METI
Ministry of Economy, Trade and Industry

METI’s Automated driving Demo

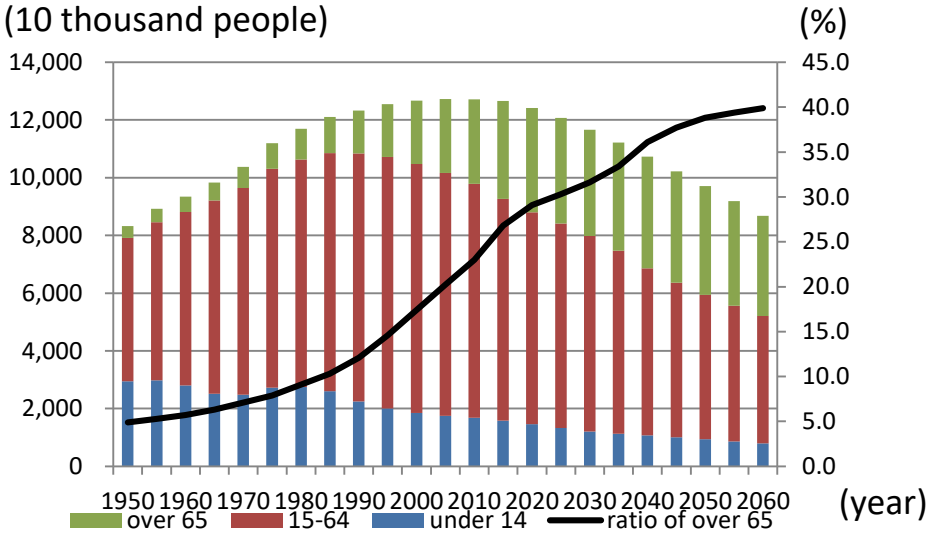
Table of contents

1. Driving force for automated driving in Japan

- Declining population → Shortage of drivers for public transport and logistics
- Aging society → Safety and free movement for Aged people (esp. rural areas)

⇒expected and accepted as one of the solutions to these social problems

Trend of population in Japan



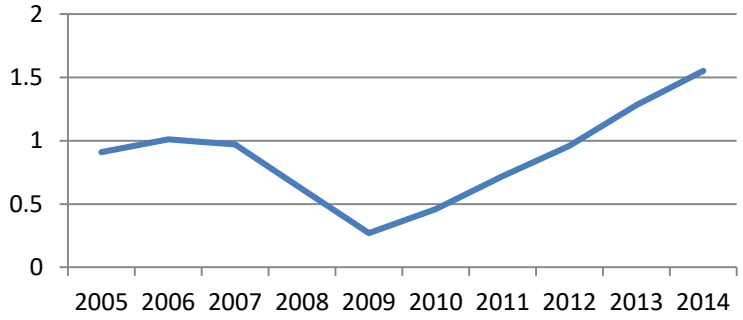
Business situation of bus operators(2014)

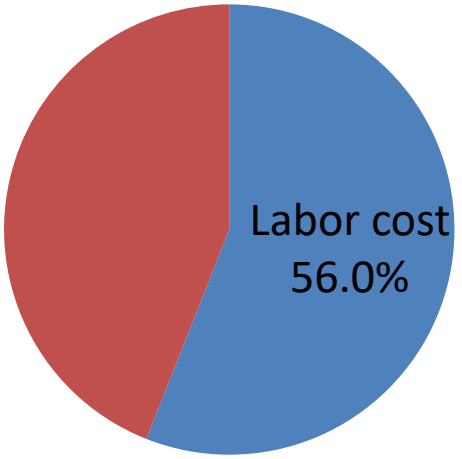
	In city	In rural
Profit	48	18
Loss	26	152

(The number of bus operator)

→In rural area, there are few bus user, 70% of bus operators have deficit.

