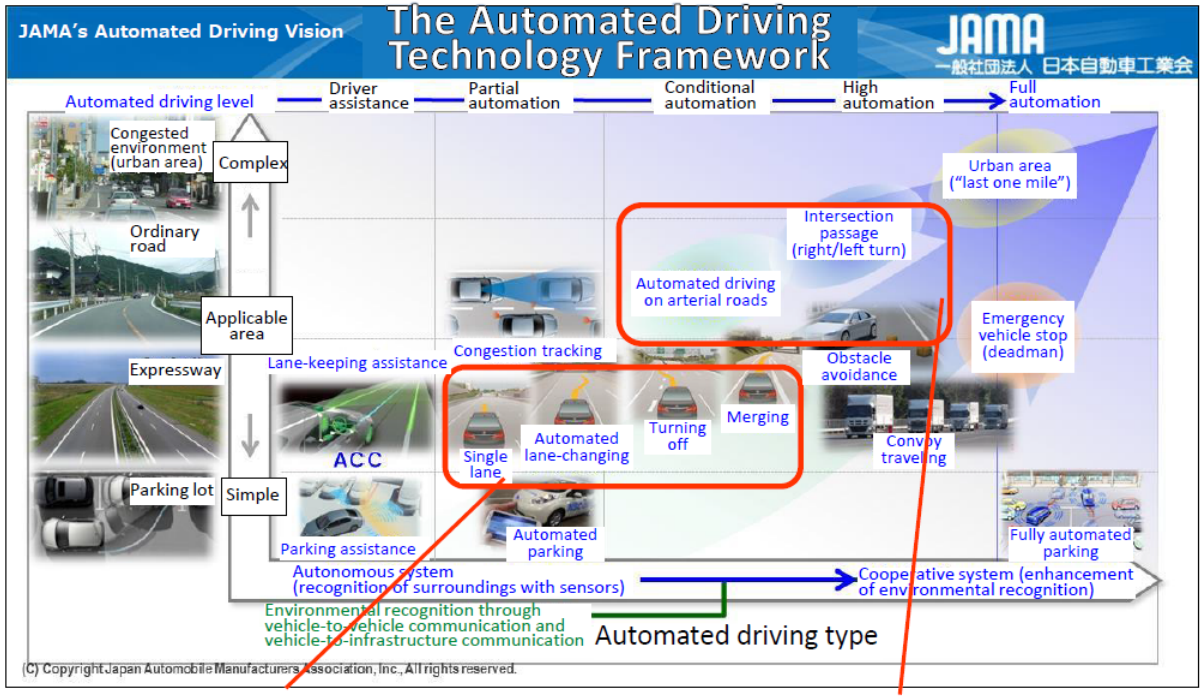
The SIP Automated Driving System: Objectives

1) Reduction of accidents and congestion in road traffic
2) Early realization and deployment of automated driving systems
3) Realization of an advanced public bus system that is easy to use by elderly and disabled people



(1) Practical application of a high-end semi-automated driving system (Level 2) by 2020

(2) Clarification of functional expandability requirements and priority for next step and scheduling of its deployment

Areas Targeted by the SIP Automated Driving System

Promoting R&D focused on topics for technical fields (cooperative fields) that require a joint industry-academia-government collaboration at SIP.

Elements constituting the "automated driving system"

Vehicle

Recognition — Maps, ITS info, sensors

Judgment — Control, artificial intelligence

Operation — Hydraulics, electric motor

⇒ Development based on competition among manufacturers

⇒ Dynamic Map (high-precision 3D map + changes over time)

Congestion, accidents

Construction, road regulations

Structures, lanes

Delivery of updated data on construction, congestion, etc.

Tying together information that changes with time (e.g., construction, congestion, etc.) on a highly-precise 3D map for car localization

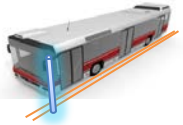
Base technologies

Cyber Security

Guidelines for protection against cyber attacks on vehicles, etc.

Next Generation Transport

Application of automated driving technologies to buses, etc.



Precise stopping at bus stops with almost no space between the bus and the curb to make getting on/off easier for wheelchair users and elderly passengers

Improved express performance and on-time operation through enhancement of Public Transportation Priority Systems (PTPS) Etc.

HMI

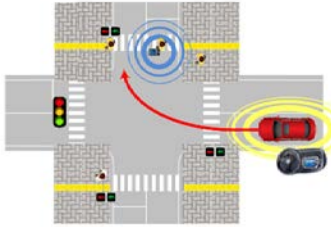
Human Machine Interface

The transition time required, depending on driver's readiness, to safely switch from automated driving to manual driving

Interfaces with other traffic participants

Instruction method concerning the operating condition of the automated driving system, etc.

Pedestrian traffic accident reduction



Verification of the accident-reduction effects of wireless communication between cars and pedestrians' devices and use of radar, etc.

Red lettering: "Cooperative area" in which SIP is involved

Promotion Structure

Promoting Committee for SIP Automated Driving Research Project

PD: Seigo Kuzumaki, Executive General Manager, Toyota Motor Corporation
Sub-PD: Tateo Arimoto, Professor, National Graduate Institute for Policy Studies
Masao Fukushima, ITS Technical Consultant, Nissan Motor Company
Yoichi Sugimoto, Senior Chief Engineer, Honda R&D Co., Ltd.
Members: Cabinet Office, National Police Agency, MIC, METI, MLIT
Industry, Experts

- System Implementation Working Group
  Chair: Toshiyuki Inagaki, Vice President, University of Tsukuba
- Map Structuring Task Force
  Chair: Hiroaki Takada, Professor, Nagoya University
- International Cooperation Working Group
  Chair: Hajime Amano, President and CEO, ITS Japan
- Large-Scale Field Operational Tests Task Force
- Next Generation Transport Working Group
  Chair: Takeshi Oguchi, Professor, University of Tokyo

Govt.

R&D is outsourced to research institutions by the management agency, related ministries, and the Cabinet Office.

Management agency

NEDO

Integrated promotion of the large-scale field operational tests

Cabinet Office ⇔ "headquarters function" partnership ⇔ Cabinet Secretariat (IT)

National Policy Agency | MIC | METI | MLIT (Road Bureau, Road Transport Bureau)

Unified promotion with ministerial measures using the organization/knowledge each ministry

Industry

ITS Japan | Japan Automobile Manufacturers Association, Inc. | Society of Automotive Engineers of Japan, Inc.

Japan Automobile Research Institute | Japan Auto Parts Industries Association

Car manufacturers
Related device manufacturers

Academia

Japan Electronics and Information Technology Industries Association | Association of Radio Industries and Businesses

Advanced Mobility Research Center, Institute of Industrial Science, University of Tokyo | Institutes of Innovation for Future Society, Nagoya University

and others

Schedule

2014	2015	2016	2017	2018
2.535 billion yen	2.358 billion yen	2.713 billion yen	3.365 billion yen	

- Team Building
- R&D on specific themes

Steering Committee

- System Implementation Working Group
- International Cooperation Working Group
- Next Generation Transport Working Group

- Integration into 5 key fields

① Dynamic Map

② Information security

③ HMI (Human Machine Interface)

④ Pedestrian Traffic Accident Reduction

⑤ Next Generation Transport

- Large-scale field operational tests

- Field Operational Test of Automated Bus Driving in Okinawa