



「Cross-ministerial Strategic Innovation Promotion Program (SIP)/
Automated Driving for Universal Services/
Construction of Collaboration Structure in Promotion of Joint Research
on Automated Driving with Overseas Research Institutions」

FY 2019 Report

The University of Tokyo
Mobility Innovation Collaborative Research Organization (UTmobI)

March, 2020

“Construction of Collaboration Structure in Promotion of Joint Research on Automated Driving with Overseas Research Institutions” Contents

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1. Promote collaboration environments with overseas research institutions and creation of research theme, as a main window of SIP-adus international cooperation

1) Developing environments of international cooperation with government level

Support government meeting for Japanese-German Research cooperation

■ Supported following preparation meetings for steering committee

1. Japanese-German government meeting (Tele-conference)

- Date & Time : 17:30~18:30, 23rd Aug. 2019
- Attendee : (Germany) BMBF Mr. Reinhold Friedrich, etc.
(Japan) Cabinet Office (Koga, Murata), The University of Tokyo (Kanoshima)

2. Japanese-German government meeting (@Bonn, Germany)

- Date & Time : 12:00~15:00, 9th Oct. 2019
- Attendee : (Germany) BMBF Dr. Herbert Zeisel, Mr. Stefan Mengel, etc.
(Japan) Cabinet Office (Koga) , Japanese Embassy in Bonn (Ueda), The University of Tokyo (Kanoshima)

3. Japanese-German government meeting (Tele-conference)

- Date & Time : 18:30~19:20, 30th Oct. 2019
- Attendee : (Germany) BMBF Mr. Reinhold Friedrich, etc.
(Japan) Cabinet Office (Koga, Murata), The University of Tokyo (Kanoshima)

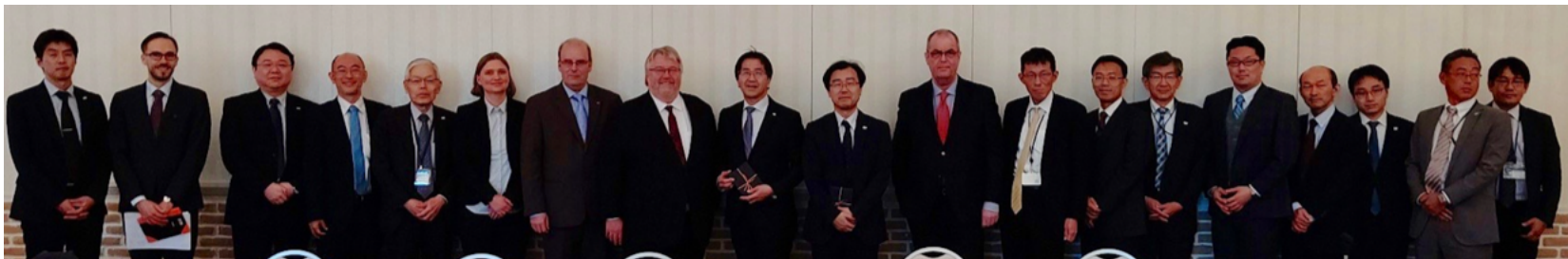
4. Japanese-German government meeting (Tele-conference)

- Date & Time : 18:30~19:30, 24th Mar. 2020
- Attendee : (Germany) BMBF Dr. Beate Müller
(Japan) Cabinet Office (Koga, Murata), NEDO (Tanaka), The University of Tokyo (Umeda)

1) Developing environments of international cooperation with government level

Support government meeting for Japanese-German Research cooperation

- Supported following 2nd steering committee of the Japanese-German Research Co-operation
 - Date & Time : 14:00~15:00, 15th Nov. 2019 @Hotel MIELPARQUE Tokyo
 - Attendee :
 - Germany : BMBF Dr. Zeisel, Mr. Friedrich, etc.
 - Japan : CAO (Kuzumaki-PD, Kakimi Director, etc.), NPA, MIC, Cabinet Secretariat, NEDO, The University of Tokyo, etc.
 - Main agenda :
 - Report of the current activities of cooperation
 - Decision for funding of projects on cybersecurity and safety assurance
 - Discussion on future perspective for JP-GER research co-operation
 - Timing of next steering committee



1) Developing environments of international cooperation with government level

Creation of contact person list of each research theme in Japanese-German Research Cooperation

- Based on the result of steering committee on Nov., following contact person list was created and exchanged with German side.