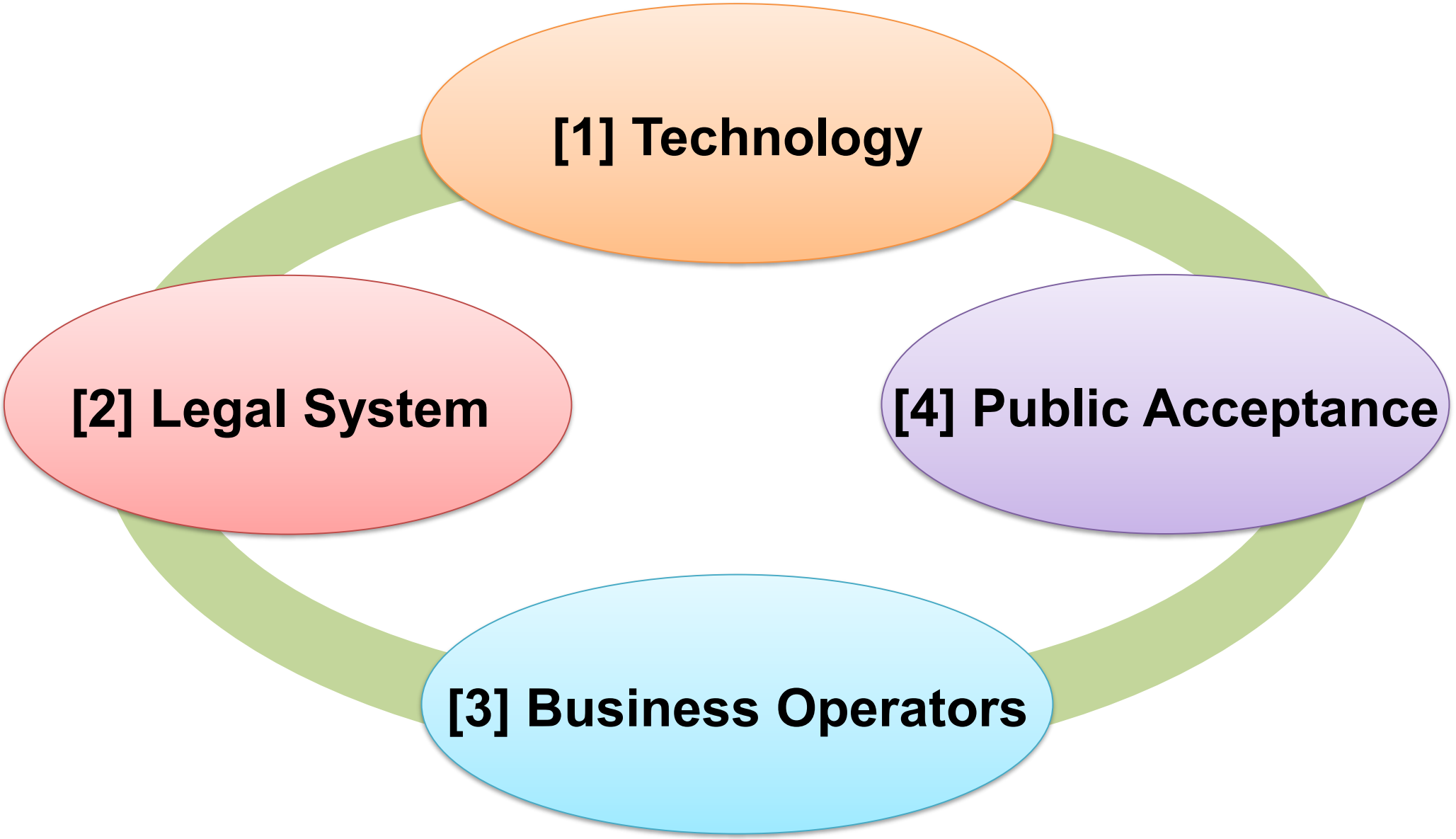
Job offering ratio for truck driver





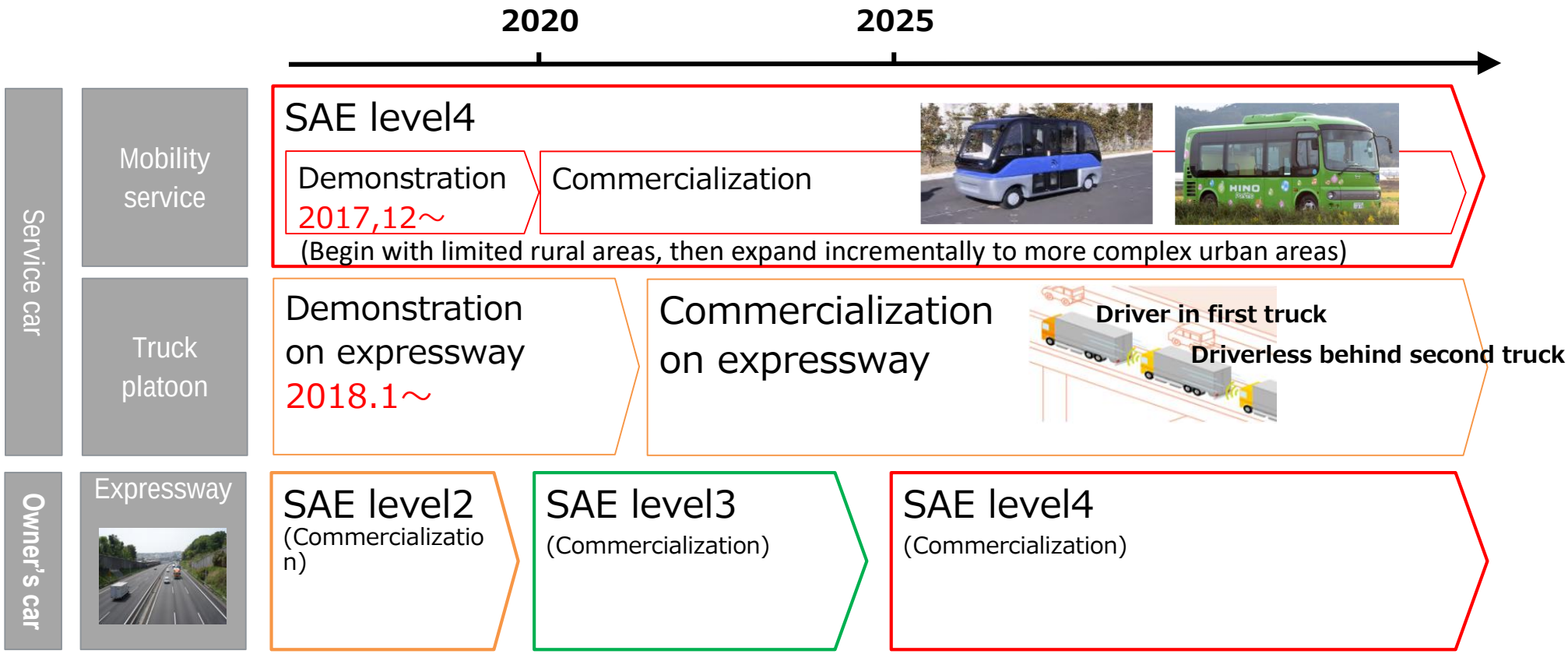
Cost component

Four initiatives for realizing automated driving



2. Roadmap on automated driving in Japan

- GOJ has decided (& regularly revises every year) a roadmap with different strategies for service car and owner's car.



Service car: providers can control driving area/situation/way (under certain rules)
Owner's car: drivers have the discretion on driving area/situation/way

3-1. Last mile mobility Test by METI

Wajima city

Eiheiji town

Hitachi city

Chatan town

Last-mile AD demonstration tests（for business operators）

- Past demonstration tests until last year were **centered on technical evaluation of AD vehicle systems.**

- But from this year, **demonstration tests will be aimed mainly at AD commercialization possibilities for business operators.**

- Principal factors for **determining AD business feasibility**:
  - **Profitability model** (e.g. profitability in each route or in the total service area as a whole)
  - **Cost cuts in vehicles, roadside equipment, etc.** thru technological advancement and mass production
  - Income **from passengers and other beneficiaries**
  - Prospective **public subsidies**

Conduct a **longer-term demonstration test with an aspiring AD operator and local administration in a real-business setup**; determine the necessary numbers of passengers and AD cruises; then, produce a **business model** for AD mobility service.

Demonstration tests in Eiheiji-cho, Fukui Pref.

- **Depopulated area model: revitalizing an aging community**
  - Provide shuttle mobility between railway station and residential/tourist area utilizing temple approach road
  - Realize safe mobility in night and snow
  - Serve both local commuters/residents and tourists
  - Expand tourism by promoting the walking/cycling paths, existing roadside stores, etc.

[Current]

The township has refurbished an old railway site into a new ground for AD demonstration tests along walking/cycling paths. (A majority of tourists to Eiheiji Temple expected to use existing transport, such as sightseeing buses and private cars, directly from the prefectural capital city of Fukui.)

