Police Efforts toward Realization of Automated Driving

Masahide HATAKEYAMA
Director of Automated Driving Planning Office,
National Police Agency of Japan

SIP Cabinet Office

Current situation of road traffic accidents in Japan ①

In 2019,

- ○ 3,215 people were killed in traffic accidents.
- ○ Those aged 65 and older accounted for 55.4% of all traffic fatalities. (28.5% of the Japanese population was 65 years or over.)

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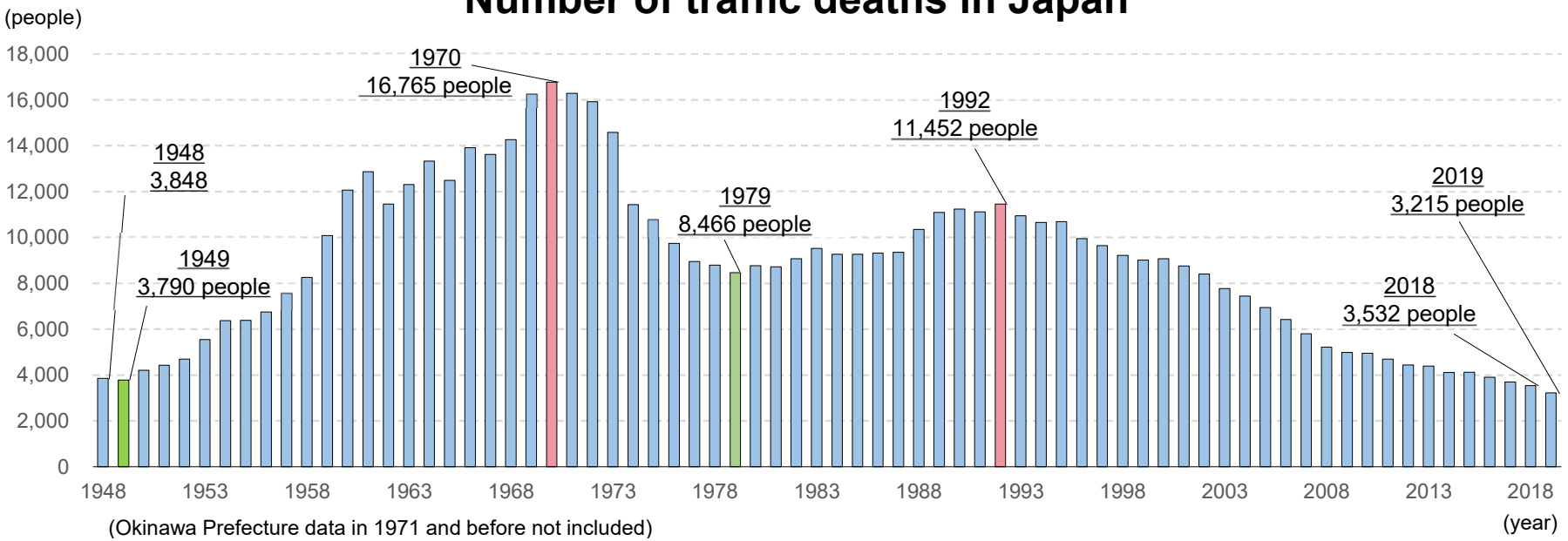
- ・This is the lowest number since 1948 when data began being collected.
- ・The number is less than one fifth from its peak in 1970.

