



National Research Project on Automated Driving System

SIP-adus ; **A**utomated **D**riving System for **u**niversal **s**ervice

Meeting with TransAID project, 7th April 2020

Society 5.0

Data convergence

high degree of convergence between cyberspace (virtual space) and physical space (real space).

Economic advancement

Solution of social problems

provision of products and services that are needed to the people that need them at the time they are needed

human-centered society in which anyone can enjoy a high quality of life full of vigor

New society "Society 5.0"

Society 4.0 Information



[source: CAO, Japan]

Society 1.0 Hunting & gathering



Society 2.0 Agricultural



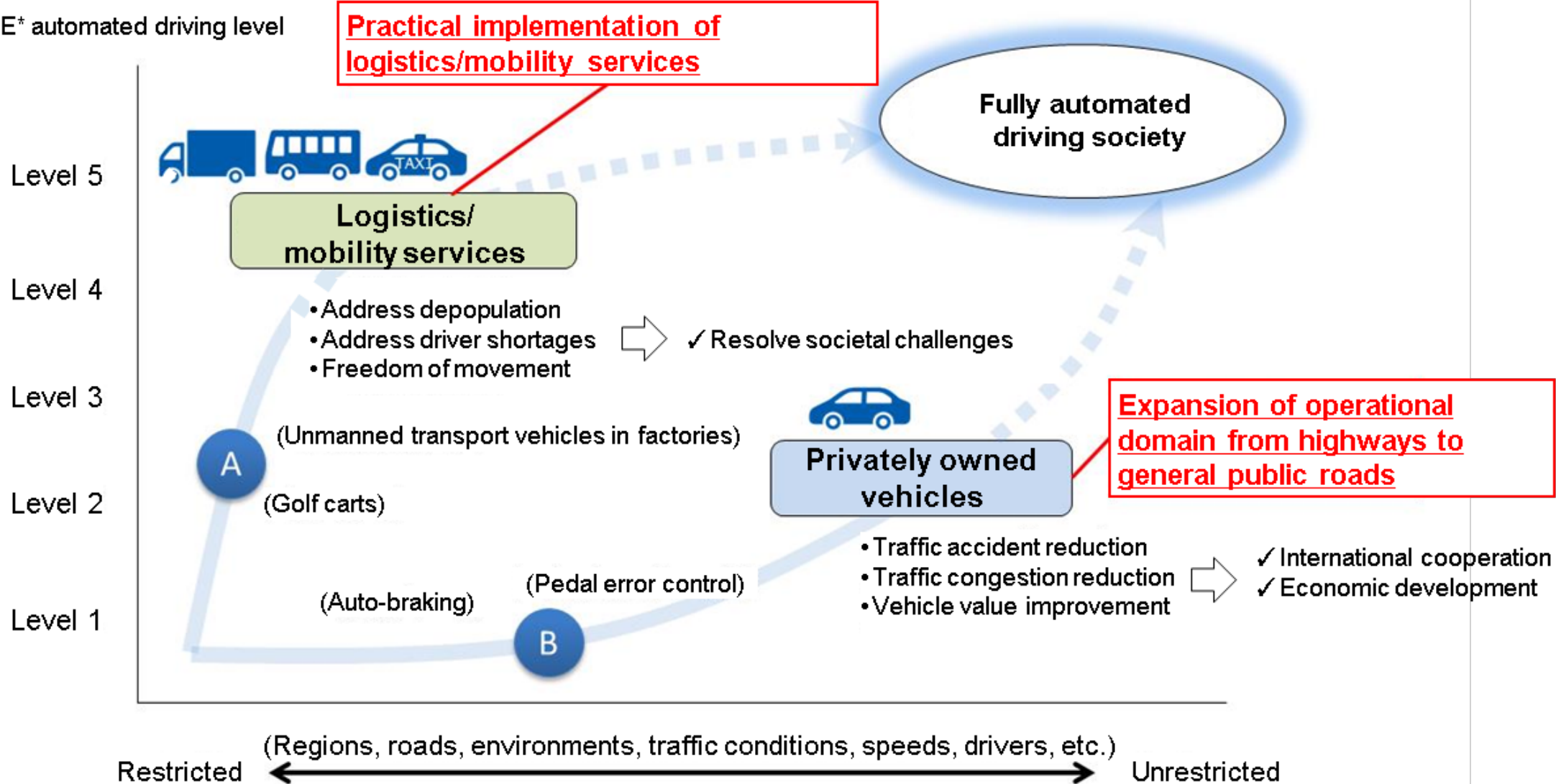
Society 3.0 Industrial



(Cabinet office HP)

