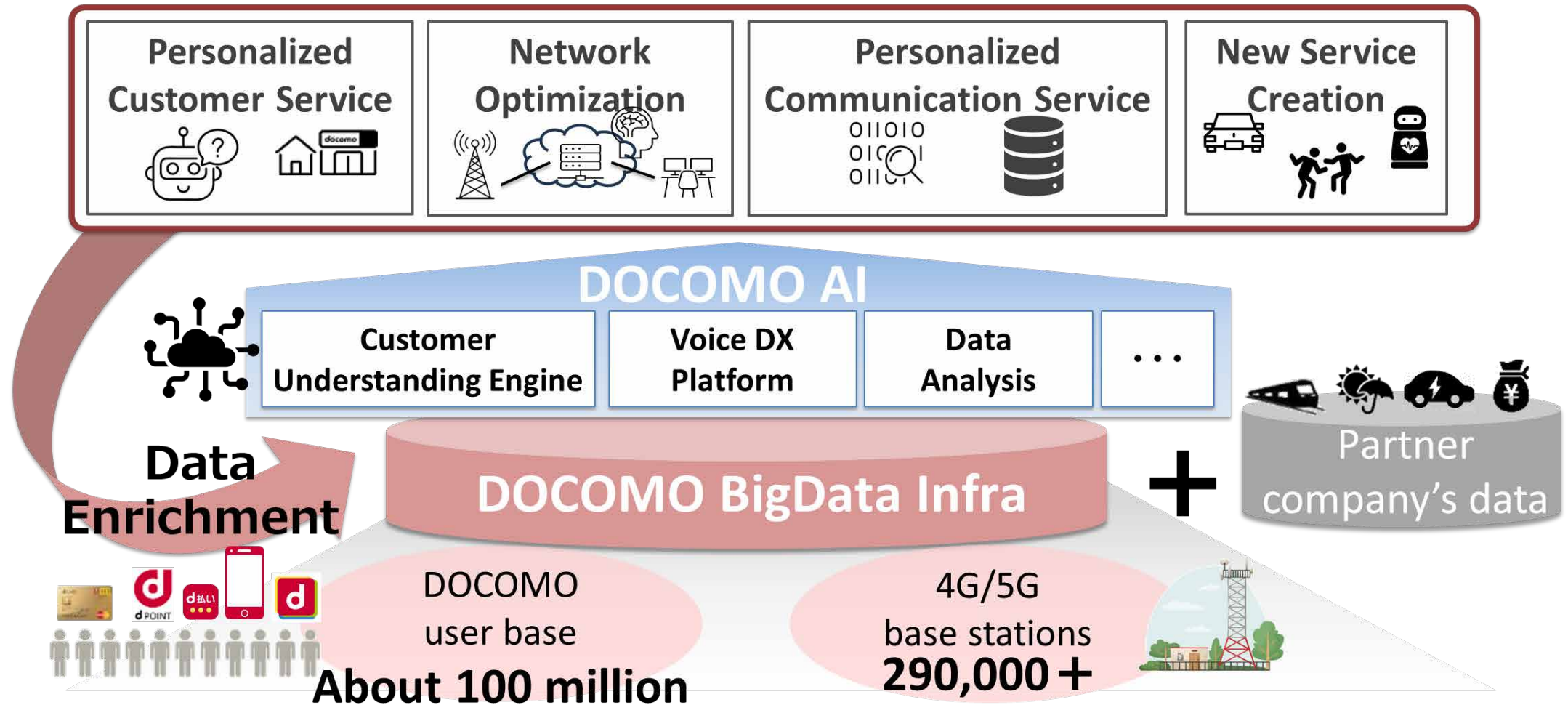
# NTT DOCOMO's Digital Out-of-Home (DOOH) Business and Overseas Expansion

**Expanding Japan's Successful Model Overseas with DOCOMO's Data Science**

# LIVE BOARD, INC.

## Out of Home (OOH) Business Subsidiary of NTT DOCOMO

LIVE BOARD, INC. is a joint venture established by NTT DOCOMO and Dentsu in 2019 to revolutionize the Digital Out-Of-Home (DOOH) advertising market in Japan.

The company specializes in managing DOOH distribution platforms, developing advertising media, and selling digital advertising spaces.
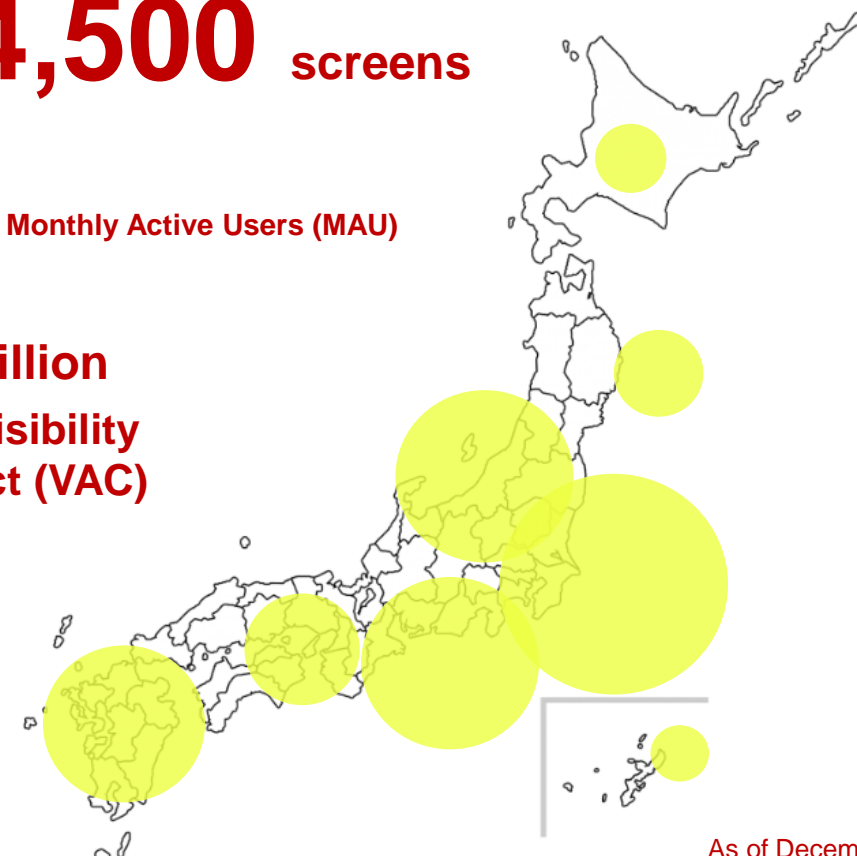
# Rapid Expansion of Advertising Network