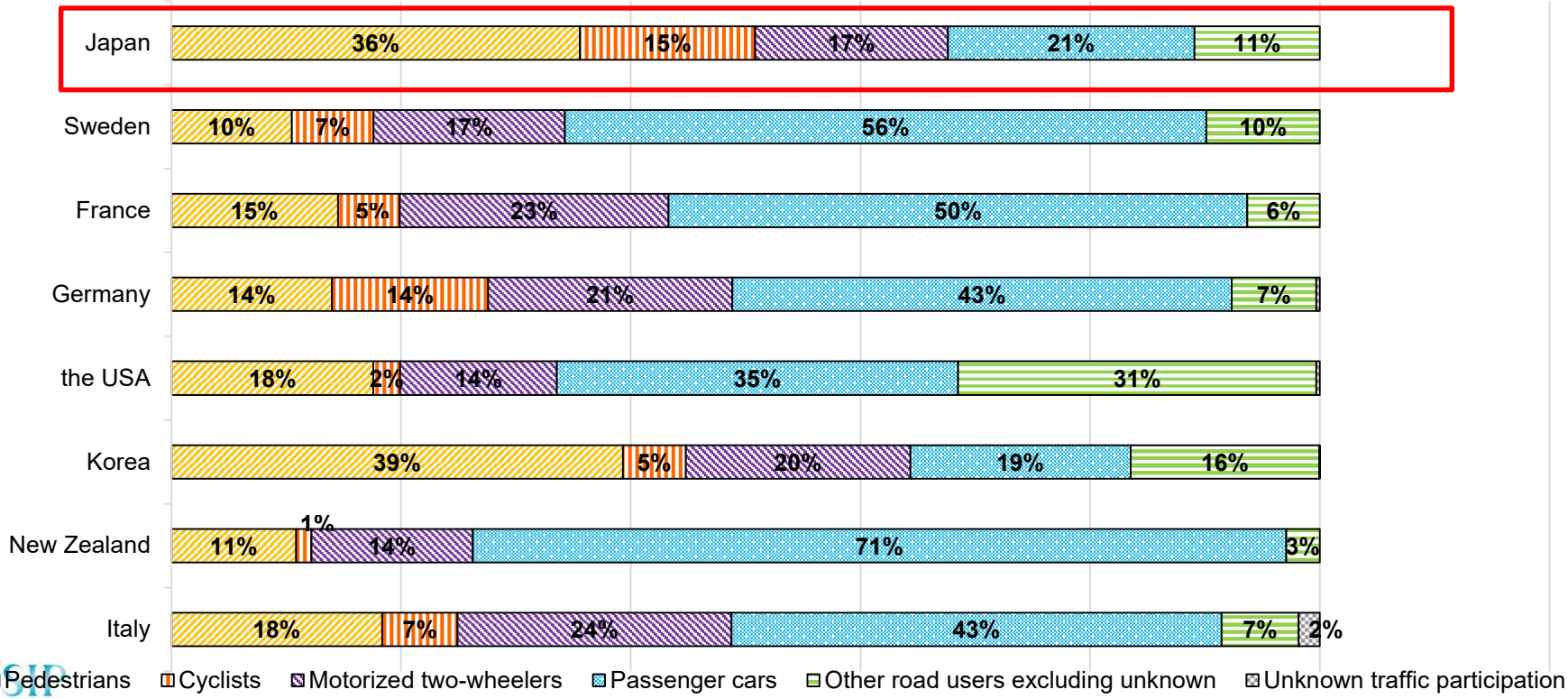
Number of traffic deaths in Japan



(Okinawa Prefecture data in 1971 and before not included)

Current situation of road traffic accidents in Japan ②

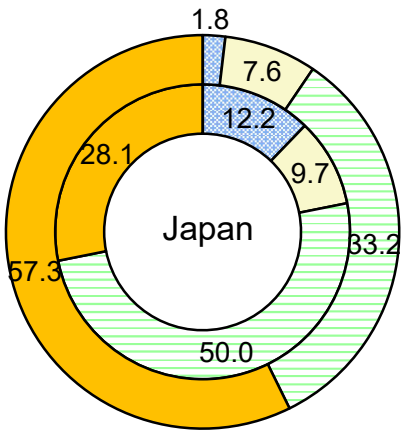
Distribution of road traffic deaths by road user group in 2018

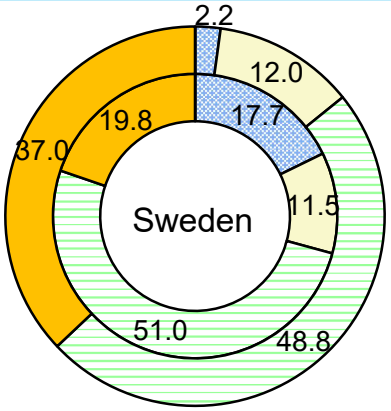


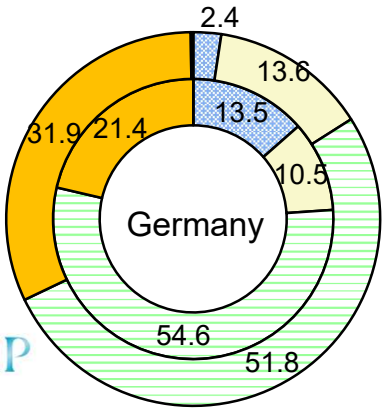
(Source：IRTAD)

