

# FUJISAWA



## Bringing energy to life.

Sustainable Smart Town Debrief – Urban System

11/2024

# **Agenda:**

# **Smart City Futures**

Japan's Aging Population  
↓  
Fujisawa SST & Panasonic  
↓  
New Data Infrastructure  
↓  
Future of Global Smart Cities

# Japan's Aging Population

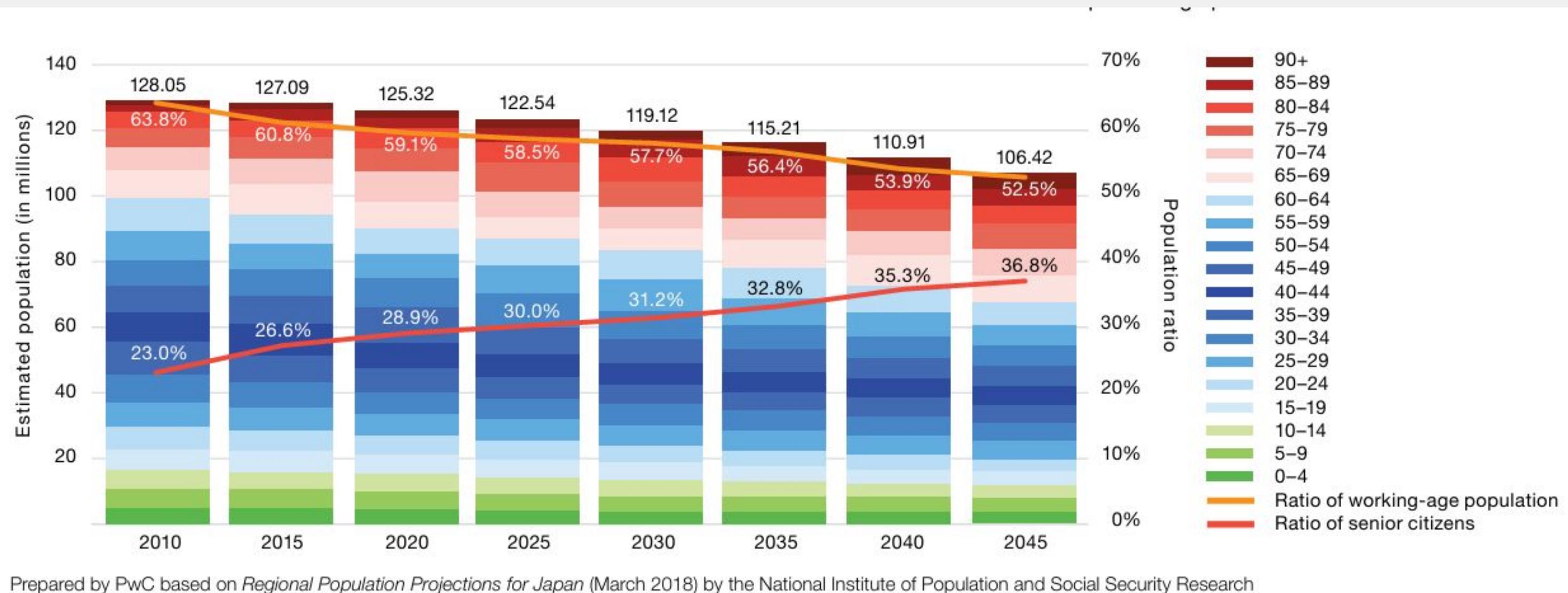
# Social Impact

Is "super-aged" society is the oldest in the world: 28.7 % of the population are 65 or older

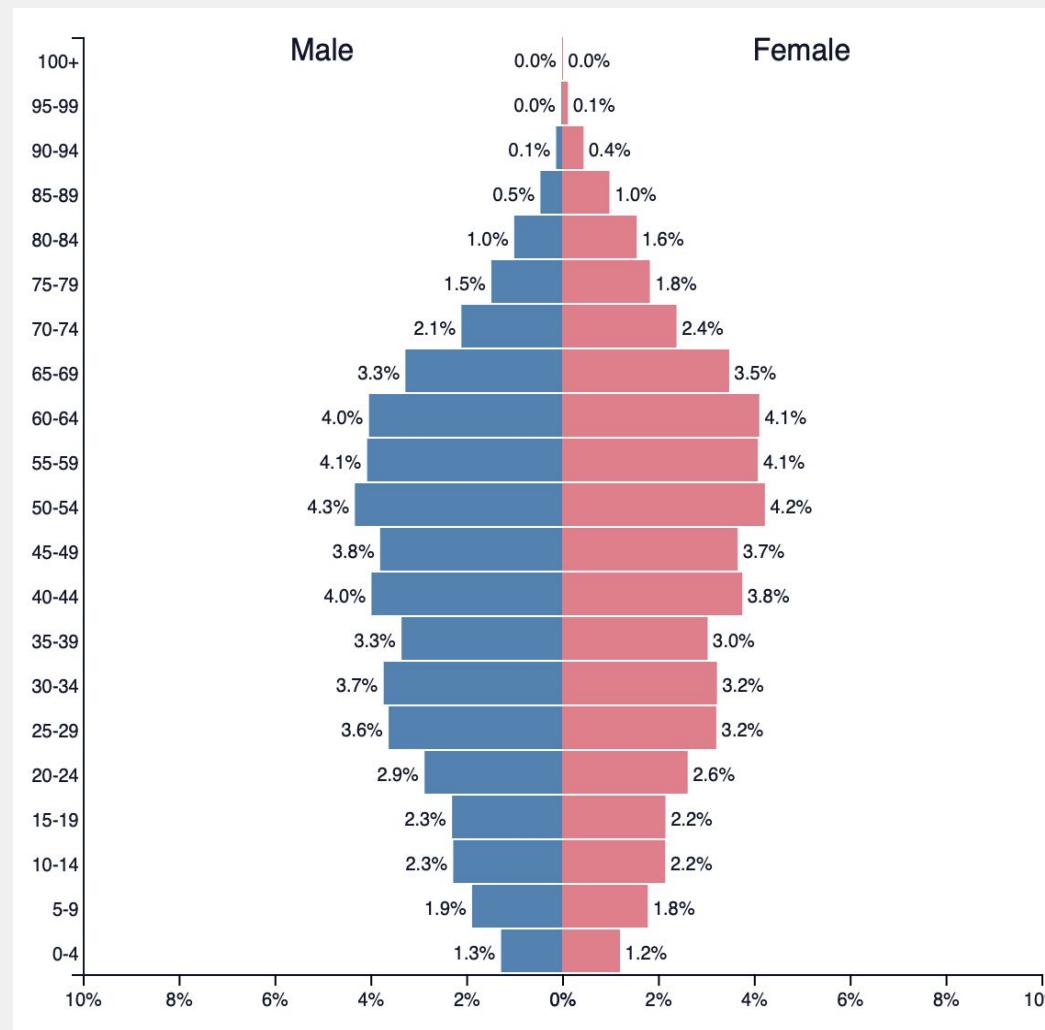
In 2025 people age 75 and over become the largest demographic