**LIVE BOARD, a Digital Out-of-Home (DOOH) business company by NTT DOCOMO and leading advertising agencies, is market leader in OOH digitalization in Japan.**
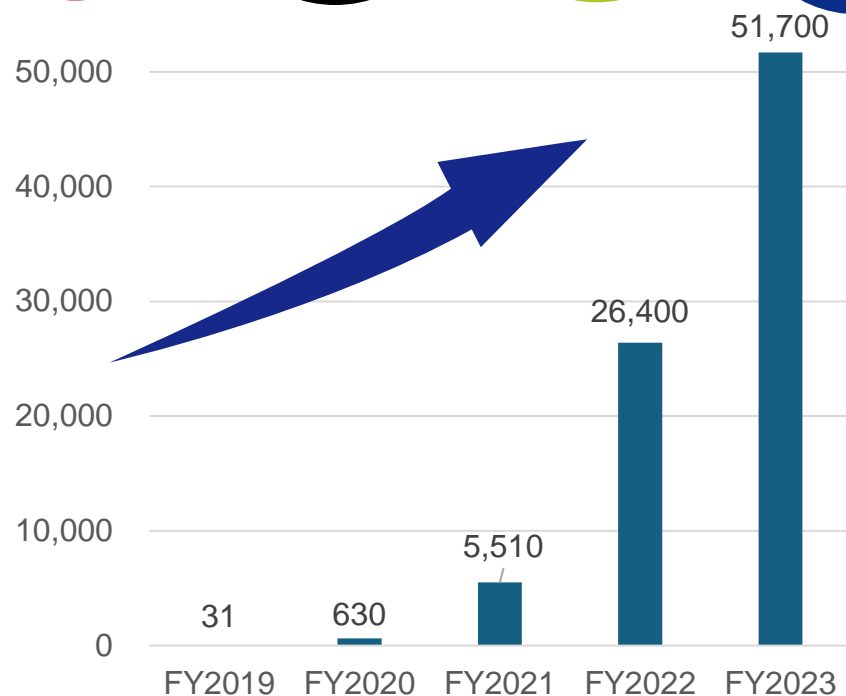


**Over 64,500** screens

**29** million Monthly Active Users (MAU)

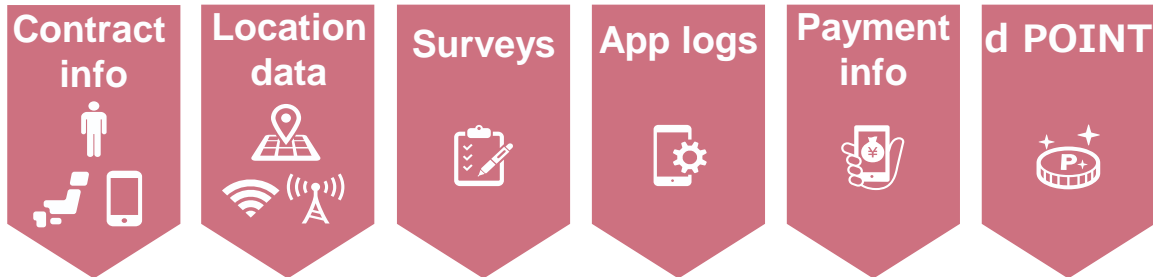**936+** million impressions / visibility adjusted contact (VAC)

As of December 2024

**NTT docomo**

## In addition to measuring impressions, DOOH enables the visualization of viewer attributes, allowing for optimized ad delivery tailored to the target audience.

### Target Audience Attributes

Contract info

Location data

Surveys

App logs

Payment info

d POINT

Gender & Age

Occupation

Annual Income

Hobbies

Survey

Places Visited

App Data

Note: d POINT is a loyalty program offered by NTT DOCOMO in Japan. It allows members to earn and use d POINTs across various aspects of daily life in Japan, from mobile services to shopping and more.
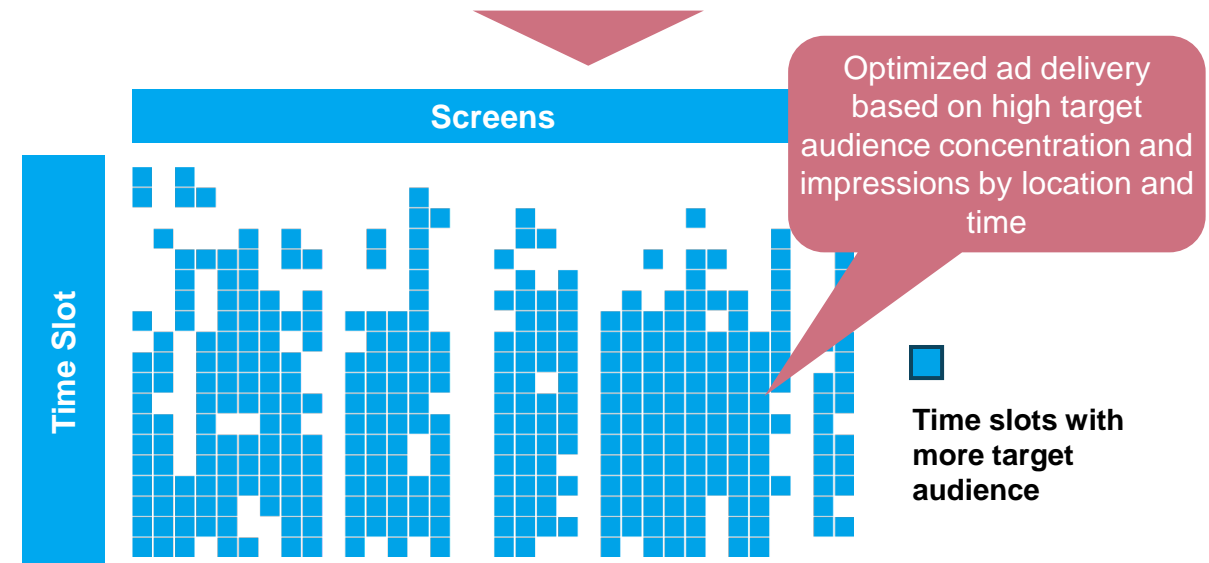
### Ad Delivery Utilizing DOCOMO's Data

