

# For Mobility Required to Meet the Diverse Needs of the City

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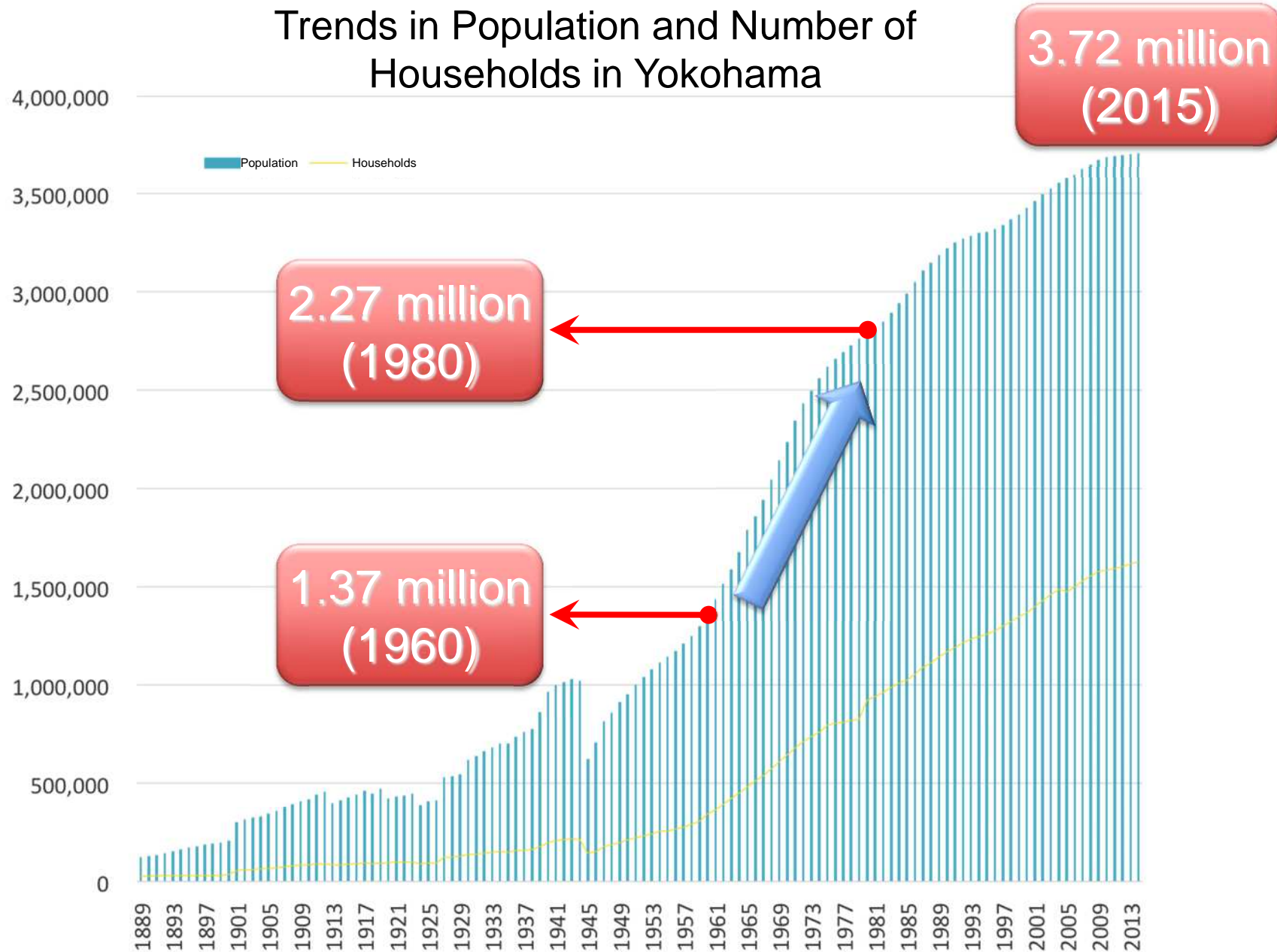