Fertility rate of 1.4 and Tokyo now below birth rate of <1

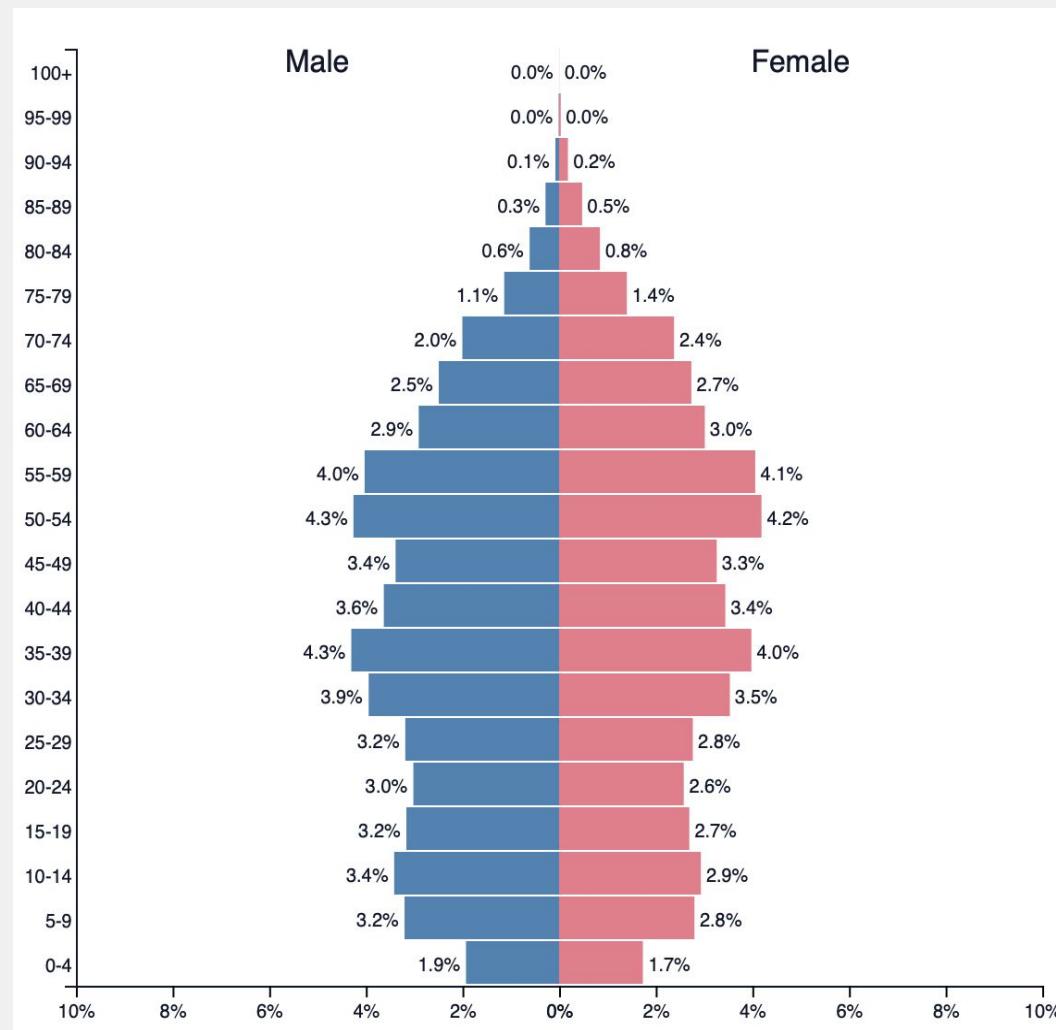
- replacement fertility rate is 2.1



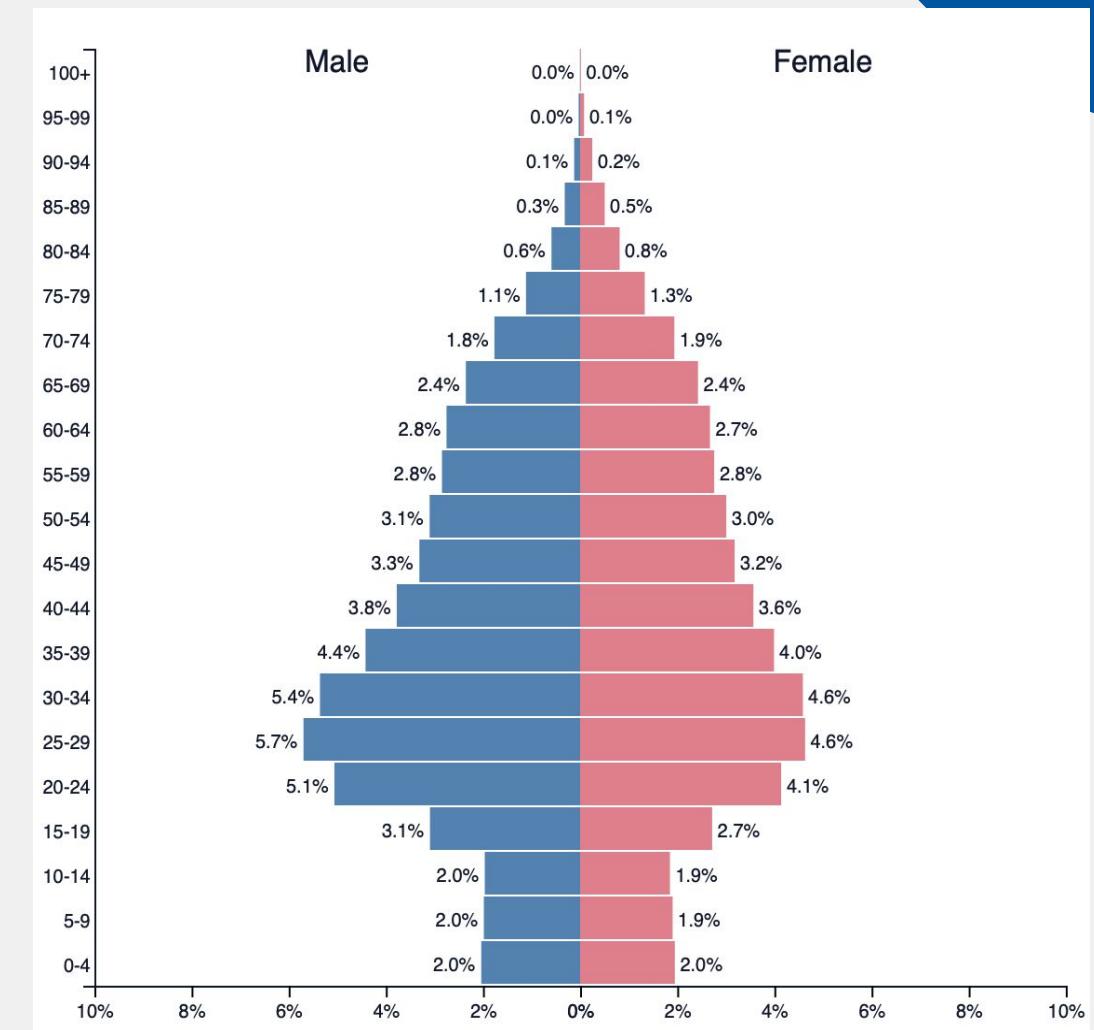
# Japan is not the only aging society



South Korea  
fertility rate: 1.12



China  
fertility rate: 1.55



Singapore  
fertility rate: 1.17

Japan is not the only aging society



# Recap Fujisawa SST

- Joint project between Panasonic and Government
- 100-year vision for the new 100 year lifespan
- Holistic smart city for community and lifestyle with community energy system, autonomous delivery, rideshare EV cars and bikes, ICT health tracking, and security
- Prioritize assisting the elderly and creating a community involving residents of all ages



Sources: [CNBC Interview with Panasonic Lead](#), [Fujisawa West](#)