Examples

**Age: 20s**
Categorized by gender and age (20 and above)

**Movie Enthusiasts**
Categorized by interests, preferences, and app data

**Screens**

**Time Slot**

Optimized ad delivery based on high target audience concentration and impressions by location and time

Time slots with more target audience

**Establishing a unified measurement standard for the OOH industry, enabling planning and performance evaluation across media channels using common metrics**

**TV** | **Digital** | **OOH**

× ×

With measurement standard | With measurement standard | Without measurement standard

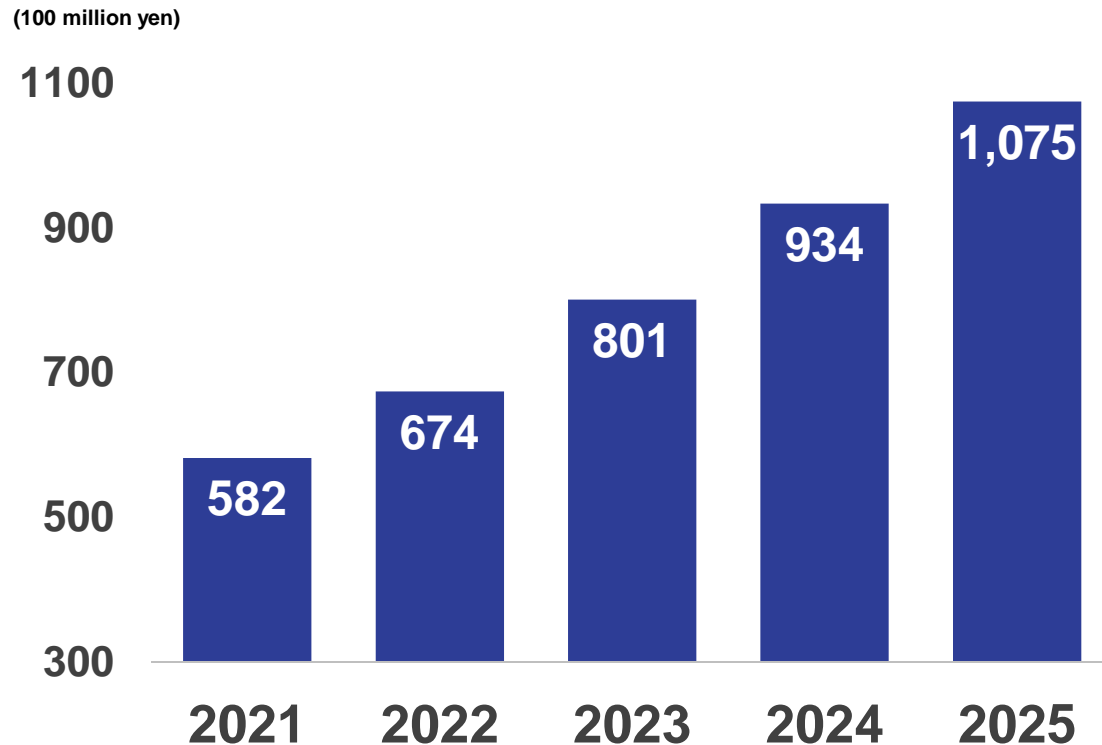To establish a measurement standards
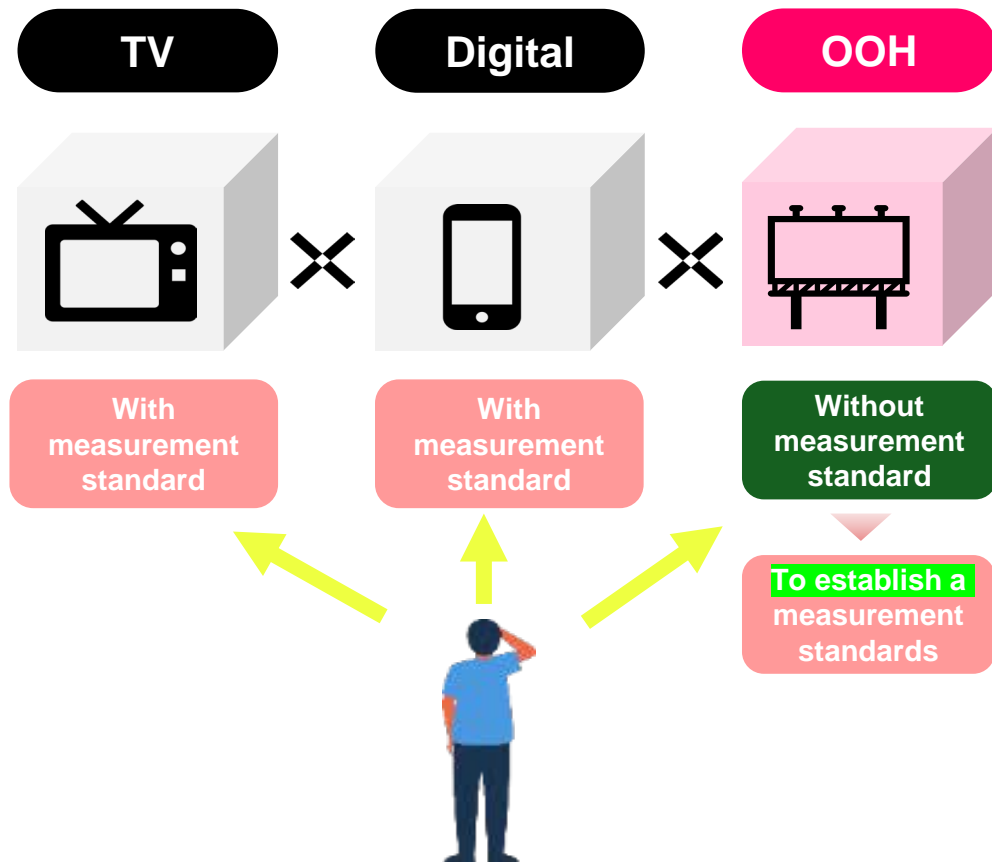
**The standardization enables:**

- **Connection with various OOH media, including retail media**

- **Establishment of OOH measurement enables integrated marketing across triple media channels (TV, Digital and OOH)**