Nobuhiko Nomura, Director-General, Climate Change  
Policy Headquarters, City of Yokohama

# History of Urban Planning in Yokohama



## Trends in Population and Number of Households in Yokohama



# History of Urban Planning in Yokohama

## Rapid-growth period



# History of Urban Planning in Yokohama



## 6 Major Projects (Initiative Announced in 1965)



## 1. Popularization and promotion of next-generation transport (EV, FCV, PHV)

## 2. Sharing

- Basic thinking
- Specific examples

Choi-Mobi Yokohama, smaco, baybike

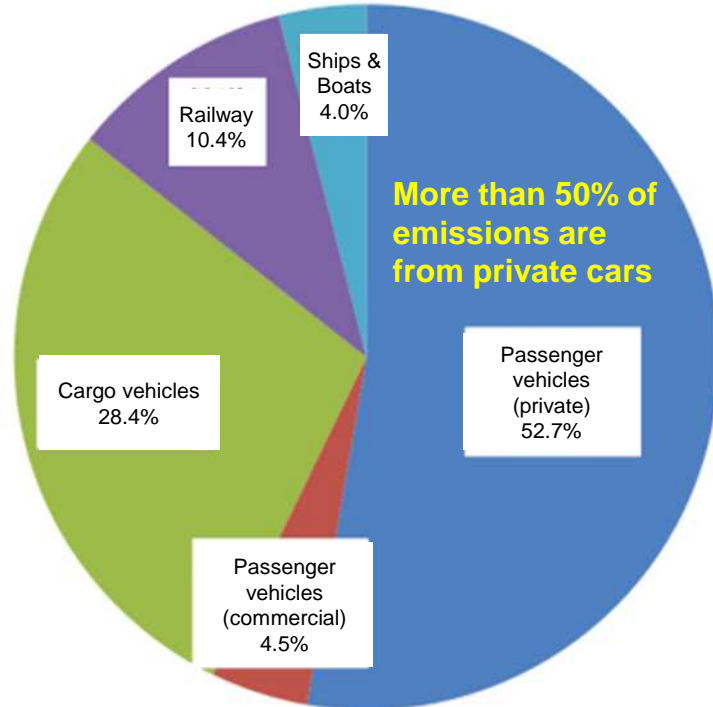
## 3. Revitalization of city center

- Minato Mirai 2050 Project

# 1. Popularization and Promotion of Next-Generation Transport



## Transport sector's carbon emissions (FY2014)



## Yokohama Climate Change Action Plan (Mar 2014)

### ○ Policy for transport sector initiatives

In a breakdown of emissions from vehicles, private passenger vehicles have the highest emissions, accounting for **52% of the whole transport sector's emissions.**

To reduce emissions, the promotion of initiatives to popularize clean energy/low fuel consumption/low-emissions vehicles is needed **on the vehicle level.**

We also need to **re-think our lifestyle that is overly dependent on private cars**, and promote a change to mobility focused on walking, cycling and public transport.

## Yokohama Four-Year Plan 2014-2017

### Policy 33

Promotion of energy policies and low-carbon community building worthy of a FutureCity

3

Popularization and promotion of low-carbon next-generation transport

Bureaus

Environmental Planning Bureau, Urban Development Bureau, Climate Change Policy Headquarters

We will strive for the popularization of next-generation vehicles such as fuel cell vehicles, moving toward the use of hydrogen, etc. We will promote initiatives such as large-scale sharing schemes using ultra-compact mobility vehicles, etc., and community cycle schemes in urban areas.

