

METI's Actions Concerning Automated Driving

12/11/ 2019

Ministry of Economy, Trade and Industry

Manufacturing Industries Bureau

Automobile Division, ITS and Automated Driving Promotion Section

Wave of Changes that the Automotive Industry is Facing

- The automotive industry is confronted by the changes of Connected, Automated, Sharing and Electric that may significantly alter the industrial structure (measures for CASE).
- The social significance of automated driving is high for it will reduce road accidents, ensure mobility for the elderly, etc. and resolve a shortage of drivers. That said, it is technologically difficult and the establishment of various systems and infrastructure is necessary for its implementation.
Therefore, the public and private sector must make an united approach.

Significance of Automated Driving

Safer and smoother traffic

Reduce road accidents

Alleviate traffic congestion

Reduce environmental burden

Society with comfortable mobility for many

Improve driving comfort

Support mobility of elderly, etc.

Improved industry competitiveness, efficiency of related industries

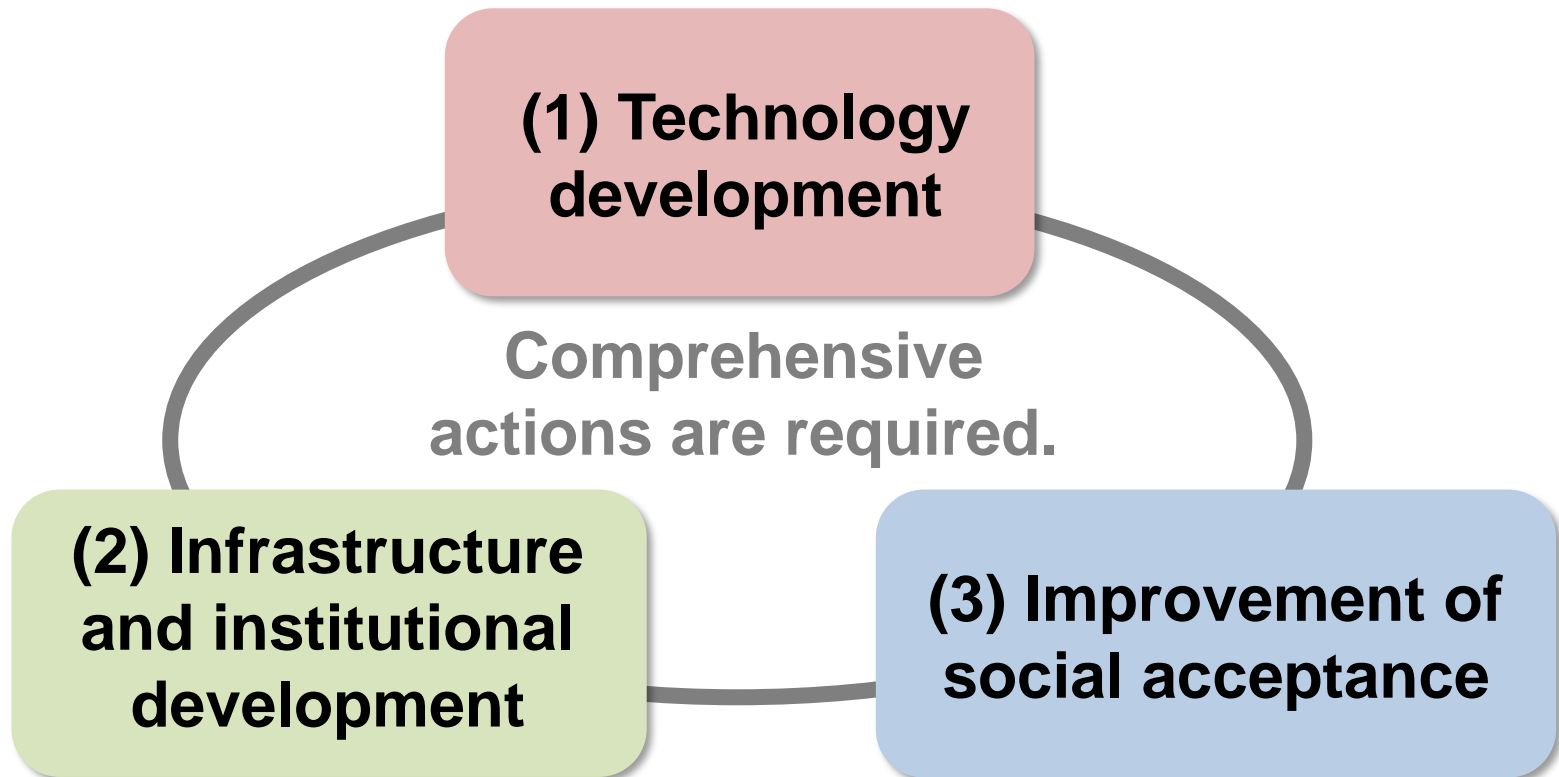
Enhance international competitiveness of automotive-related industries