# Digital and Programmatic Advertising Drives Japan's DOOH Market

## Growth of DOOH is driving the OOH market

### Japan's DOOH Market Trends

(100 million yen)



| Year | Value |
|------|-------|
| 2021 | 582 |
| 2022 | 674 |
| 2023 | 801 |
| 2024 | 934 |
| 2025 | 1,075 |

## Programmatic DOOH (pDOOH) enables one-stop purchasing of various OOH platforms

**Advertisers & Advertising Agencies**

↓

**Demand-Side Platform (DSP)**

**Supply Side Platform (SSP)**

↓

**LIVE BOARD Marketplace
Operating over 64,500 advertising screens nationwide**
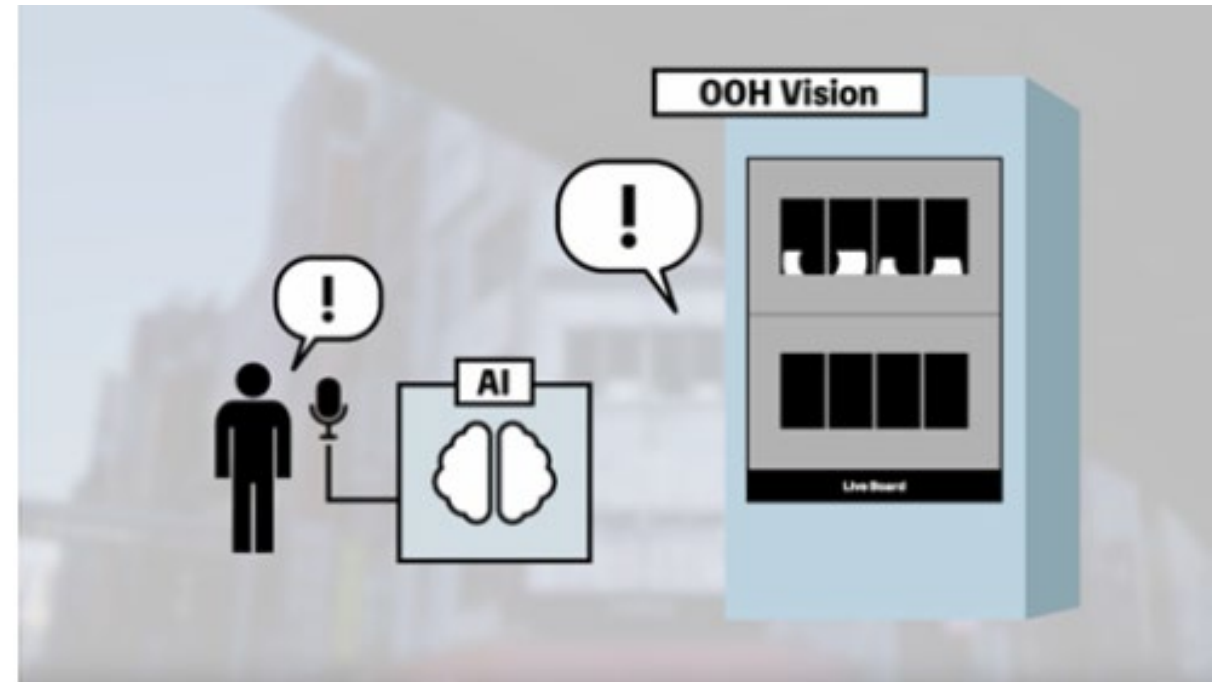
Station | Train | City

## Grand Prize winner in the Technical Innovation Category at WOO Award 2024
### "Can you conversation with the memories of the city?"



Can you conversation with the memories of the city ?
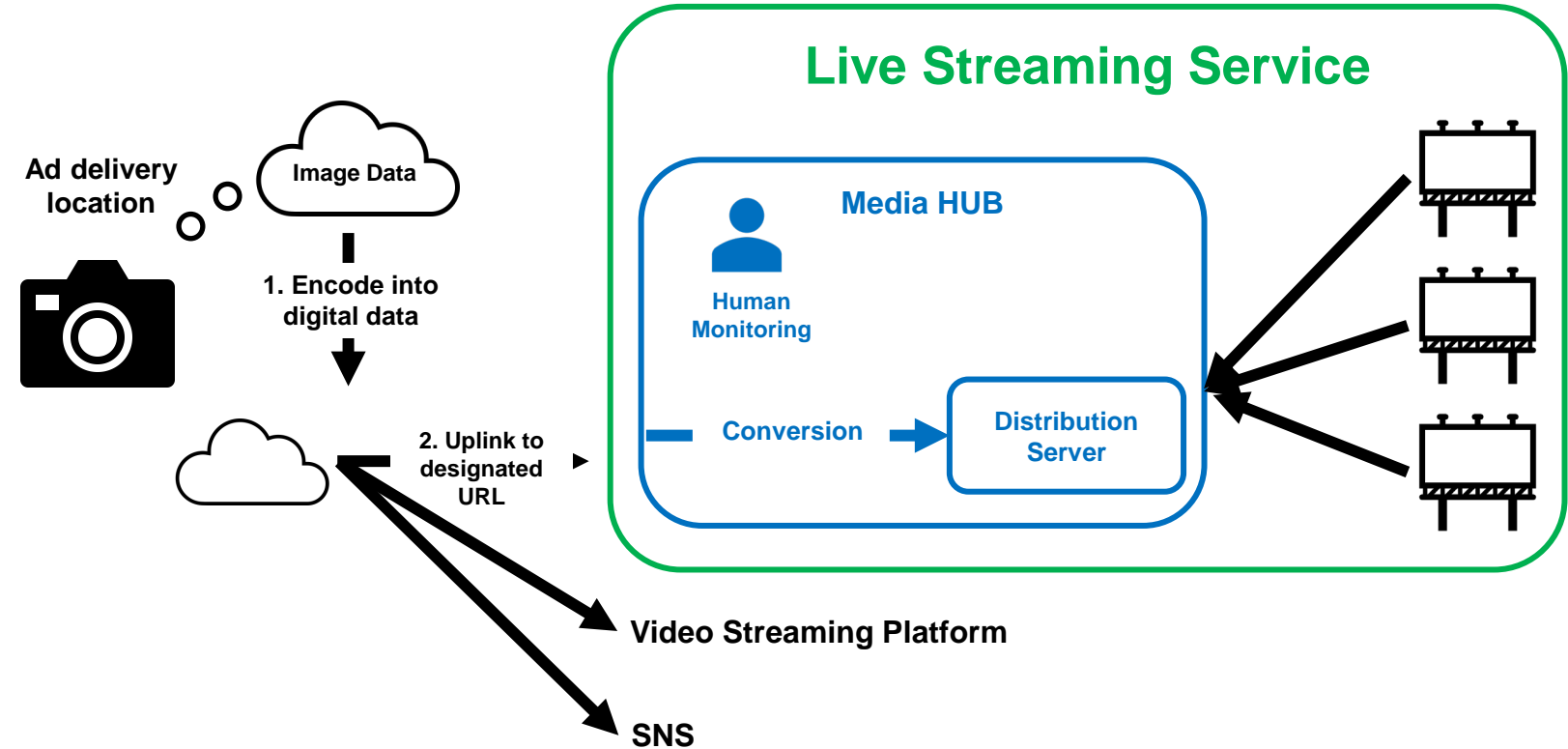by Tokyo Biennale