[Aspired business model]

Passengers : Tourists and residents to be served by AD mobility

Fees : To be paid by passengers; for example, JPY 500 per tourist and JPY 100 per resident

[Tests in FY 2018]

- Undertake a sustained one-month demonstration test
- Experiment a simultaneous monitoring of several AD cars in a low-traffic area
- Upgrade the technologies for crossing high-traffic national roads and blind intersections and for properly responding to traffic signals
- Determine the predictable number of passengers and the amount of necessary subsidy from township (not exceeding the amount granted to the existing route bus operator)
- Possible use of AD cars for other applications (e.g. for carriage of both passengers and goods, snow removing work, patrolling)

[Stakeholders]

Fukui Pref., Eiheiji-cho township, local NPO for community development (including a bussing company)

Cruising route (2km public roads for pedestrians and cyclists; already approved for AD vehicle cruising)

Remote monitoring

Testing the AD running performance on snowplow tracks

* Driverless AD cars are monitored by a person(s) in a remote control center.

Demonstration tests in Chatan-cho, Okinawa Pref.

■ Tourist site model

- ◆ Cruise around tourist facilities, hotels, beach along non-public roads
- ◆ Revitalize the town by directing more visitors to roadside stores, etc.
- ◆ Provide safe, reliable mobility to the disabled

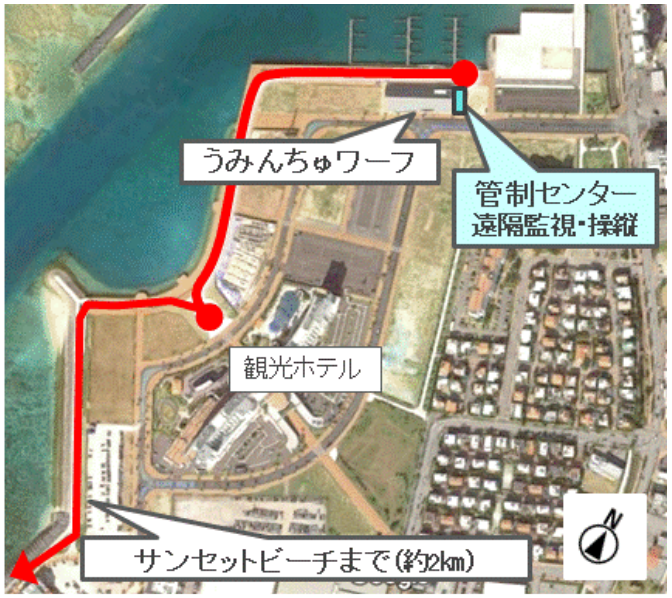
[Current]
Hotels providing free mobility service to their guests connecting the beach (service costs borne by the hotels)

[Aspired business model]
Passengers : Hotel guests + Other tourists + town residents
(Promotion of tourist/commercial facilities existing nearby; a new hotel under construction)
Fees: Considering a free-of-charge cruising model (costs borne by hotels and other existing commercial facilities)

[Tests in FY 2018]

- Execute a sustained one-month demonstration test
- Determine necessary technical improvements to ensure the safety of general pedestrians
- Investigate the desirable number of passengers for hotels and other businesses to bear the AD cruising costs
- Determine the necessary technical levels of vehicles and infrastructure acceptable to AD business operators, taking account of the large seasonal variations in tourist turnout

[Stakeholders]
Chatan-cho township, UDEC (consultant firm), tourist hotels, store operators



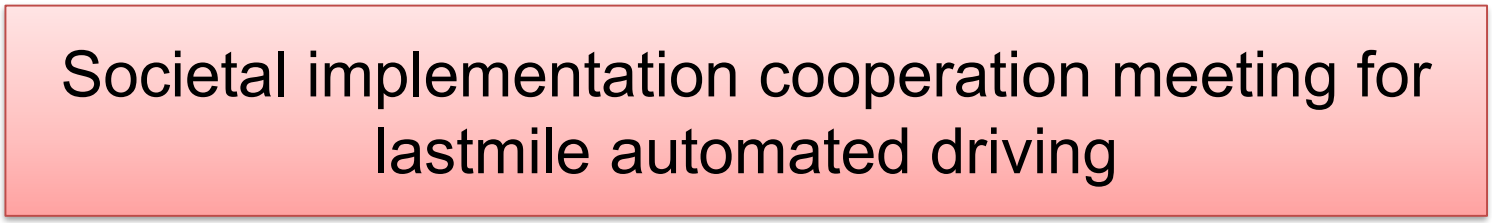
Cruising route (2km non-public road along beach)


Test vehicles (Smart E Cart)

Central displays for remote monitoring

* Driverless AD cars are monitored by a person(s) in a remote control center.