# 1. Popularization and Promotion of Next-Generation Transport

- Popularization of EVs and FCVs (fuel-cell vehicles) that have no CO2 emissions while moving
- Choice of vehicles with good fuel performance
  - e.g. Fuel efficiency improvement through combination of turbo and small engine
  - Clean diesel that has both environmental performance and fuel efficiency performance
  - Plug-in hybrid and hybrid vehicles that have achieved major fuel efficiency improvements
  - (If fuel efficiency doubles, CO2 emissions will be halved for the same distance traveled.)



## Development of hydrogen stations

- (1) Asahi Ward (Opened Feb 2015)
  - Installed after completion of demonstration trial, in first step towards commercialization
- (2) Izumi Ward (Opened Feb 2015)
  - Hydrogen station added to existing gas station
- (3) Minami Ward (Opened Mar 2016)
  - Existing gas station converted to hydrogen station
- (4) Kohoku Ward (to open in 2017)
  - Fixed hydrogen station to be built in Sustainable Smart Town precinct
- (5) Naka Ward (opened Nov 2015)
  - Mobile hydrogen station using city-owned land
- (6) Tsuzuki Ward (opened Feb 2016)
  - Mobile hydrogen station installed in large-scale commercial complex (IKEA Kohoku Store)



Hydrogen Production and Shipping Center (Naka Ward) Supplies hydrogen to stations in Yokohama and beyond

## 2. Sharing – Basic Thinking –

### Consider lifestyle first

- Move away from lifestyle that is overly dependent on private cars
- Travel focused on walking, cycling, and public transport such as bus and train
- **Move away from a car-owning lifestyle to car sharing**

Own



Share

- Possible to achieve definite reduction in distance traveled and in CO2 emissions.
- Can be expected to have benefits not only for the environment, but also for health and finances.

(Basic infrastructure development needed, wide-ranging measures for the mobility-disadvantaged important)





## 2. Sharing – Basic Thinking –

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Conduct initiatives to examine the effectiveness and safety of ultra-compact mobility vehicles, one-way care sharing, and community cycle needs, and other aspects of the future automotive society, and the ideal state of residents' mode of transport.

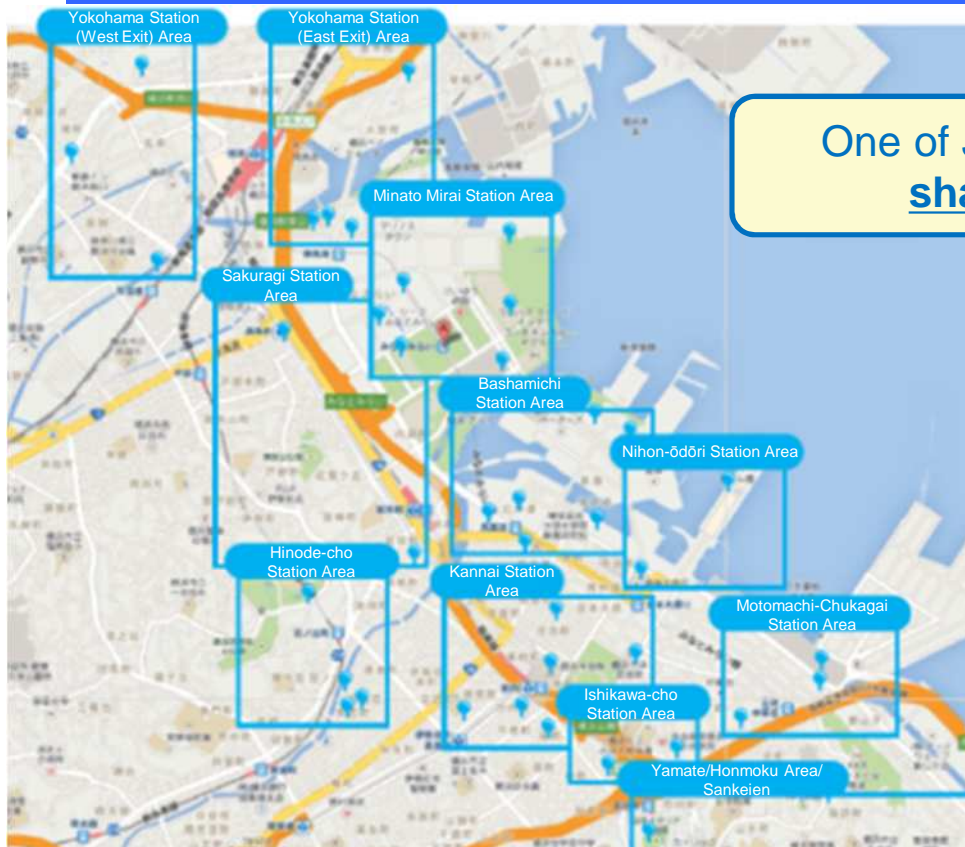
- (1) One-way car sharing scheme, **Choi-Mobi Yokohama**
- (2) Smart one-way car sharing scheme, **smaco**
- (3) City center community cycles, **baybike**