**Implemented through ChatGPT**

**NTT docomo**

## AI Adaptive Billboard System
Enabling Outdoor Displays to Blend Seamlessly with the Sky and Scenery in Advertisements



**Live Streaming Service**

**Media HUB**

**Human Monitoring**

**Conversion**

**Distribution Server**

Ad delivery location

Image Data

1. Encode into digital data

2. Uplink to designated URL

**Video Streaming Platform**

**SNS**

■ **Provided by LIVE BOARD, INC.**

■ **Provided by SKY Perfect JSAT Corporation**

Note: Exclusive to video streaming platforms and social media with compatible formats

# NTT DOCOMO's Data Science Capability in DOOH Business

**The core value of the Japan DOOH business lies in DOCOMO's single-ID full-funnel measurement technology.**
To enable this, DOCOMO's data science capabilities leverage location intelligence technologies using base-station positioning and GPS, along with customer insights technologies like docomo Sense.

**Japan's largest membership base**
**Approx. 100M** members

Out of approx. 125M Japanese population
(as of Jan. 2024)

**DOCOMO's Data Science Capabilities**

Location Intelligence Technologies

Customer Insights Technologies
**docomo Sense**

**Live Board**

**Impression estimation**

**Viewer's attribute estimation**

**Competitive Advantage**

New measurement approach based on impression counts

Integrated offline and online advertising reaching a scale of 100 million people

# A Large Membership Base and Diverse Behavioral Data

## By leveraging various DOCOMO services, we can capture diverse online and offline behaviors of 100 million d POINT Club members

**Japan's largest membership base**
**Approx. 100M members**

Out of approx. 125M Japanese population
(as of Jan. 2024)

### DOCOMO Network Users
**58 million**

- User contract information
- dmenu browsing service's registration data
- Various dPOINT MARKET's usage data

### Users Consented to Share Location Data — Wi-Fi Connections — Active GPS
**52 million** — **20 million** — **13.5 million**

- Location data (Feature metrics)
- Location data (Wi-Fi)
- Location Data (GPS)

### Survey Monitors
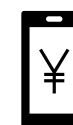**10 million**

- Survey data

### User Consented to Share Usage Logs
**16 million**

- App usage logs

### User Consented to Share Payment Information
**33 million**

- Carrier bulling data

### d POINT CLUB Members Consented to Third-party Data Provision
**68 million**

- d POINT CLUB merchant usage data
- d POINT CLUB information

# Estimating Ad Impressions Using Specific Location Data

**docomo**

Advertising impressions are estimated using **precise 500m grid demographic data** generated from mobile base stations and **accurate location data** from GPS

## Data

### Advantages

Base station data allows **precise estimation of demographic trends**

GPS data provides detailed and **accurate location information**

### Challenges

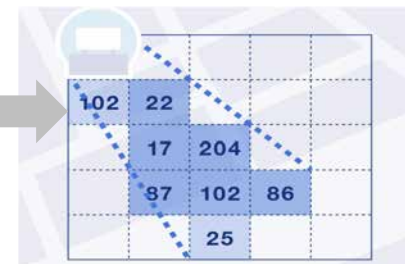Base station data has a **relatively coarse location resolution** for cell phones

Due to the limited data volume, **demographic trends** cannot be estimated.