Overview of 2nd Phase of SIP-adus

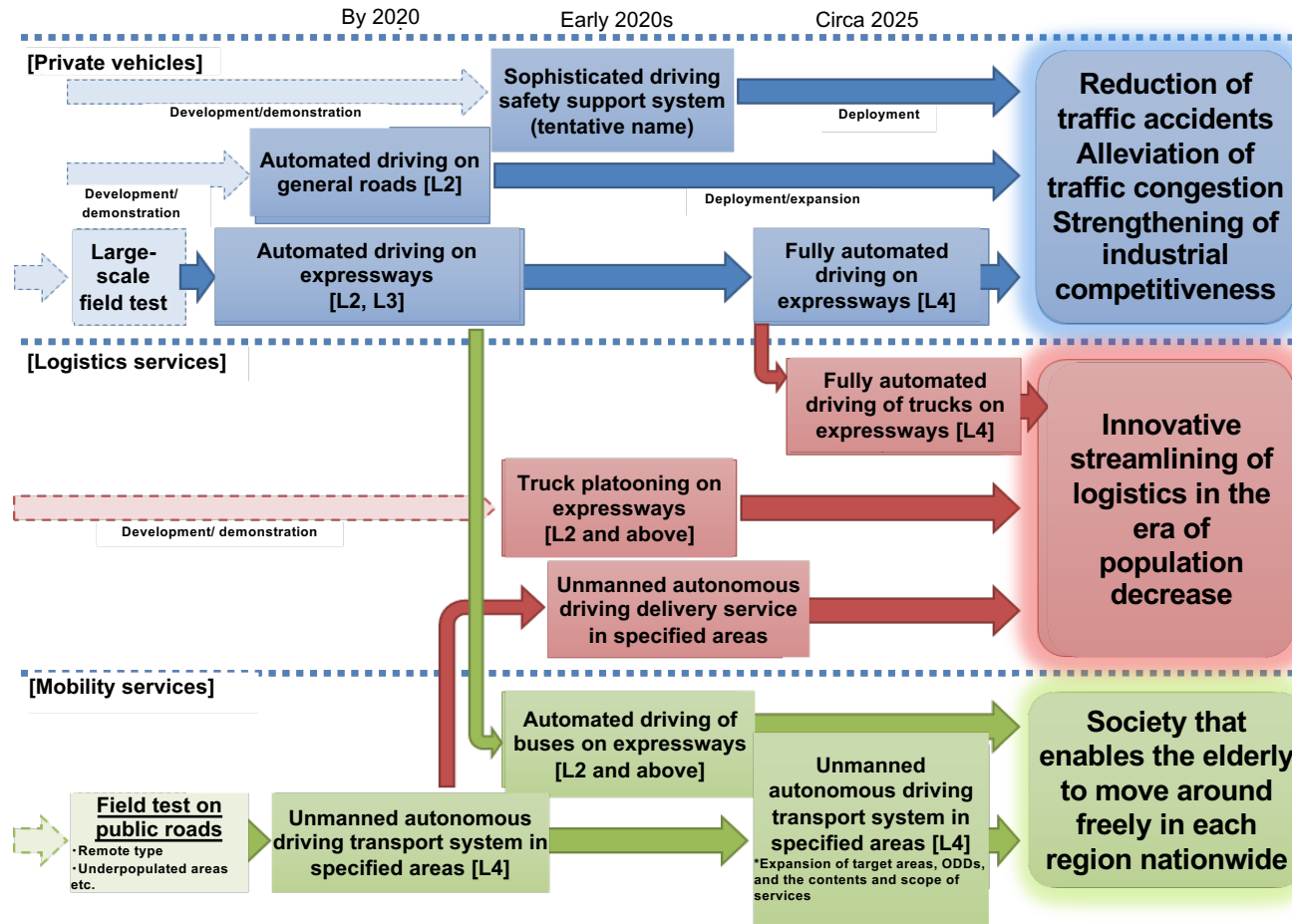
SAE* automated driving level