### Anticipated benefits

1. Promotion of low-carbon transport
2. Improved quality of city life and mobility
3. Promotion of Yokohama tourism



## 2. Sharing – Choi-Mobi Yokohama – Overview



One of Japan's largest schemes for one-way sharing using ultra-compact EVs.



### ■ Demonstration trial of one-way car sharing using ultra-compact vehicles

Early introduction of *ultra-compact mobility vehicles*, which are much smaller than regular vehicles and contribute to energy conservation and carbon emission reductions, to popularize them as a new mode of local transport

- Operators: Nissan Motors, City of Yokohama
- Trial period: Oct 2013 – Sept 2015 (2 years)
- Scale: 70 vehicles (maximum), approx. 60 pick-up/return stations (approx. 110 parking spaces)

## 2. Sharing – Choi-Mobi Yokohama – Actual Usage

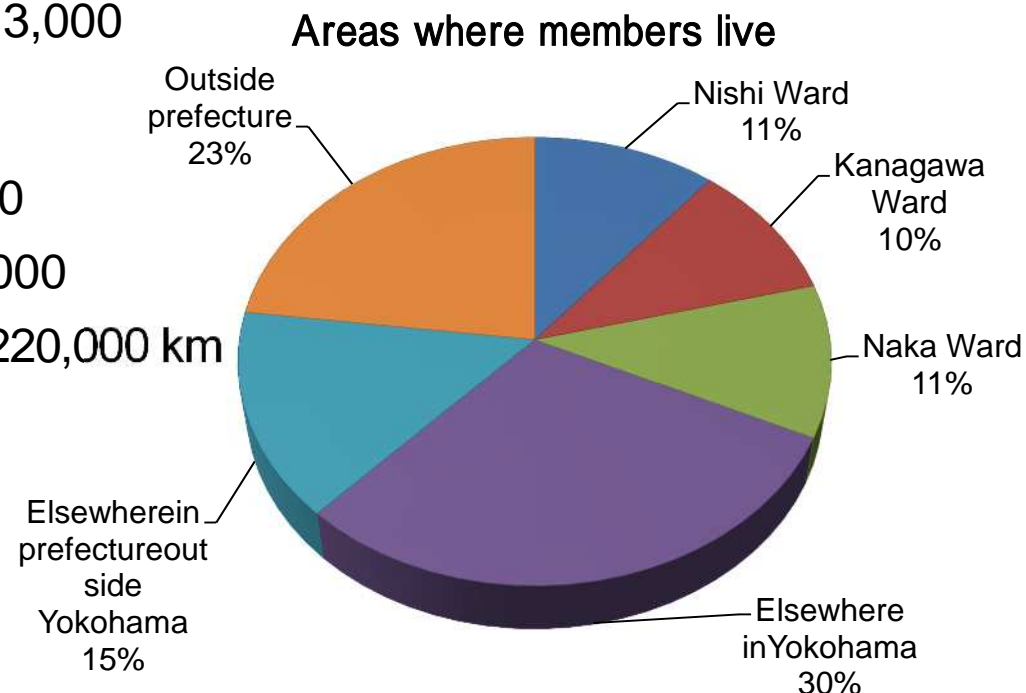
■ **Registered members:** Approx. 13,000