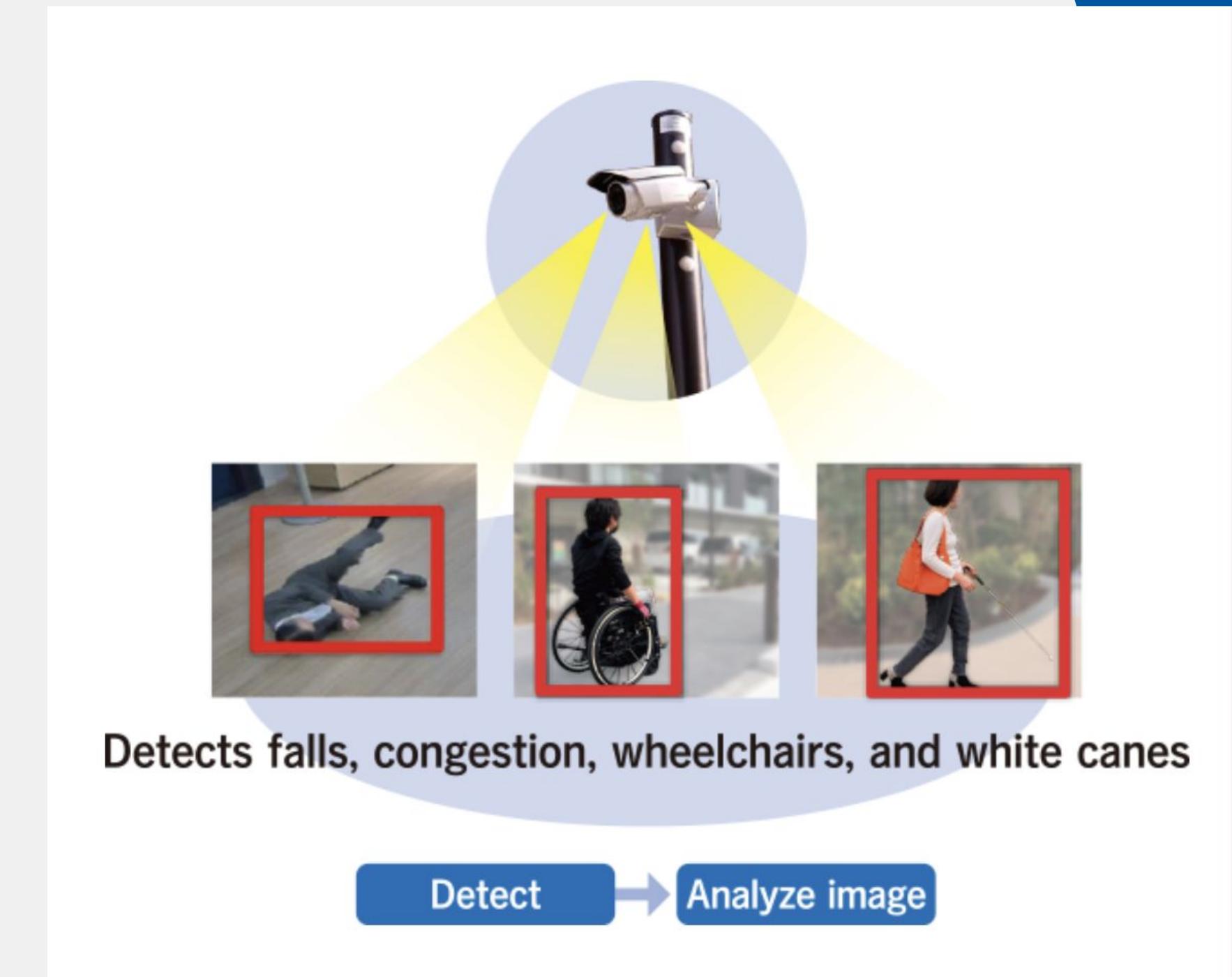
# Fujisawa's Smart Systems

- **Energy:** Self-creation & self-consumption through
  - solar panels, passive breeze ways, and centralized energy management system
- **Community:** human-centered governance
  - committee hosts events and clubs
- **Mobility:** Total Mobility Service Center caters to all of the resident's transportation needs
  - 24/7 rentable EVs and bikes, personal mobility concierge, battery charging and exchange stations, car inspections
- **Security:** virtual gated town
  - security "concierges" patrol city, network of security cameras, residents access to all feeds
- **Wellness:** make connections and prioritize elderly healthcare