Population Statistics

GPS

## Advertising impressions

**Accurate advertising viewership estimation**
by leveraging population statistics and GPS data

OOH advertising

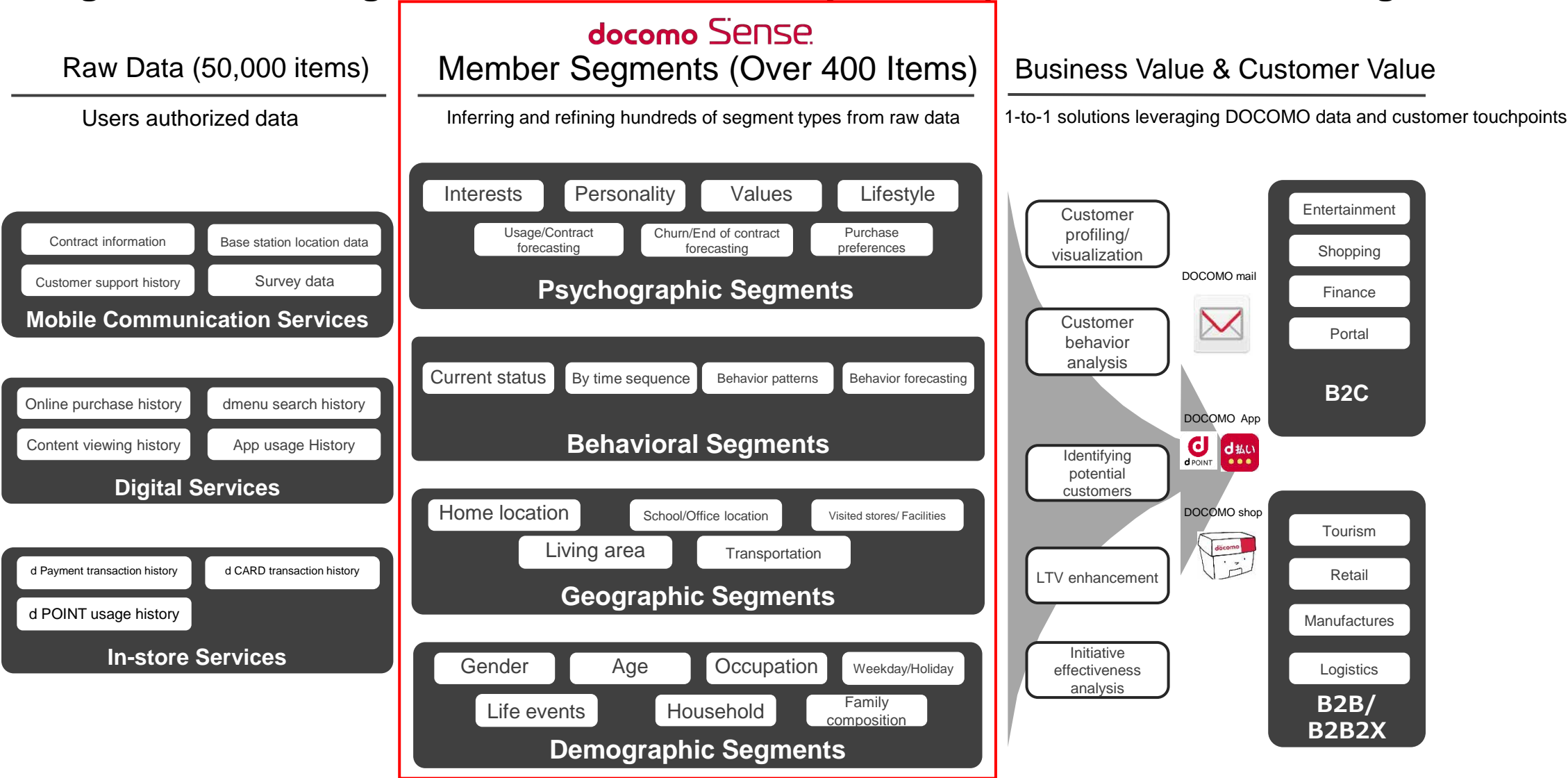| 102 | 22 | |
| 17 | 204 | |
| 87 | 102 | 86 |
| | 25 | |

Advertising visibility areas
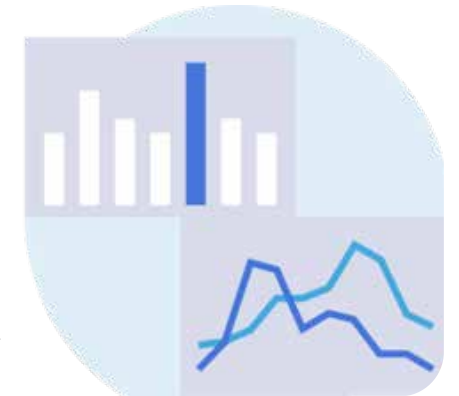
**Estimate impressions by analyzing human presence based on ad location**

# docomo Sense

## Leveraging diverse behavioral data to infer and generate highly-detailed, multifaceted segments, enabling advanced customer analysis and personalized marketing

# Global Expansion of
# NTT DOCOMO's DOOH Business

**DOCOMO, DatVietVAC and DatVietOOH to Form JV, "Vie BOARD," for Digital Out-Of-Home Business Supported with Location-based Data in Vietnam**
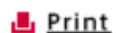Will leverage DOCOMO's advanced data-science technology for estimating DOOH advertising viewership size and attributes

# Vie BOARD

NTT **docomo**

**A DOOH advertising business in Vietnam that combines DOCOMO's data science capabilities with DOOH media—such as urban areas, station premises, and in-train screens—leveraging the relationships of DatVietVAC and DatVietOOH to develop impression-based ad delivery service.**

Demand | DOOH Platform | Supply

**DOOH Business Workflow**

Clients ▶ Advertising sales ▶ Data ▶ Advertising distribution ▶ DOOH ▶ Location ▶ General users

**Role of Vie BOARD**

**New client acquisition**

**Targeting & effectiveness measurement using data science**

**DOOH advertising distribution**

**Expansion of DOOH into urban and public Infrastructure & media digitalization**
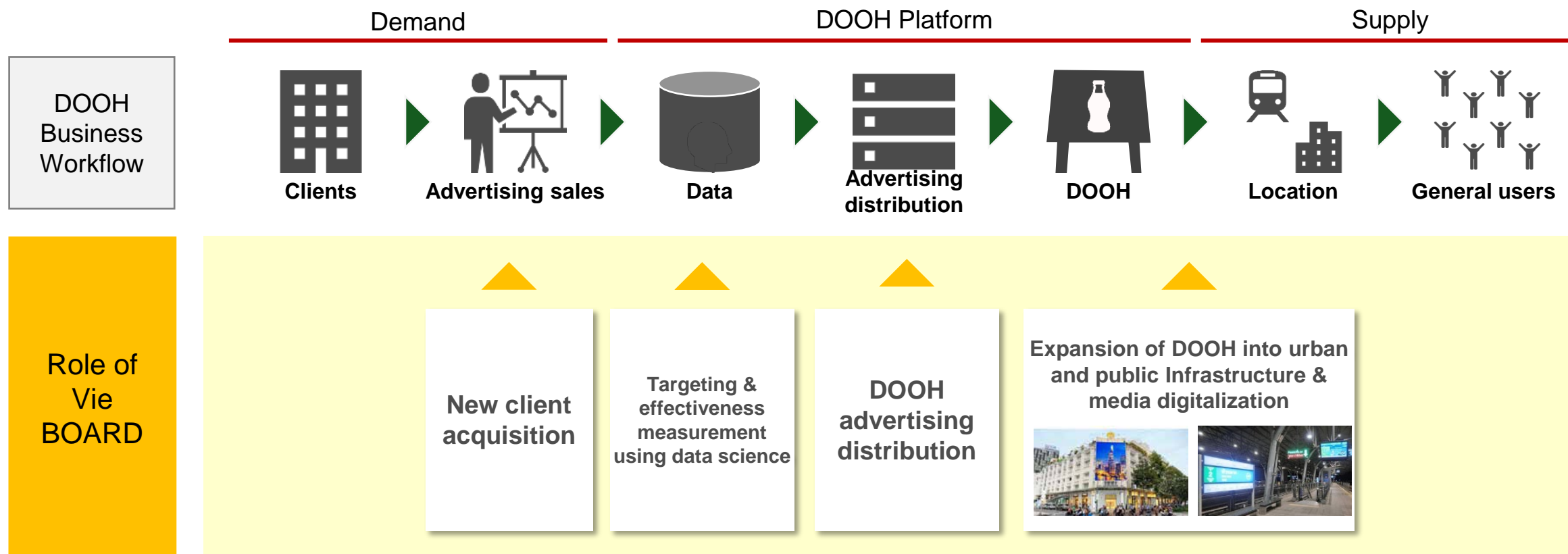
# DOCOMO's Data-Science Capabilities (1/2)