■ **Main results:**

- Average trips per day: Approx. 80
- Total trips over trial: Approx. 56,000
- Total distance traveled: Approx. 220,000 km

\* **Results per trip**

- Time: Approx. 13 min
- Distance traveled: Approx. 3 km



■ **Main objectives of trips**

- (1) Tourism/leisure    (2) Daily shopping and errands    (3) Test drive vehicle

⊙ **Issues**

- Operating costs involved in collecting and re-allocation of vehicles to correct uneven distribution of vehicles in certain locations
- Initial running costs of car sharing system
- Flexible operation of pick-up/return stations (curbside pick-up/returns, etc.)

## 2. Sharing – Choi-Mobi Yokohama – Future Expansion



- Operating under a car rental model, **with a focus on tourism/leisure use**, which was the largest reason for use in the car-share demonstration trial
- Implement initiatives to meet *tourism/leisure* needs, such as **coordination with hotels in the city, guided tours**, etc.

■ Pick-up/return locations of vehicles

### ■ Overview of initiative

- Operators: Nissan Motors, City of Yokohama
- Period: Oct 26, 2015  
– Sep 15, 2016 (TBC)
- Pick-up/return locations, number of vehicles  
: 4 locations, 10 vehicles
- Tariff: ¥1,080 per hour (inc. tax)  
Maximum ¥8,640 per day



### ◎ Towards the future

As well as expansion of *tourism/leisure* use, consider resuming car sharing operation

## 2. Sharing – One-Way Car Sharing Scheme, **smaco** –

Japan's first one-way car sharing scheme, taking advantage of government deregulation (notification of March 2014)



- ⊙ Operators: Mercedes Benz Japan, ORIX Auto, Amano
- ⊙ Trial Period: Sept 2014 – Sept 2015
- ⊙ Number of vehicles: 20 smart electric vehicles (2-seater)
- ⊙ Pick-up/return locations: 9 locations throughout city
- ⊙ Central area: Minato Mirai, Motomachi-Chukagai, Shin-Yokohama, etc.
- ⊙ Operation method: Book over PC or smartphone, etc.
- ⊙ Tariff: ¥200/15 min

### ⊙ Issues

- Establishment of business model will require more vehicles and more pick-up/return locations
- Expansion of EV charging stations, user awareness and experience of EVs

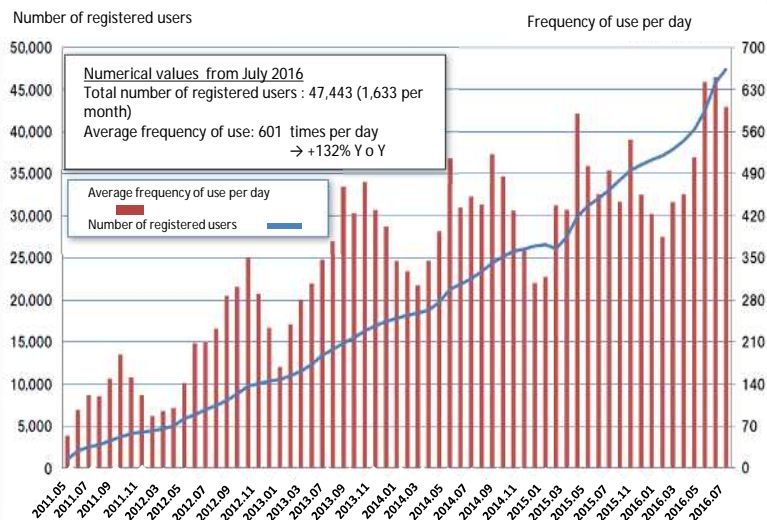
## 2. Sharing – Community Cycle Scheme, baybike –