  - Wellness Square with medical facilities, nursery and after-school daycare centers, and shared community spaces



# Panasonic SST Suita

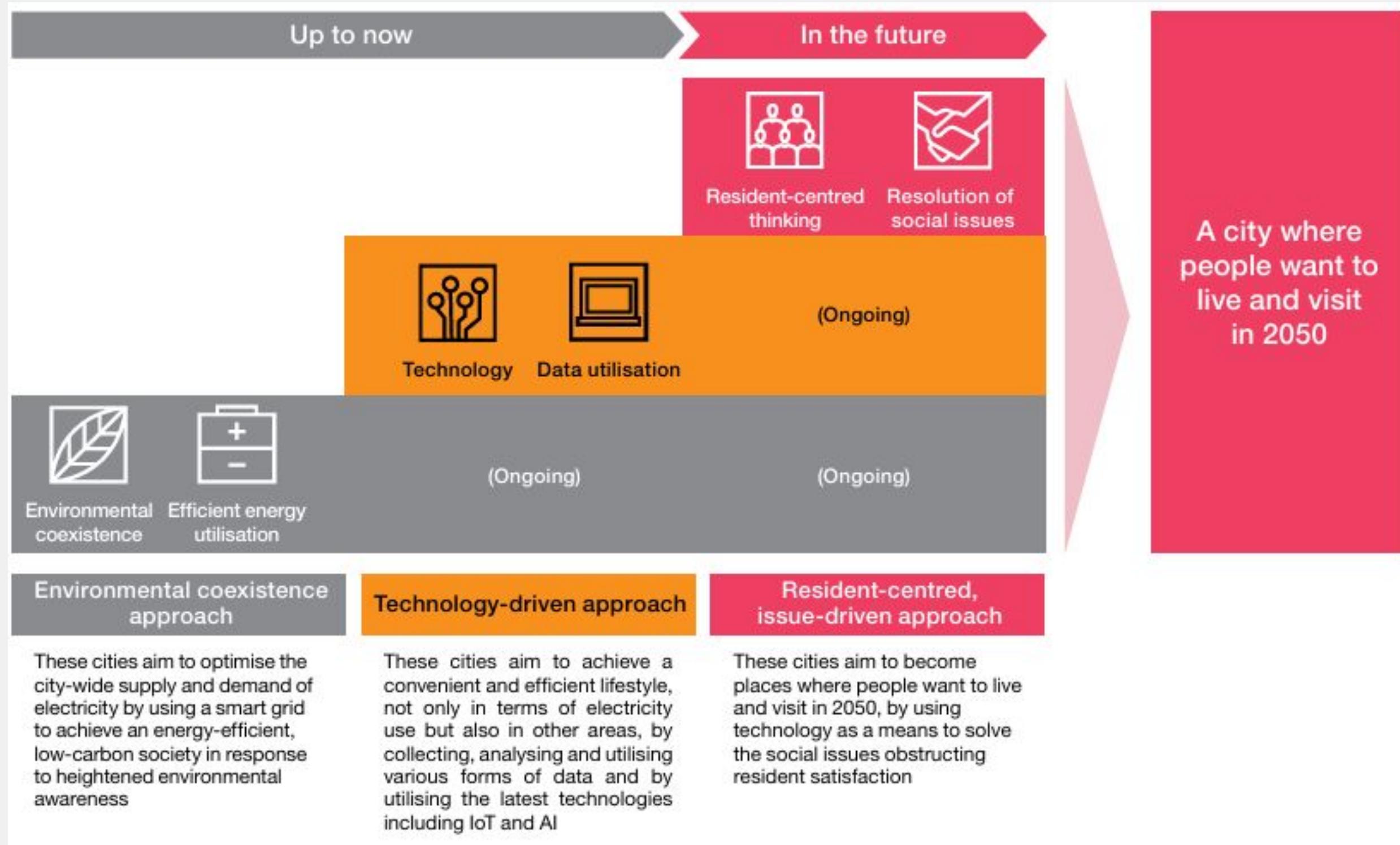
- **New solidified guiding principle of elderly care**
  - Serviced housing for the elderly
  - Group home for those with dementia
  - At-home care services
- Integration of AI with data monitoring
  - Now framed in the context of Covid-19 Pandemic
    - Monitor congestion and assess **compliance with mask wearing**
  - **AI detection for elderly fall** and lost/disoriented elderly
  - AI-enabled sensors embedded in residents' home appliances will **detect unusual patterns of usage**, which may provide an **indication of cognitive decline** or the onset of **dementia** among elderly residents