3-2. Providing information for operators



Ministry of Economy, Trade and Industry

Ministry of Land, Infrastructure, Transport and Tourism

・Provide information on government verification tests

・Ascertain needs of private sector and municipalities

Municipalities

8 prefectures

17 cities and towns

・Introduce initiatives and share tasks

・Collect reference examples and know-how

Companies/ organizations

46 organizations*

・Introduce initiatives and share tasks

・Collect reference examples and know-how

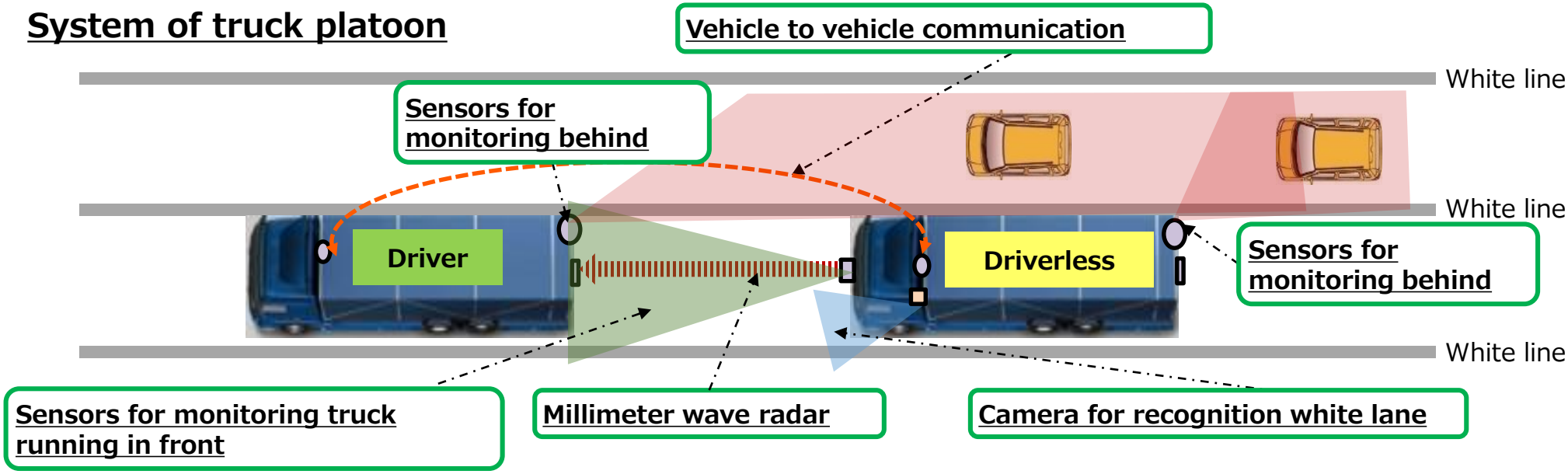
*46 organizations
- Component
- IT
- Taxi
- Bus
- Railway
- Insurance
- Developers
- Trading, etc.

Promoting information exchange

3-3. Truck Platoon on expressway

- Three or more truck platoon, with no drivers on the second and subsequent tracks. We started demonstration on expressway from 2018.
- In the first phase, all truck have drivers.