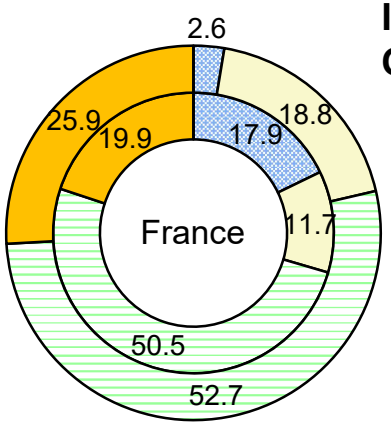
Current situation of road traffic accidents in Japan ③

Distribution of road traffic deaths by age in 2018

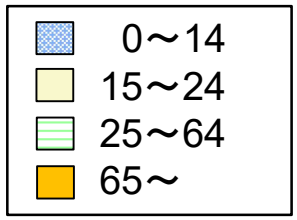








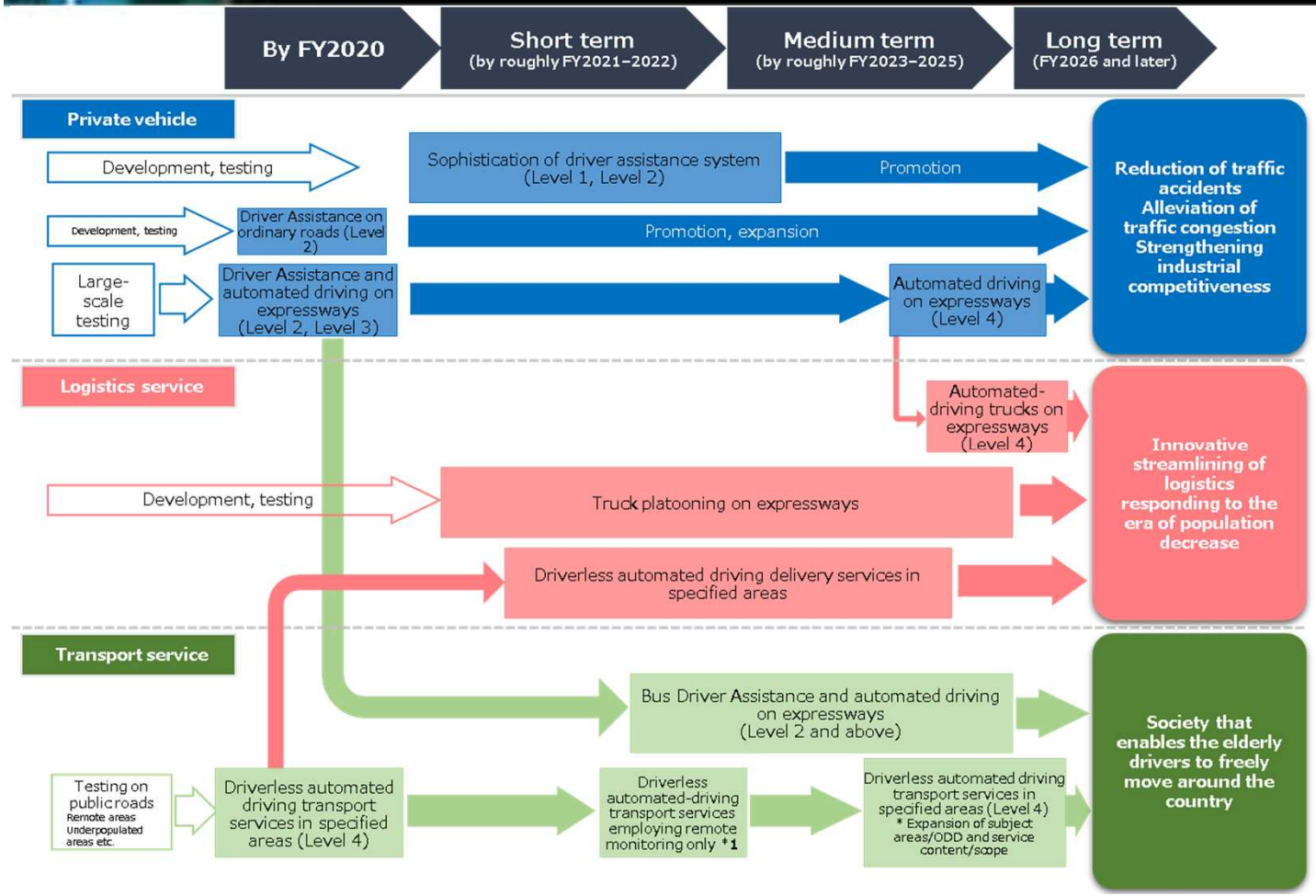
（**Source：IRTAD**）



Inside：Age composition
Outside：Distribution of road traffic deaths

※ Road traffic deaths are defined by those who died within 30 days of a road traffic accident.

Government's target for realization of automated driving



*1 When driverless automated-driving transport services are to come true depends on various conditions in the actual cruising environment, such as weather and traffic volume.
With regard to the creation of an environment for the realization of those services, each government agency will consider the appropriate timing and the way it should be and take measures, taking into account future technological developments, etc.

Traffic rules for the practical application of SAE level 3

Amendment to the Road Traffic Act enforced in April 1st, 2020

Overview

【Making new rules for the practical application of automated driving】

The Act Partially Amending the Road Traffic Act（Act No.120 of 2019）
Promulgation：June 5th, 2019

○ Definition of “Automated driving device” and “Driving”

- "Automated driving device" is defined as a device prescribed in Article 41, paragraph (1), item (xx) of the Road Transport Vehicle Act.
- "Driving" includes the control of vehicles using automated driving devices.

○ Obligations of drivers using automated driving devices

- When a vehicle with the automated driving device does not fulfil the requirements set by the Minister of Land, Infrastructure, Transport, and Tourism, the driver is not allowed to control the vehicle using that device.
- Some activities, such as talking on a phone, are allowed as long as the driver is ready to deal with the problems immediately and appropriately in case that the vehicle does not fulfil the requirements.