# New tech in SMART cities

# Evolution of Smart Cities

Reference: smart cities in 2050: rebuilding the future of Japanese cities -PwC

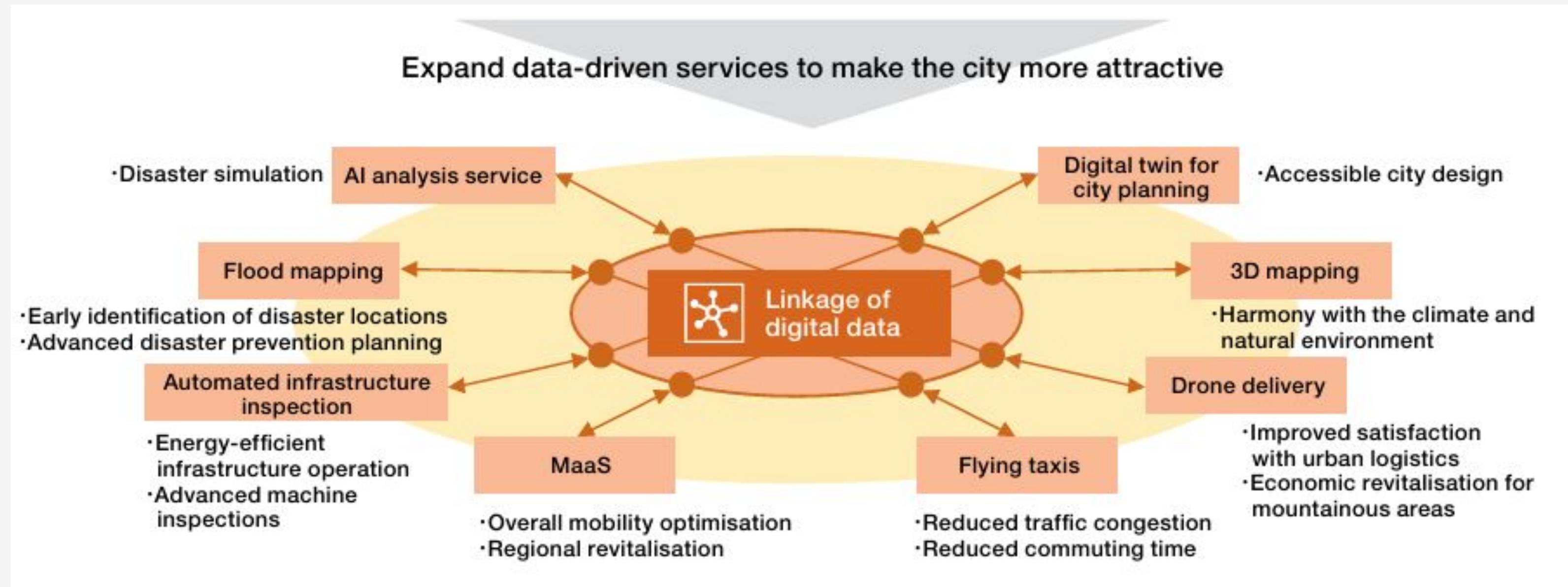


# Key Technological Factors

Reference: smart cities in 2050: rebuilding the future of Japanese cities -PwC

Key technological factors	Value provided
<b>Real-time understanding of the current situation</b>	Devices such as camera and IoT sensors can be used to digitally capture real time information on city space to enable an accurate understanding.
<b>Enhanced security</b>	The monitoring of physical and digital spaces make it possible to prevent and mitigate various security risks in the city.
<b>Multi-dimensional control and sophisticated and quick decision making</b>	Digital data enables sophisticated processing and multi-dimensional use of physical space, leading to the effective use of city space.
<b>Highly accurate simulations and projections</b>	Faster computation makes it possible to use real time sensor data in ways that were not possible before and to use multi-dimensional space modelling to improve the accuracy of projections.
<b>Maximising the value of data</b>	The integrated management of all data necessary for maintaining and improving the city will lead to the establishment of a framework that generates more value than the data alone.