Creation of new related industries

Efficient transport/logistics business

Efforts Necessary for the Realization of Automated Driving

- For realizing automated driving, it is necessary to take comprehensive actions including **(1) technology development**, **(2) infrastructure and institutional development**, and **(3) improvement of social acceptance**. We promote those measures in cooperation with presiding ministries and agencies.



METI's initiatives for automated driving

- The Ministry of Economy, Trade and Industry aims to achieve the world's leading-edge in both "technology" and "commercialization" of automated driving, from the viewpoint of industrial policy.
- As to "technology," cooperative areas will be maximized so that the companies can concentrate their resources in competitive areas. For "commercialization," aiming to clarify the business model, establish technology, develop social systems including the system and infrastructure, and establish social acceptability through "demonstrations."

Promote demonstration projects

- Promotion of public road demonstrations aiming for commercialization without a driver in the vehicle.
 - 1) Automated driving mobile service demonstrations
 - 2) Truck platooning

Promote Demonstration Projects

1) Automated driving mobile service demonstrations (Eiheiji-cho, Fukui; Chatan-cho, Okinawa)

Goal: Realization of unmanned automated driving mobile service by 2020



November 2018: Operations of two vehicles in remote control type automated driving (Eiheiji Town)



Service demonstration by local businesses (Left: Eiheiji town, right: Chatan Town)

Demonstration of vehicle **technologies**



Validation of business **feasibility** and **business model**

2) Truck platooning demonstration experiment

Goal: Commercialization of **unmanned following vehicle platooning as early as 2022**

Conduct a study on the development of vehicle technologies and requirements, and the framework required for establishing and continuing automated driving as a business.



In addition to technology development, the initiatives in **cost reduction**, **infrastructure development**, etc. are required for commercialization.



Commercialization until 2021

Manned following vehicle platooning system



Commercialization as early as 2022

Unmanned following vehicle platooning system

1) Automated driving mobile service demonstrations

Sophistication in FY2019

Long-term Mobile Service Demonstration Based on Automated Driving in FY2019

Conduct **a long-term mobile service demonstration for about 6 months** by the operation of local businesses, and **examine the evaluation and validation of business feasibility and acceptance.**

◆ Evaluation of the feasibility of practical application

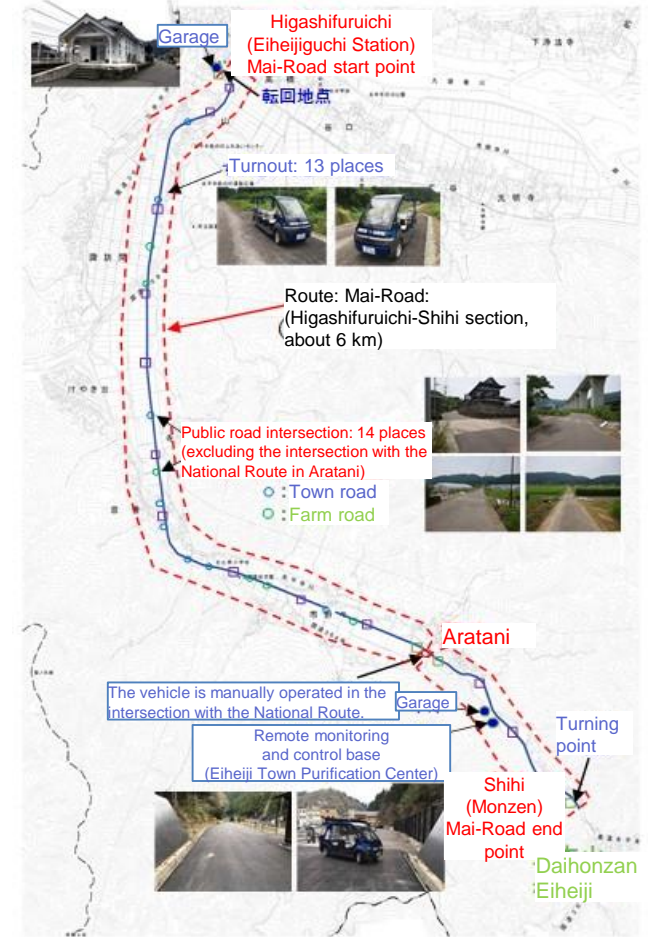
● Eiheiiji Town, Fukui Prefecture:

Although the area is depopulated, the town has tourism resources. Therefore, a mobile service can expect to be used by local residents and tourists and can become mobility means for local revitalization. Regarding the route environment, a limited area not used by general vehicles should be used.

- **Chatan Town, Okinawa Prefecture:** The town is a tourist spot and hotels around the route and tourist businesses are studying setting up a company in preparation for commercialization of the relevant mobility means. Regarding the route environment, a route that is separated from that for general vehicles will be partially tested.



Tourist spot model:
Scheduled route in Chatan Town



Depopulated area model:
Scheduled route in Eiheiiji Town



産総研

自動走行
実施中

この先車両は
通れません

実証実験期間
平成30年10月29日～11月30日

ラストマイル自動走行の実証評価（福井県永平寺町）

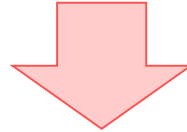
過疎地モデルとしての地域事業者の運行による長期実証と遠隔型自動走行システムの実証

1) Automated driving mobile service demonstrations

Sophistication in FY2019

Demonstration and Evaluation of Medium-duty Automated Driving Buses

Transportation (route bus) businesses are in need of demonstration experiments performed using heavy-duty and medium-duty buses.



Responding to the strong demands of bus operators, we will make efforts to develop the automated driving system for medium-duty route buses and perform system demonstrations locally.



FY2019

- **Development of medium-duty automated driving buses**
- **Preparations for demonstration evaluation using medium-duty automated driving buses:** Planning and selection of demonstration coordinators, recruitment offer and selection of demonstration projects, pre-demonstration using light-duty buses

FY2020

Implementation of demonstration experiments: Conduct demonstration experiments with the participation of at least two businesses at two or more places.

2) Truck platooning demonstration experiment on Expressways

Sophistication in FY2019

- Sophistication of the "manned" following vehicle platooning system (improvement of control accuracy)
- Demonstration experiments of the unmanned following vehicle platooning system

FY2019

[Sophistication of the "manned" following vehicle platooning system]

- Conduct a demonstration of the entry of large-size vehicles during night driving for improving social acceptance and commercialization.
- Improve the control of vehicle platooning on slopes and curves when multi-brand vehicles use inter-vehicle communication.

FY2019

[Demonstration experiments of the unmanned following vehicle platooning system]

[Shin-Tomei Expressway Hamamatsu-Inasa IC ↔ Nagaizumi Numazu IC]

- Perform validation step by step in accordance with functional improvements through technology development; as results are accumulated, aim to realize truck platooning.
- Expand demonstration experiments in the unmanned following vehicle platooning system.
Make vehicles run in diverse environments by expanding the driving range and time.
(Examples: slopes, tunnels, night driving)
- Promote technology development to perform validation of electronic traction technology.





平成30年度トラック隊列走行実証実験
後続車無人システム 2019年1月22日~2月26日

Today's summary

- **Aim at clarifying business models, establishing technologies, developing a social system including rules and infrastructure, and establishing social acceptance, through various demonstration projects**
 - Truck platooning: Realize unmanned following vehicle platooning in FY2020, and its commercialization as early as 2022. While checking the social acceptability using a manned following vehicle platooning system, study the development of system and infrastructure, including driving rules.
 - Last mile automated driving: Aim to implement mobile services in 2020.
Started verification all over Japan. METI/MLIT joint project carried out in Eiheiji and Chatan towns
 - Legal reforms made to enable automated driving level 3. Consider further development.