- More than **47,000 registered users** (As of end-July 2016 data)
- {**Average trips per day: Approx. 600**} (July 2016 data)

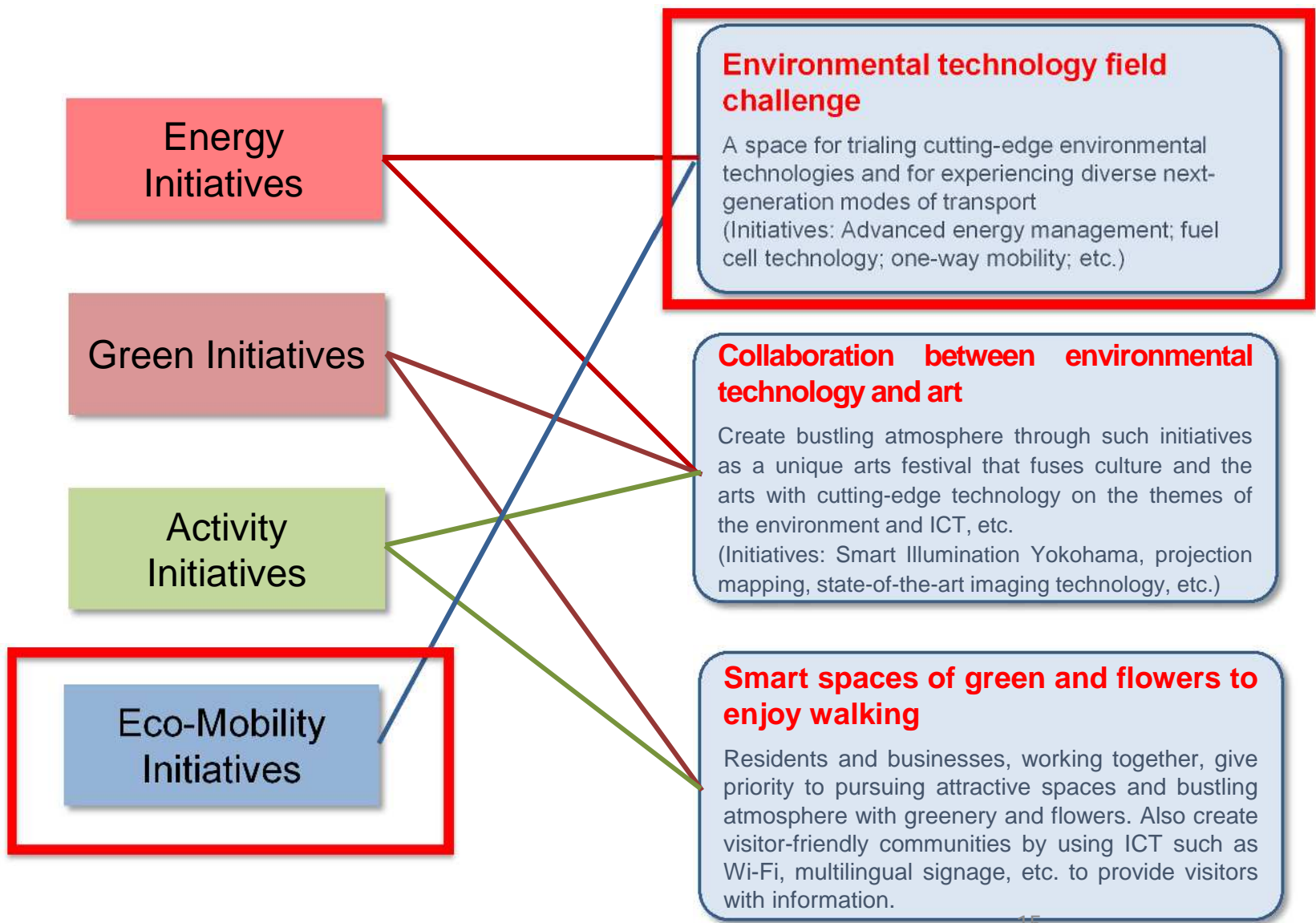


Changes in the number of registered users and the frequency of use



- ⊙Entities: City of Yokohama (responsible entity), Docomo Bike Share Inc. (operating entity)
- ⊙Period: Apr 2014 – Mar 2019 (extendable for up to 10 years)
- ⊙Number of bicycles: 400
- ⊙Number of ports: 45 locations
- ⊙Tariff: Free registration / Usage tariff: from ¥150 per 30 min
- ⊙Other: Power-assisted bicycles introduced from Mar 2015

### 3. Revitalization of City Center – Minato Mirai 2050 Project –



# 3. Revitalization of City Center – Minato Mirai 2050 Project –

## – Environmental Showcase for Smart Community Building –

**Environmental technology field challenge**

- Space for trialing and exhibiting leading-edge environmental technologies

Concept drawing of autonomous dispersed energy infrastructure

Exhibition/trialing of energy-saving technologies  
Photo: Chiba University

AEMS Concept Image  
(Kashiwa no Ha Smart Center\*)  
Registered Trademark No. 5472280

- Space for experiencing diverse next-generation modes of transport

Example image of self-driving vehicles moving towards commercialization  
Photo: Kanagawa Prefecture Government

Some of the personal mobility devices under technological development or in process of commercialization in Japan

**Collaboration between environmental technology and art**

**Fuse cutting-edge technologies with culture and the arts on the themes of the environment and ICT**

TOKYO STATION VISION  
(© East Japan Railway Co. / NEP)

Smart Illumination Yokohama

Hong Kong Mid-Autumn Festival 2013  
Giant mid-autumn harvest festival lantern made from PET bottles  
Photo: Hong Kong Tourism Commission