# Digital Infrastructure- Data Platform



## Key Trends:

Domestic providers like NTT and Fujitsu excel in offering localized support and compliance with Japan's strict data protection regulations.

Global providers like AWS, Azure, and GCP dominate due to their vast service portfolios, scalability, and innovation.

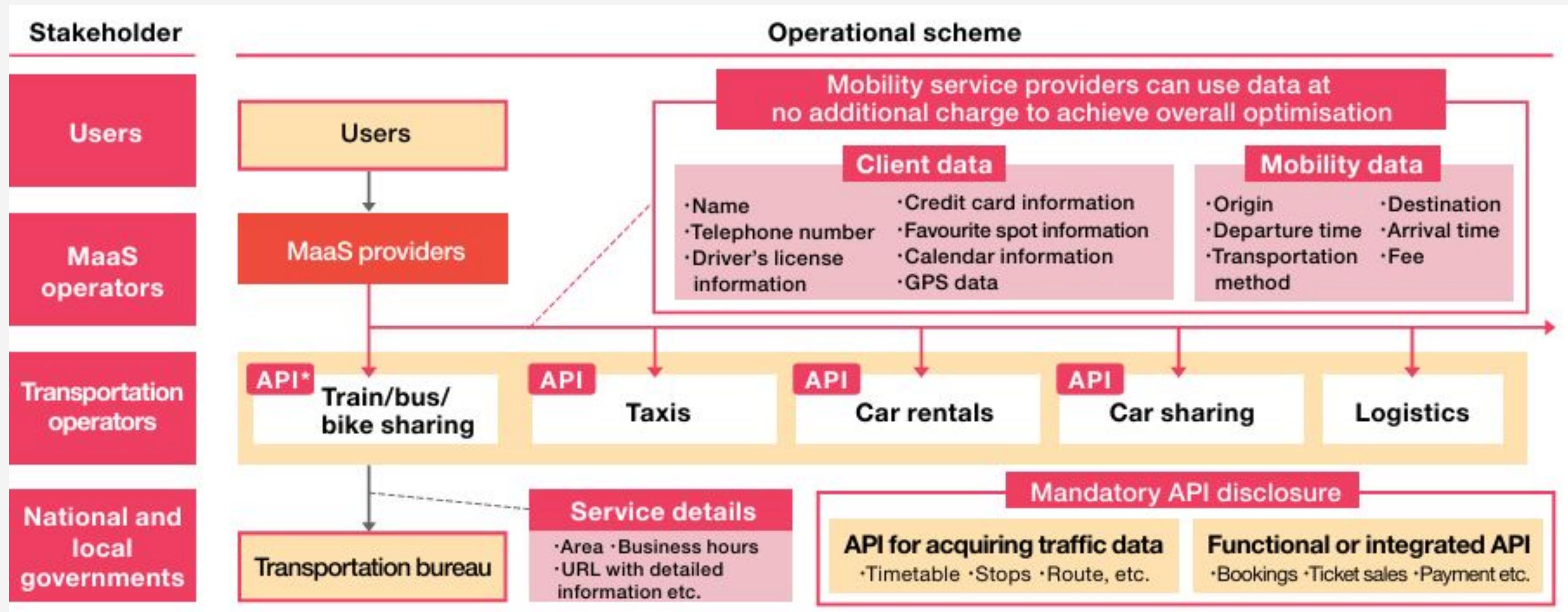
# Future Trends for Urban Data Management

1. **Edge computing:** IoT devices, real-time data processing, eg. AWS IoT Greengrass, for efficient energy management and autonomous
2. **Advanced analytics:** machine learning/artificial intelligence derive deeper insights from data. eg. predictive maintenance, anomaly detection, and demand forecasting
3. **Integration with renewable energy sources:** enhanced capabilities for integrating and optimizing renewable energy generation for higher levels of sustainability and reduce their reliance on fossil fuels.
4. **Blockchain integration:** The integration of blockchain technology with energy. Secure and transparent peer-to-peer energy trading, allowing businesses and individuals to buy and sell energy directly, bypassing traditional intermediaries.

Reference:

<https://medium.com/codex/aws-for-energy-innovating-the-future-of-energy-management-380b33097acf>