○ Recording by “Data Recording Device”

- The driver is required to record necessary information, such as the operational status of the automated driving system, by data recording devices.
- When a police officer does not believe that a vehicle is properly maintained, the officer is able to ask the driver present those records.

The Order Partially Amending the Order for Enforcement of the Road Traffic Act (Cabinet Order No.109 of 2019)
Promulgation：September 26th, 2019

○ Breach of obligations

Penal provisions：imprisonment up to 3 months or a fine not exceeding 50,000 yen
Administrative actions: 2 driving penalty points and a penalty of 9,000 yen

○ Data recording device deficiency

Penal provisions: imprisonment up to 3 months or a fine not exceeding 50,000 yen
Administrative actions: 2 driving penalty points and a penalty of 9,000yen

○ Other rules

The speed limit on an acceleration and deceleration road has been raised from 60 to 100 kilometers per hour.

The Ordinance Partially Amending the Regulations for Enforcement of the Road Traffic Act (Cabinet Office Ordinance No.29 of 2020)
Promulgation：March 3rd, 2020

○ Data saving period

Those who use automated driving devices have to save the data by data recording device for a particular period of time as prescribed by "Technical Standards for Data Recording Device" (the Attachment No.123 to the Announcement of the Safety Regulations for Road Vehicle).

Traffic rules for the practical application of SAE level 3

【Comparison of driver's obligations】

【Drivers who don't use automated driving devices】

A Obligations related to driving

- Safe driving obligation
- Obeying traffic signals and speed limits
- Keeping a safe following distance etc.

B Obligations unrelated to driving task

B-1) Obligations to ensure the implementation of A

- Talking on hand-held communication devices, such as a phone while driving
- Watching a screen in a car continuously are both prohibited

Prohibition of drunk driving etc.