Objectives

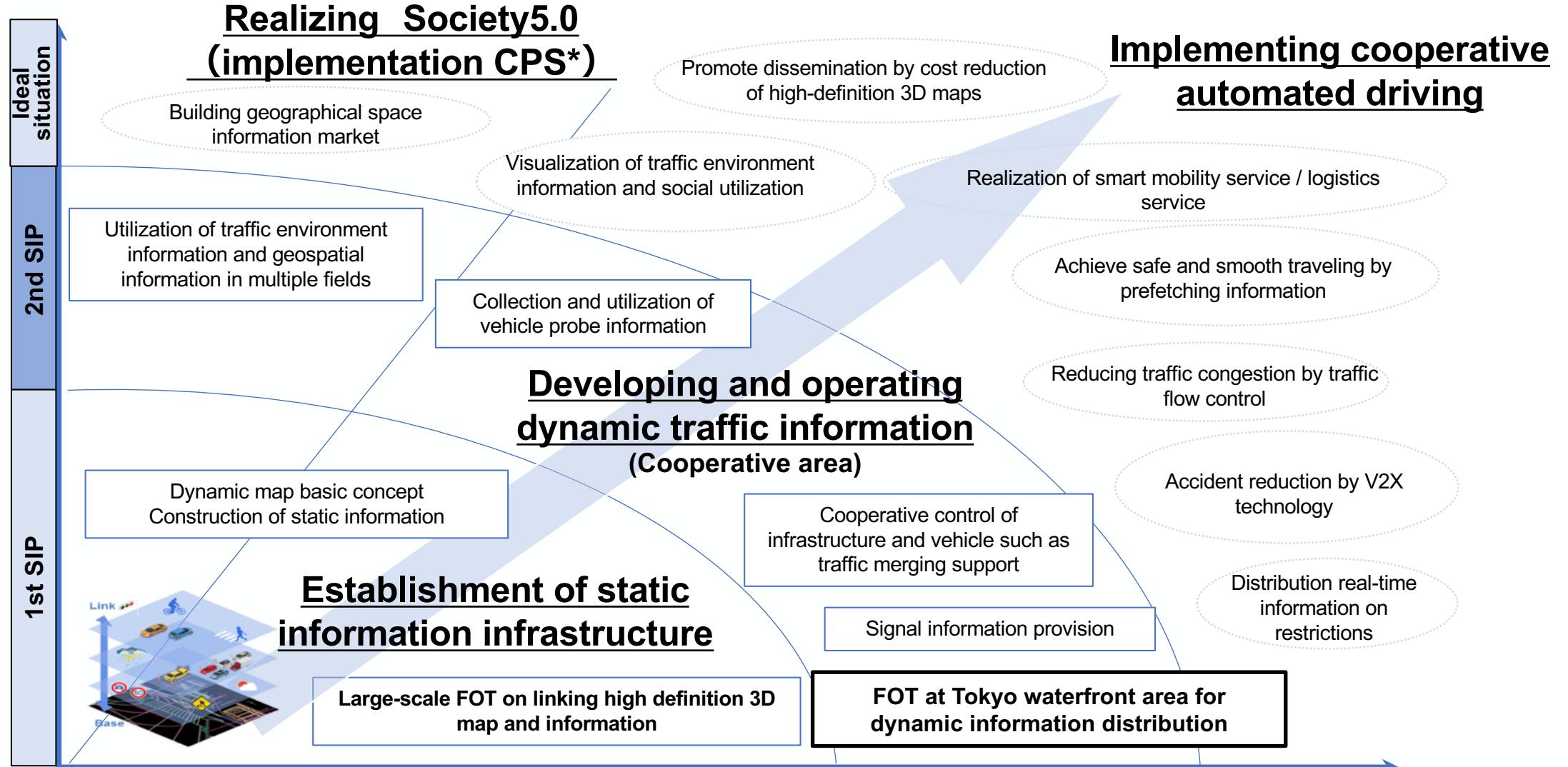
Public-Private ITS Initiative/Roadmaps 2019