# Future Trends for Urban Data Management



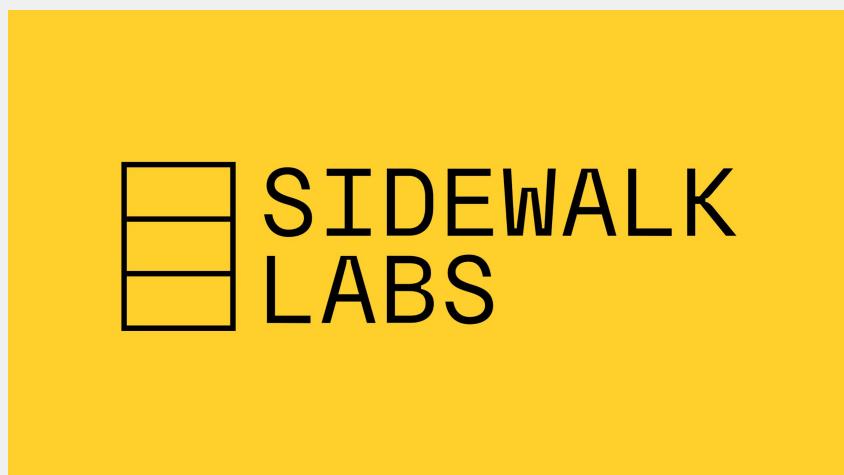
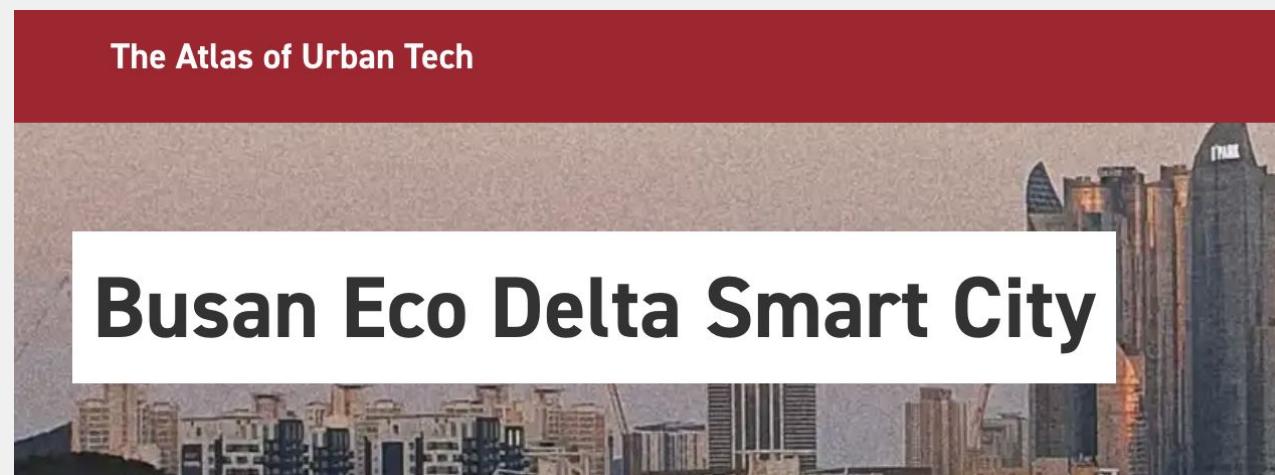
Source : PwC Japan, conditions for winning at the next-generation mobility



# **What will the Global future of SMART cities look like?**

# Global Race to Smart Cities

USTDA, Indonesia to Pilot Smart City Solutions for Nusantara



Solutions for a Better Future / Feature Story

Products & Solutions

**Panasonic Supporting Wellness and Healthy Living in China**



# Diverging Visions in East vs West

# Toyota Woven City

- Serving as an AI laboratory for drones, robots, autonomous vehicles, etc.



Japanese car maker Toyota is building an entire city founded on Artificial Intelligence that scientists will use as an AI laboratory. The ambitious project will enable testing on a city scale of all future technologies : robots, drones, self-driving cars and ecological housing.

# Toyota Woven City

- Core themes of co-creation and focus on inventor community



## Woven Test Course

An environment resembling a real-life city where people who share a common desire to make a positive difference in the world, live together to co-create new ideas.



## Woven Inventor Garage

A support network that provides an environment that nurtures invention and accelerates development.

# Busan Eco Delta Smart City

- Holistic Approach for single-unit and families (Education, Health, etc.)
- Augmented-Reality City Platform for robot development and applications
- **Data Monitoring** for diet, exercise, sleep habits, etc.



A smart mirror is just one of the devices tucked into Song-Lee Lee's new home in Busan's Eco Delta Smart Village that is collecting data on her and her family. Here, she is using the mirror to track her fitness. Tim Franco for The New York Times

The New York Times

CITIES FOR TOMORROW

## A New City, Built Upon Data, Takes Shape in South Korea

Fifty-four families volunteered to share data on everything from sleeping habits to trash volume to help developers make a city from scratch in Busan.

For Ms. Lee and her family, it is exciting to be part of the test program, and particularly to experience the unexpected charms of their home.

"At 7 a.m. the light in my bedroom automatically comes on, and a speaker says, 'Hi, Song-Lee, good morning. Please stretch your body,'" she said. "And a few weeks ago, we burned something in the kitchen, and the air filter system just removed it immediately. The system sensed that something was wrong and dealt with it. It's a thinking house."

# Failure of Sidewalk Labs

- Proposed “urban data trust”
  - Non-profit trust to manage urban spaces (and data collection use) similar to land conservation trust
  - Faced massive backlash on data privacy and was cancelled
  - Critique of current data collection being transactional vs Sidewalk Labs collects through daily existence

## Alphabet's plans to track people in its 'smart city' ring alarm bells



By Matt McFarland, CNN Business

But it's not just about the data that will be collected about any given visitor on day one. It's the risks we don't even know about yet, the ones that may accrue over time as data collection broadens and gets more powerful. Innovations such as self-driving cars and drones will create new ways to collect data. Businesses, including Sidewalk Labs and others, will want even more data, and it's difficult to predict what all of the new, data-collecting innovations will be.

CNN Business News Article with Negative portrayal in media

Sources: CNN Business, Anna Artyushina, “Is civic data governance the key to democratic smart cities? The role of the urban data trust in Sidewalk Toronto”, Telematics and Informatics, Volume 55, 2020, 101456, ISSN 0736-5853, <https://doi.org/10.1016/j.tele.2020.101456>.

# Denver Pena Station NEXT

- Denver government's plan to expand itself as an international airport
- Mobility and infrastructure focused
  - Modeled off of success of Fujisawa
  - Limited media attention



**Panasonic is building a 'smart city' in Colorado with high-tech highways, autonomous vehicles, and free WiFi**

Leanna Garfield Jan 12, 2018, 11:00 AM EST

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A rendering of Panasonic's smart city infrastructure outside Denver, Colorado. Panasonic

- The electronics company Panasonic is building "smart city" infrastructure in a remote area near the Denver airport.
- The project, called CityNow, is laying the groundwork for high-tech highways and autonomous vehicles in the city, according to the mayor's office.