**Smart spaces of green and flowers to enjoy walking**

**Residents and businesses working together to create attractive spaces and bustling atmosphere with greenery and flowers**

Concept image of new uses for parks (New York)

Greenification in collaboration with residents

Installation of benches and landscaping on sidewalks  
(Marunouchi Nakadori Street)

Bustling atmosphere created with flowers and greenery

Production of FutureCity with flowers and greenery

Area Management

ICT Networks



### 3. Revitalization of City Center – Minato Mirai 2050 Project –



#### New Developments for the Minato Mirai 21 District



#### Amphibious bus social experiment

Linking town and sea sightseeing seamlessly



◎Operator:

– New Water and Land Discoveries! Yokohama Waterfront Tour Project –  
(Member companies: Hinomaru Suns Co., Ltd., Cityaccess Co., Ltd.)

◎Operator: Experiment Period: Until March 2020



#### Introduction of new modes of transport, including articulated buses

Contribute to ease of movement around entire coastal urban area and strengthening of collaboration, and further improve convenience for residents and tourists

Introduction of new bus-based transport systems (advanced bus system) in the short term by 2020

### 3. Revitalization of City Center – Minato Mirai 2050 Project -



#### Yokohama Future Mobility Expo

○Mar 11-12, 2016 @ Pacifico Yokohama Exhibition Hall

An event to see, touch and experience next-generation mobility devices that offer a glimpse into the future



WHILL Model A



Winglet



Murcus



UNI-CUB β



Ninebot mini Pro



Ninebot E



Choi-Mobi Yokohama



Multi-purpose mobility



Micro-mobility



baybike

### 3. Revitalization of City Center – Minato Mirai 2050 Project -



#### Yokohama Future Mobility Expo

○March 13, 2016

- UNI-CUB  $\beta$  Tour @ Yokohama Landmark Tower
- Winglet Test Ride Experience @ Queen Mall

• Initiative underway with aim of implementation in Minato Mirai 21 district



Thank you.