Scenario for the commercialization and service of fully automated driving by 2025



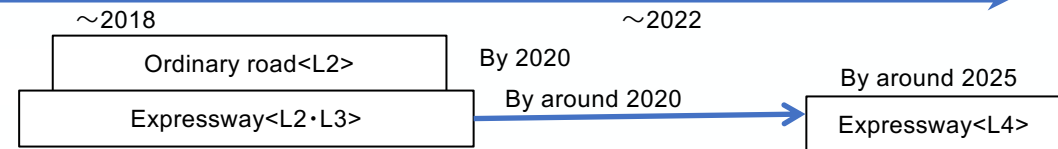
- To establish the **cooperative areas** technologies essential for implementation by 2023
- To create **multiple example cases for commercialization through FOTs** by involving various **businesses and local government**

Building the Traffic Environmental Info. Framework



*CPS : Cyber Physical System

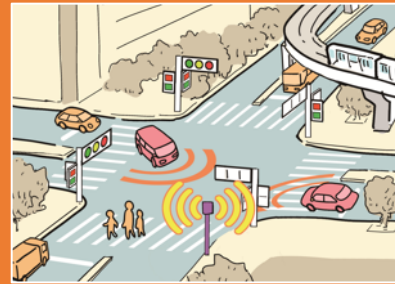
[Scenario for private car]



Areas for the FOTs

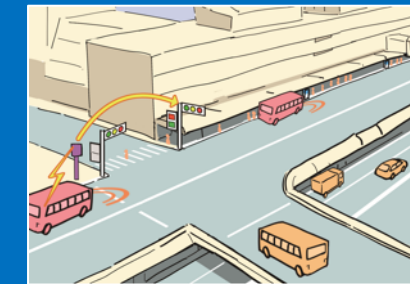


Orange: Tokyo Waterfront City area
 Blue: Haneda Airport area
 Green: Metropolitan Expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc.



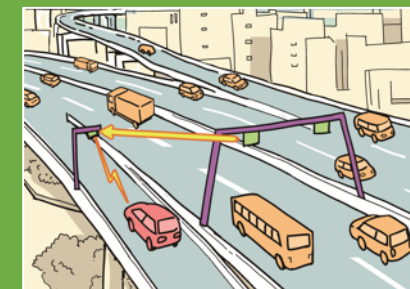
Tokyo Waterfront City area

- An environment to provide traffic signal data from traffic signals (ITS roadside units)
- High-precision 3D maps linked with traffic signal data, etc.



Haneda Airport area

- An environment to provide traffic signal data from traffic signals (ITS roadside units)
- Routes with magnetic markers embedded
- Temporary bus stops
- Dedicated lanes, etc.



Metropolitan Expressway that connects Haneda Airport with the Tokyo Waterfront City area

- An environment that provides merging assistance information
- An environment that provides ETC gate data
- An environment that provides traffic congestion data for each lane, etc.

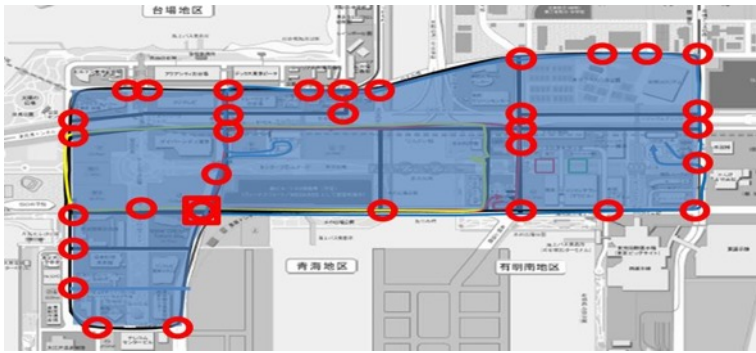
- High-precision 3D maps linked with traffic signal data
- On-board equipment to receive traffic signal data, merging assistance information and etc.