**Estimates generated by DOCOMO's data-science capabilities are more accurate than those based solely on third-party GPS data. This data is also accessible to overseas companies. DOCOMO has developed a <span style="color:red">new algorithm</span> for measuring overseas data.**

Input
Model
Output

❶Domestic DOCOMO User data

1st. step

❷Estimation model

❸Overseas third-party data

2nd. step

❹Estimation relearning model

❺ Estimated data

**User attributes**

**Identify and create new segments**

**Highly accurate scoring and ranking**
Via combined multi-media data (e.g., location, demographics)

**Increase volume within a segment**
Lebling previously unidentified users

**Number of viewers**

**Rapid deployment via leveraging Japan's estimation methods**

# DOCOMO's Data Science Capabilities (2/2)

- **Compared to estimates based only on GPS data, which are also available to overseas companies. DOCOMO's data-science technology provides more accurate estimates, minimizing errors in actual viewer count data.**

- **Accuracy improved to a level suitable for international business expansion.**



Evaluation area

Actual traffic

Data obtained via the **new algorithm** developed by DOCOMO's data science

Data obtained using only GPS
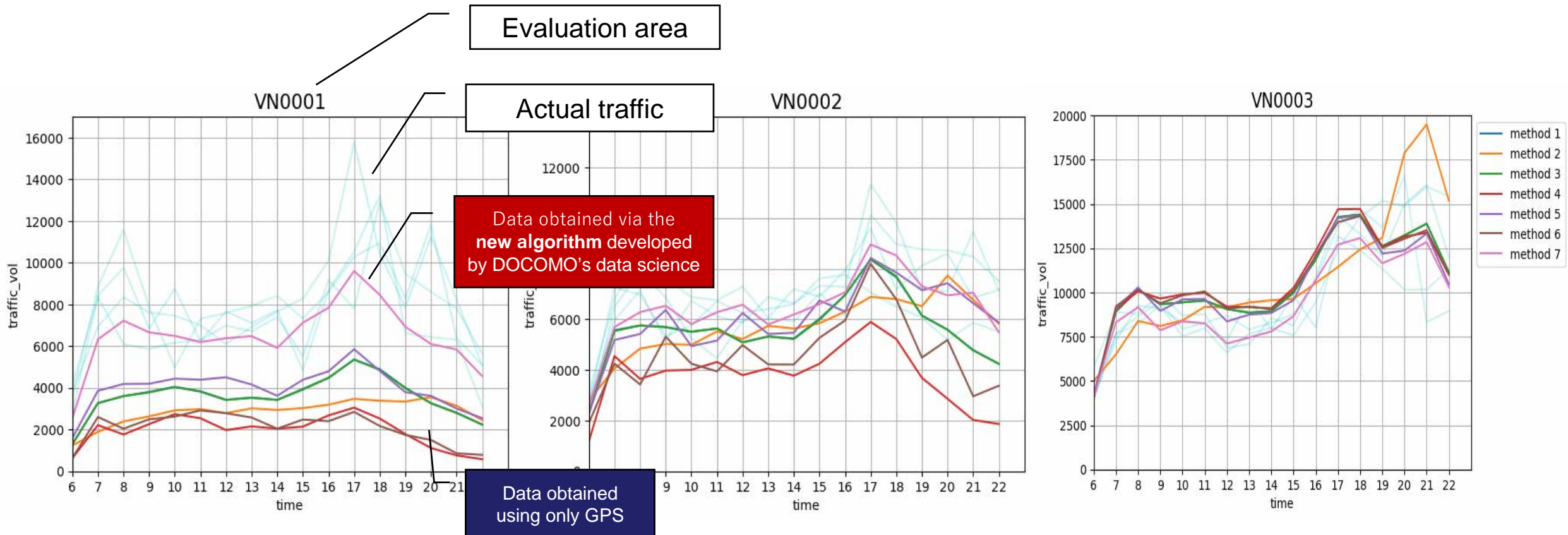
# AI-powered healthcare service

# Our Approach to Healthcare AI Services

**NTT docomo**

DOCOMO developed AI engines **that analyze daily smartphone usage to assess health conditions and predict disease risk.**

**NTT DOCOMO**

**(15M Downloads)**

**HealthTech platform**

**Frailty estimation AI**

**Blood-pressure-raising habits estimation AI**

**Immunity estimation AI**

**Brain health check AI**

Healthcare Service with Various AIs

Smartphone Log / Service usage fees

**Users**

Various AIs

Platform usage fees

**Business Partners**

Local government **(120+)**

Finance

Pharma

Insurance

medical care

Services/ Products

Smartphone Log

# AI Application in Healthcare: Frailty Risk Assessment AI

Frailty risk assessment AI has been commercialized through its integration into "Kenko Mileage," a health promotion service (app) adopted by over 120 municipalities in Japan.

Automatically collects data on daily activity levels and social interactions.

Smartphone usage logs

Step count & sleep patterns

Location information

User-consented data

健康マイレージ
KENKO MILEAGE

**Data Processing**

## HealthTech Platform

**Frailty risk estimation AI**

Utilizes the responses of Japan's Ministry of Health, Labor, and Welfare's frailty checklist as training data for accurate predictions.

✓ **Feature generation**
✓ **Frailty risk prediction**
✓ **Risk factors estimation**

**Evaluation result**

**Frailty risk result**

**Personalized risk reduction advice**

If a municipality with a population of 100,000 adopts the platform, the projected health benefits could reduce annual long-term care costs by approximately 470 million JPY.

Users receive specific improvement goals based on clear, actionable behavioral indicators.