B-2) Other obligations

- Giving aid to injured persons in the event of an accident
- Presenting one's driver's license to a police officer when one is required to
- Placing a warning triangle on the road when a vehicle breaks down etc.

【Drivers using automated driving devices】

The automated driving device will automatically fulfill A, when operated properly under the operating conditions.

By using the automated driving device properly, the driver is able to carry out A. (The driver is still responsible for A.)

These prohibitions do not apply to the driver using the automated driving device properly, because he/she does not have to constantly monitor and operate the vehicle.

The driver needs to obey these obligations, for there is a possibility that he/she could be required to take over vehicle control.

The driver has to fulfil B-2, because they are not related to dynamic driving task performed by the automated driving device.

※ The use of automated driving devices is only allowed under the operating conditions.

※ **When a vehicle with the automated driving system breaks down or is not under the operating conditions during the use of that system, the driver needs to immediately recognize the failure of the vehicle and must be able to reliably switch to his/her own operation.**

※ The driver, etc. are required to record necessary information of automated driving systems by data recording devices.

Guidelines for public road testing of automated driving systems

■May 2016

Guidelines for public road testing of automated driving systems

On the conditions that a driver sits in the driver's seat and is ready to take necessary measures in an emergency, you can conduct an experiment of automated vehicles on public roads without any permission or report.

⇒ Tests have been conducted in various parts of Japan.

Tests on public rods

＜Points of Attention＞

○ A vehicle has to comply with the requirements of the Safety Regulations for Road Vehicles.

○ A driver has to sit in the driver's seat and be ready to take over the control of the vehicle in an emergency.

○ Those who conduct the tests have to obey the laws.

Obligations of “Test driver”

- Obeying the driver's obligations
- Taking necessary measures in an emergency

Criteria for the permission for public road testing of automated driving

■Automated driving system with remote control technology(*1)

(*1) A system that enables a remote supervisor/operator to operate the vehicle remotely by utilizing telecommunication technology

- **Formulation and Release in June 2017 (Partially amended in September 2019 and September 2020)**

■ Vehicles with special control devices (*2)

(*2) A vehicle operated by a special control device different from a conventional steering wheel and brake pedal during manual driving

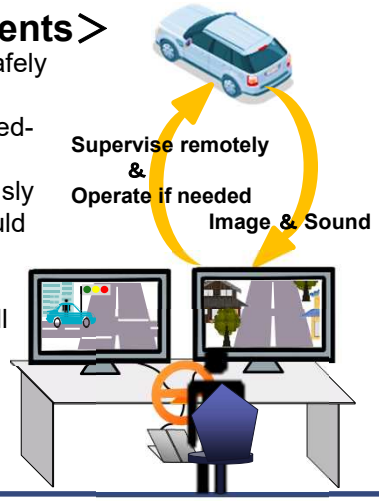
- **Formulation and Release in September 2019 (Partially amended in September 2020)**

＜Examples of common requirements＞

- The vehicle's maximum speed limit should be a speed at which the vehicle would come to a halt safely with a sufficient time allowance in light of traffic conditions and road environments.
- The autonomous driving for the practical application of automated driving should be conducted with a certification of a police officer who has actually ridden the vehicle.
- The vehicle should be equipped with data recording devices, such as a car driving recorder and an event data recorder, in order to record the conditions in front of, behind, and inside it..

＜Examples of other requirements＞

- The test vehicle should come to a halt safely without any operations when there is a communication delay exceeding a decided-upon period of time.
- The number of test vehicles simultaneously supervised/operated by one person should be increased one by one.
- Remote supervisor/operator has to be aware of the surrounding conditions of all the test vehicles by image and sound.

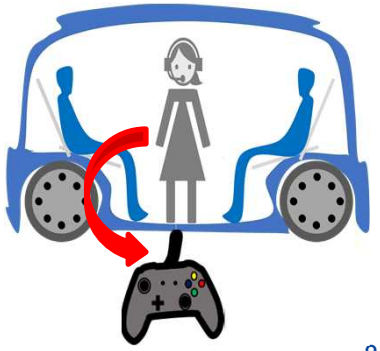


＜Implementation＞

in 5 prefectures
(as of the end of September, 2020)

＜Examples of other requirements＞

- A supervisor/operator has to be on the test vehicle who has passed an examination conducted by police to verify the supervisor/operator is able to operate it manually in a facility and on a public road.