FOTs (Tokyo Waterfront Area)

■ FOTs started in October 2019 in the Tokyo waterfront area (general roads and Metropolitan Expressway / Haneda area) with 29 participants widely

Providing traffic signal information

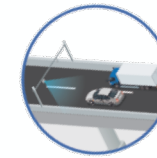
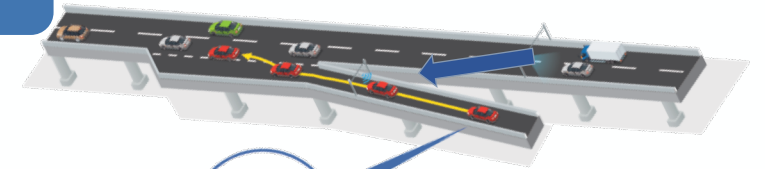
Providing the signal display and change timing information even in environments where recognition is difficult using in-vehicle cameras.



Merging assistance on the main lane of highways



Providing vehicle information on the main lane

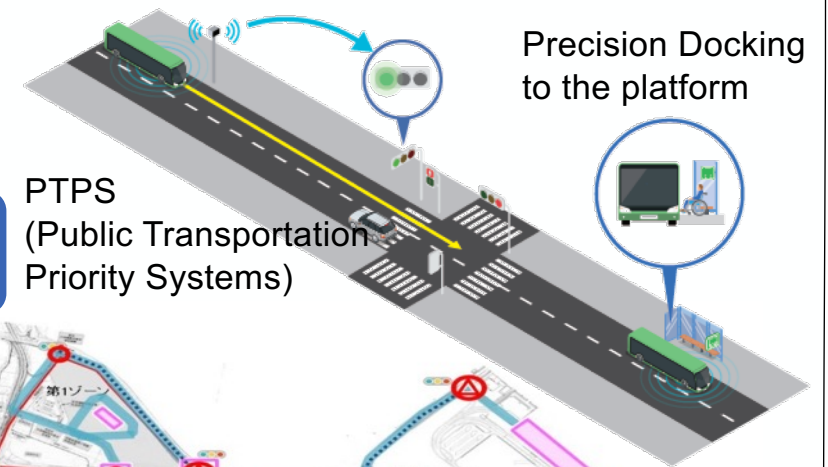


The speed and timing are automatically adjusted to ensure safe merging.

Public transport system (self-driving buses)

FOTs for the next-generation ART by using automated driving technology in mixed traffic flow.

PTPS (Public Transportation Priority Systems)



Precision Docking to the platform



Participants of the FOTs

- Total 29 entities including OEMs, suppliers, venture companies and universities with about 100 vehicles will participate in our FOT in Tokyo.



SIP-adus Workshop

SIP-adus Workshop 2019

November 12-14 @ Tokyo International Exchange Center

Regular annual international conference for Info. Sharing & discussion



Welcome Speech

TAKEMOTO Naokazu

Minister of State for Science and Technology Policy,
Cabinet Office, Japan



Breakout Workshop

Main themes of International Cooperation

Dynamic map

Connected Vehicle

Human Factors

Cybersecurity

Safety Assurance

Field Operational Test

- 1 SUDO Akira:** Executive Director in charge of SIP/PRISM/ImpACT, CSTI, Cabinet Office, Japan
- 2 Harold W.Martin III:** National Coordination Office for Space-Based Positioning, Navigation, and Timing, USA
- 3 Ludger Rogge:** European Commission, Belgium
- 4 KUZUMAKI Seigo:** SIP-adus Program Director, Cabinet Office, Japan
- 5 Anne-Marie Idrac:** High Representative for Autonomous Driving Development Policy, France

Thank you