Note:
Frailty is a condition characterized by weakness and a decline in health and strength, resulting from age-related deterioration in physical and psychological systems.
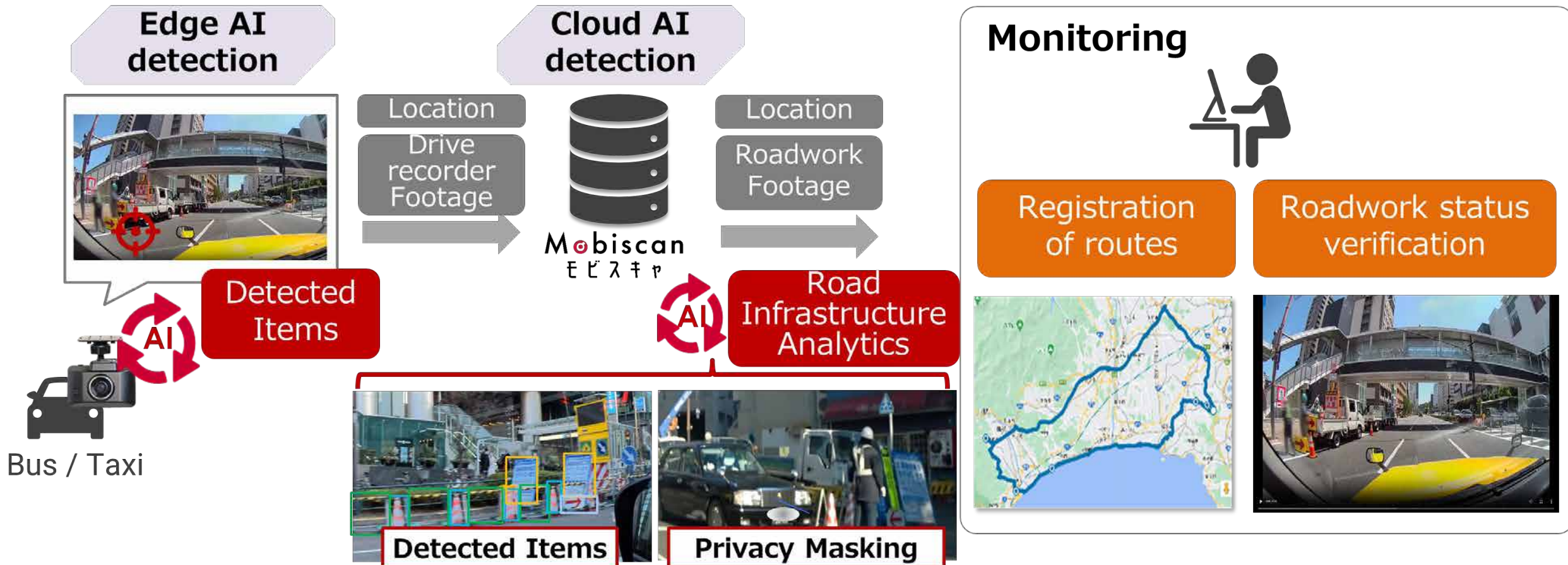
# AI-driven roadwork detection solutions

Mobiscan is a distributed video management platform service for efficiently storing video data in urban areas. It enables to collect and use of video data required by DP.
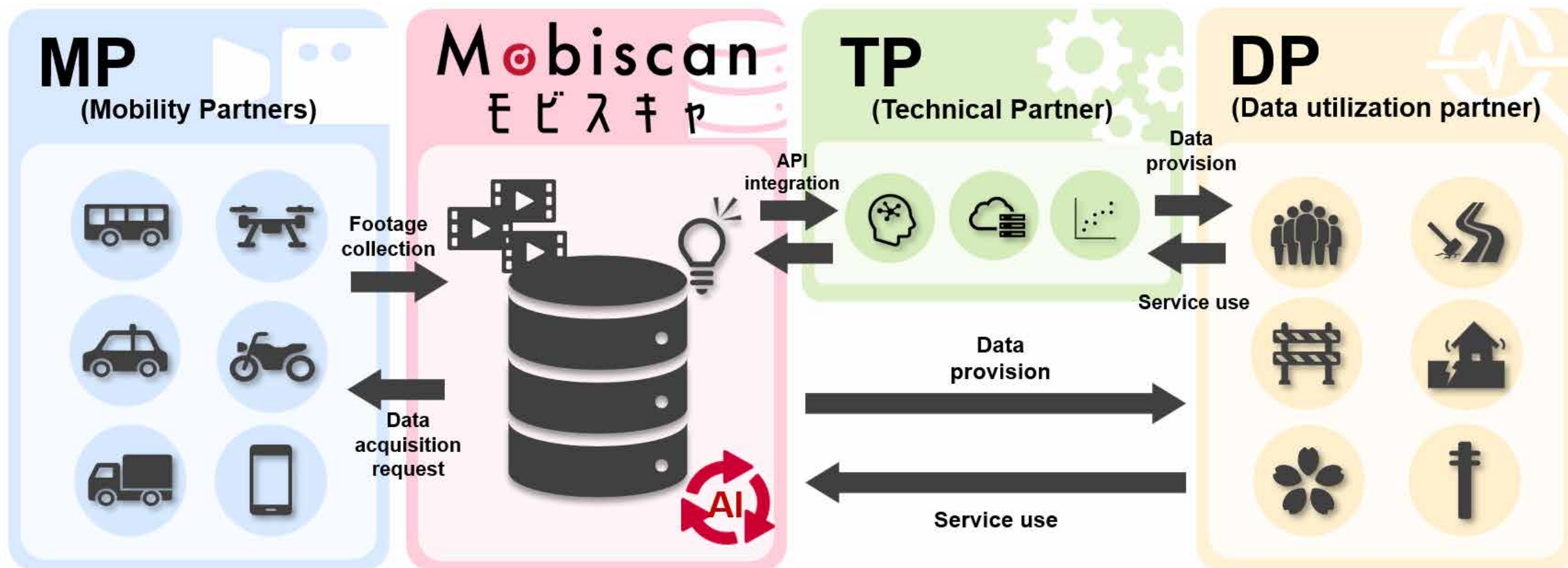
# AI Roadwork Detection Solution

docomo

- This solution combines edge AI detection in the drive recorder with cloud AI detection to analyze video footage efficiently and effectively.
- Addresses workforce shortages and reduces vehicle maintenance costs by replacing manual patrols.