＜Implementation＞

in 5 prefectures
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Efforts to legislate traffic rules for the practical application of SAE level 4

Research to realize automated driving in FY 2019

Outline and current situation of the research

■ Investigating traffic rules and manners for the practical application of SAE level 4

■ Test drive / Interview with developers / Overseas research

FY	Results
2015	・Guidelines for public road testing of automated driving systems, in May 2016
2016	・Criteria for the permission for public road testing of automated driving, in June 2017
2017	・Reviewing the issues of the practical application of SAE level 3 and above and realization of truck platooning
2018	・Amendment to the Road Traffic Act（enforced in April 1st, 2020） ・Examining how to conduct the testing of truck platooning on public roads ・Criteria for the permission for public road testing of automated driving, in September 2019
2019	・Investigating rules for the practical application of SAE level 4

Summary of opinions at the meetings

・Even when a vehicle moves autonomously, it should be controlled by human to a certain extent, who has to have a new kind of license that might be different from the current one.

・Make sure that necessary measures, such as giving aid to a victim in the event of a traffic accident, will be taken after the vehicle stops autonomously.

・We should discuss who should play a role other than driving task.

・We should classify the possible applications into the type of services, which makes it easier to identify the problems.

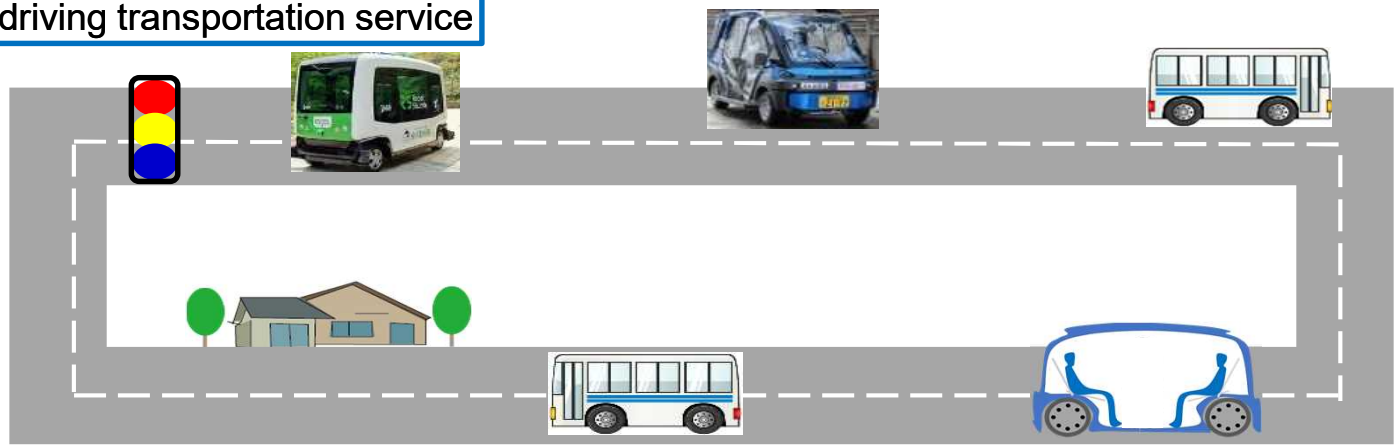
・We should focus on "Service-Car" with no drivers first and foremost, which is expected to come off soon.

etc.

Visions

Use-case

Automated-driving transportation service



Persons related to vehicle control

- The persons related to vehicle control (※) exist not in the vehicles but in the distance.
- They do not perform the driving task.
- Each of them is in charge of several vehicles.
- What they should do and what extent they should be is to be discussed.

Systems

- Each vehicle is controlled by automated driving systems without human operations.

※ They are neither the conventional drivers nor the users, such as passengers. They would be required to grasp the state of the vehicles and talk to the persons who have contacted them as necessary, during automated operation.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Thank you