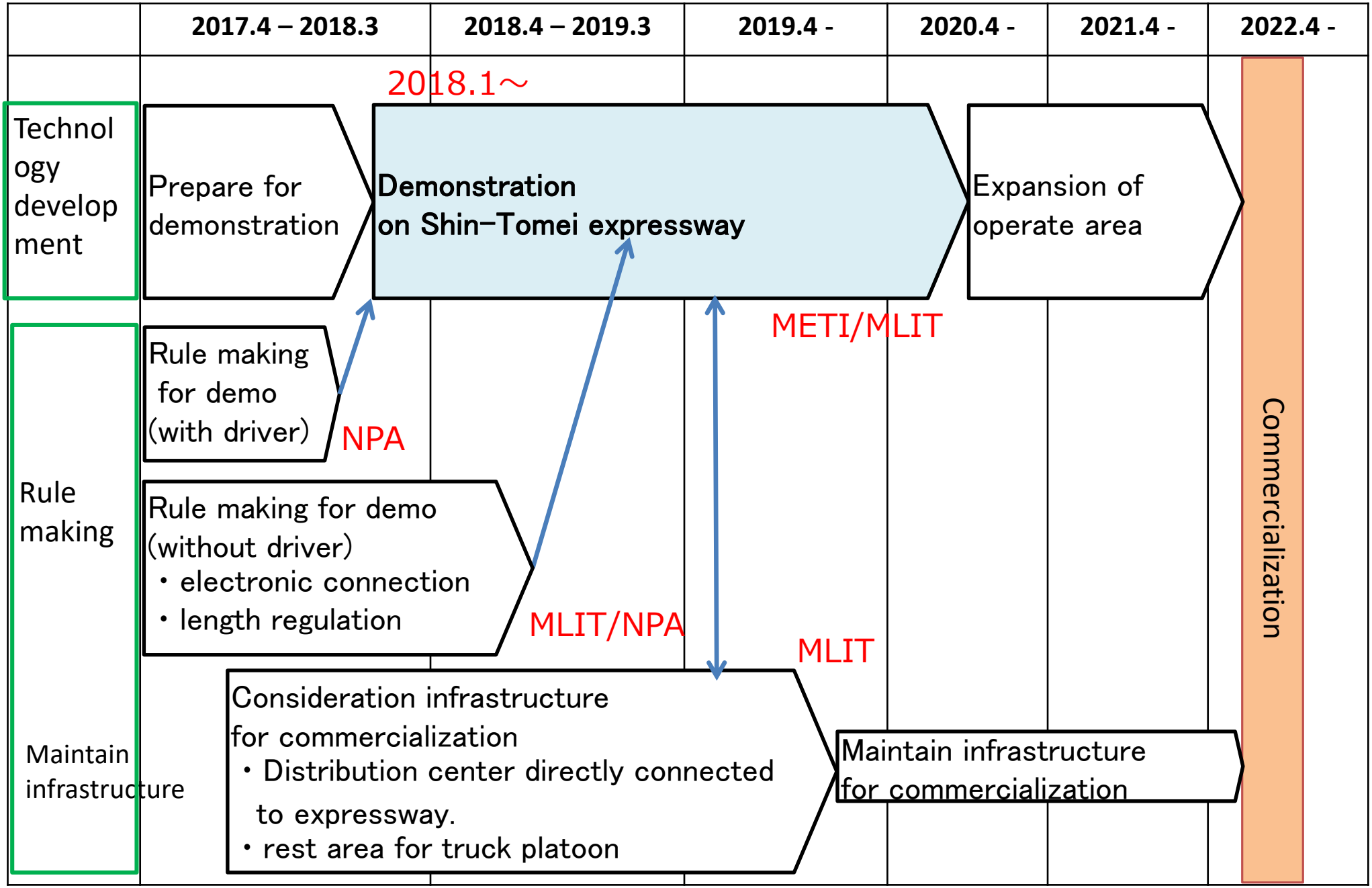
System of truck platoon



Issues on truck platoon

- Legal issue (Whether it is possible to regard truck platoon as tractor or it is possible to regard truck platoon as one truck that the first truck driver control)
- Secure places where truck platoon is formed and where drivers rest.

Schedule for commercialization (Truck platoon)



Demonstration experiment on truck platooning

- Plans for experiments in FY 2018 –

○ **Platooning with drivers in every truck (Nov. 2018~)**

- As in last year, continue the CACC-based multi-brand truck platooning with varied conditions (e.g. different loading conditions, travel distances, road bending/slope conditions)
- Initiate a multi-brand truck platooning test based on both CACC and LKA technologies

○ **Platooning with a driver in the front truck only (Jan. 2019~)**

- Scheduled to initiate a one-driver platooning on a public expressway, applying an inter-truck distance shorter than that of CACC-based platooning with drivers in every trucks.

*CACC：Cooperative Adaptive Cruise Control, LKA：Line Keep Assist