# Future Living Berlin

- Panasonic's first smart city initiative in Europe
- Energy efficiency and carbon-free living focused
- Serving 90 families



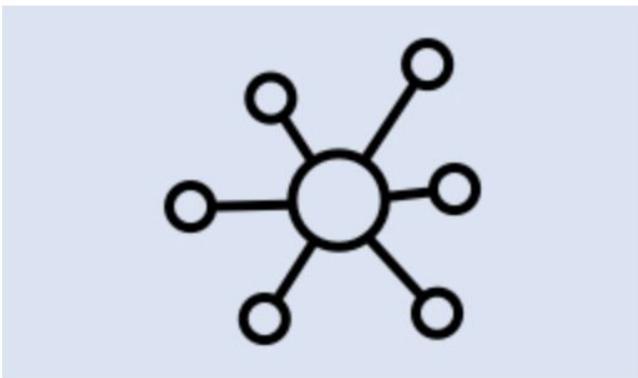
## Sustainable Green Energy

90% of locally produced clean energy utilized by the city quarter by roof-top photovoltaic panels.



## CO2-Reduced Heating

Space heating and domestic hot water has been optimized to operate almost CO2-free.



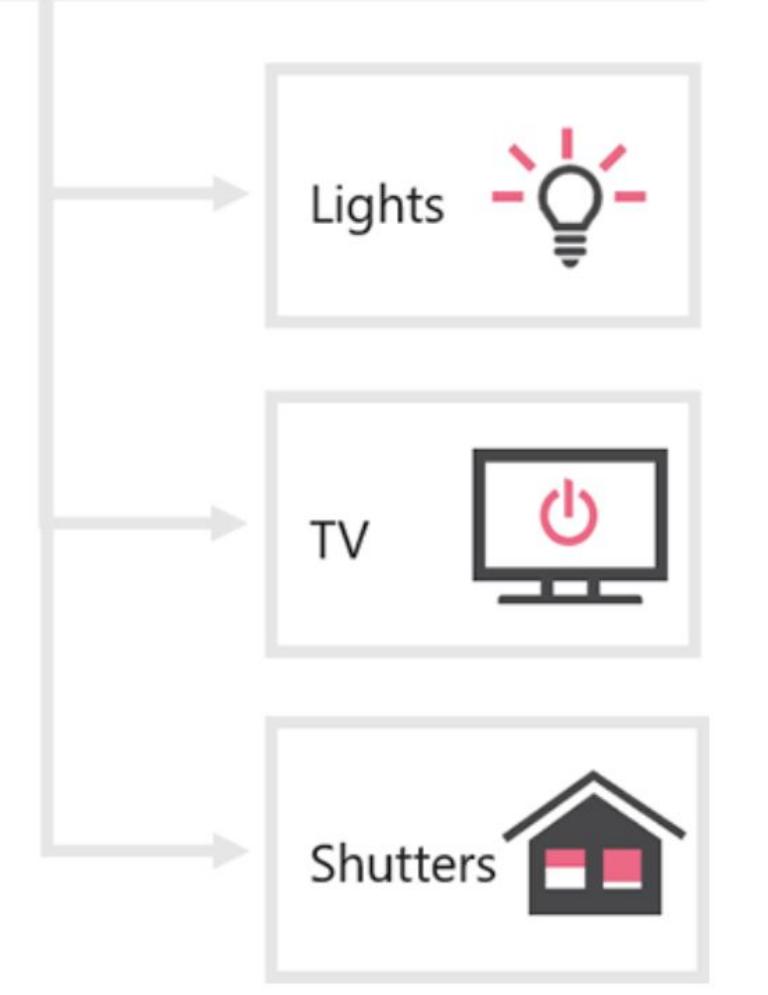
## Smart Home Connectivity

Using voice control or "apartment manager" software, in-home automation can be achieved.

## Powerline-based communication



Smart Speaker



# Europe, North

## East Asia

- Holistic vision of AI integration from data tracking
- Community co-creation
- Building from the ground up

## America

- Infrastructure focused with minimal citizen tracking
- Integrating into existing cities

- Mobility as the future
- Climate
- Energy

# Nusantara, Indonesia: Tool of Geopolitics?

- Jakarta is fastest sinking, and one of the most congested cities in the world
- **US Trade and Development Agency sponsored** development of Nusantara as new capital city
- **Contributions from Big Tech companies**
  - Feels hypocritical given Sidewalk Labs



## USTDA, Indonesia to Pilot Smart City Solutions for Nusantara

USTDA's grant will co-fund the command center pilot along with contributions from U.S. technology companies, including Autodesk, Inc. (San Francisco, CA), Amazon Web Services, Inc. (Seattle, WA), Cisco Systems, Inc. (San Jose, CA), Environmental Systems Research Institute, Inc. (Redlands, CA), Honeywell International, Inc. (Charlotte, NC), International Business Machines Corporation (Armonk, NY), Motorola Solutions, Inc. (Chicago, IL). U.S. technical advisory firm Meta Mind Global Corporation LLC (Dover, DE) will serve as prime contractor to coordinate OIKN's pilot project.

# Busan Eco Delta Smart City

“It’s not going to be soon, but in the future, we plan to have a **standard model of a smart city** and **export that to the world**,’ said Lee Jae Min, deputy director of the smart city project with the Ministry of Land, Industry and Transport.

# Global Arms Race to SMART cities?

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