<Already started>

Research theme	Contact in Japan			Contact in Germany		
		Name	Affiliation		Name	Affiliation
Human Factors	Main	Satoshi Kitazaki	AIST	Main	Klaus Bengler	Technical University Munich
	Sub	Makoto Itoh	University of Tsukuba	Sub	Josef Krems	Technical University Chemnitz
Impact Assessment	Main	Takashi Oguchi	University of Tokyo	Main	Christine Eisenmann	German Aerospace Center (DLR)
	Sub	Hiroaki Miyoshi	Doshisha University	Sub	Tobias Kuhnimhof	RWTH Aachen University

<Under study>

Research theme	Contact in Japan			Contact in Germany		
		Name	Affiliation		Name	Affiliation
Cybersecurity	Main	Shigeru Uehara	Toyota Motor Corporation	Main	Frank Kargl	University Ulm
	Sub	Tsutomu Matsumoto	Yokohama National Univ.	Sub	Jochen Koszescha	Infineon Technologies AG
Safety Assurance	Main	Satoshi Taniguchi	Toyota Motor Corporation	Main	Matthias Hein	Technical University Ilmenau
	Sub	Hideo Inoue	Kanagawa Institute of Tech.	Sub	Herrmann Winner	Technical University Darmstadt

1) Developing environments of international cooperation with government level

Discussion for future direction of Japan-EU cooperation with European Commission

- Bi-lateral meeting with European Commission was held on 12th Nov. 2019, by utilizing the opportunity of SIP-adus workshop 2019. As a conclusion, future cooperation with current EU project related to Connected and Automated Vehicles under Horizon 2020 will be studied considering the difficulties of "Twinning" due to its preparation process and project term of SIP-adus 2nd phase (FY2018-2022).
- European project list under Horizon 2020 related to SIP-adus was sent from European Commission. Actual candidate project for future Japan-EU cooperation is under study.



1) Developing environments of international cooperation with government level

International cooperation window role of SIP-adus

- As SIP-adus window role, following activities were addressed in FY2019.
 - Proposed the management ideas for SIP-adus workshop 2019
 - Arranged overseas presenters at plenary session and organized breakout session of “Regional Activities” in SIP-adus workshop 2019
 - Project researcher assigned as “Collaborative research coordinator” under steering committee of SIP-adus
 - Coordinated inquiries or requests from overseas organizations (UK Epitomical, Spain Government of Catalonia)
 - Attended international research conferences and collected the latest trend information.

2) Creating research themes for international cooperation with expert level

“Mobility Innovation Liaison Conference”

- In order to discuss future themes for international cooperation considering post SIP, and in order to share the latest international research activities of SIP-adus, “Mobility Innovation Liaison Conference” was held in FY2019.

Tie	Main agenda
October, 2019	<ul style="list-style-type: none">▪ Explain the outline of “Construction of Collaboration Structure in Promotion of Joint Research on Automated Driving with Overseas Research Institutions” in SIP-adus 2nd phase▪ Study for exploitation of researchers’ database regarding automated driving research▪ Share the latest international research activities▪ Study for future themes for international cooperation
December, 2019	<ul style="list-style-type: none">▪ Request for the expansion of researchers’ database regarding automated driving research▪ Share the latest international research activities▪ Report current status of future themes for international cooperation
February, 2020	<ul style="list-style-type: none">▪ Share the latest international research activities▪ Report current status of future themes for international cooperation

2) Creating research themes for international cooperation with expert level

Support expert meeting for Japanese-German Research cooperation

■ Supported following expert meetings regarding Socio-economic Impact.

1. Expert meeting in Japanese side (@ Doshisha University)

- Date & Time : 15:00~17:00, 5th Aug. 2019
- Attendee : Doshisha Univ. (Miyoshi, Watanabe), Univ. of Tsukuba (Taniguchi), Univ. of Tokyo (Nakano, Kanoshima, Uchimura)

2. Japanese-German expert meeting (@DLR, Germany)

- Date : 7th & 8th Oct. 2019
- Attendee : (Germany) KIT Fleischer, RWTH Kuhnimhof, BMBF Flank, DLR Eisenmann, etc.
(Japan) Cabinet Office (Koga), Doshisha Univ. (Miyoshi, Watanabe), Univ. of Tsukuba (Taniguchi), Univ. of Tokyo (Nakano, Kanoshima, Uchimura)

■ Supported following expert meeting regarding Safety Assurance and Cybersecurity

1. Japanese-German expert meeting (@ Hotel MIELPARQUE Tokyo)

- Date & Time : 10:00~12:00, 15th Nov. 2019
- Attendee : (Germany) BMBF Zeisel, KIT Pauli, Kriesten, etc.
(Japan) Cabinet Office (Kuzumaki-PD, Koga), Toyota Motor Corp. (Taniguchi, Uehara), KAIT (Inoue), YNU (Matsumoto), Univ. of Tokyo (Oguchi), etc.

2) Creating research themes for international cooperation with expert level

Study future collaboration research theme for Japan-EU cooperation

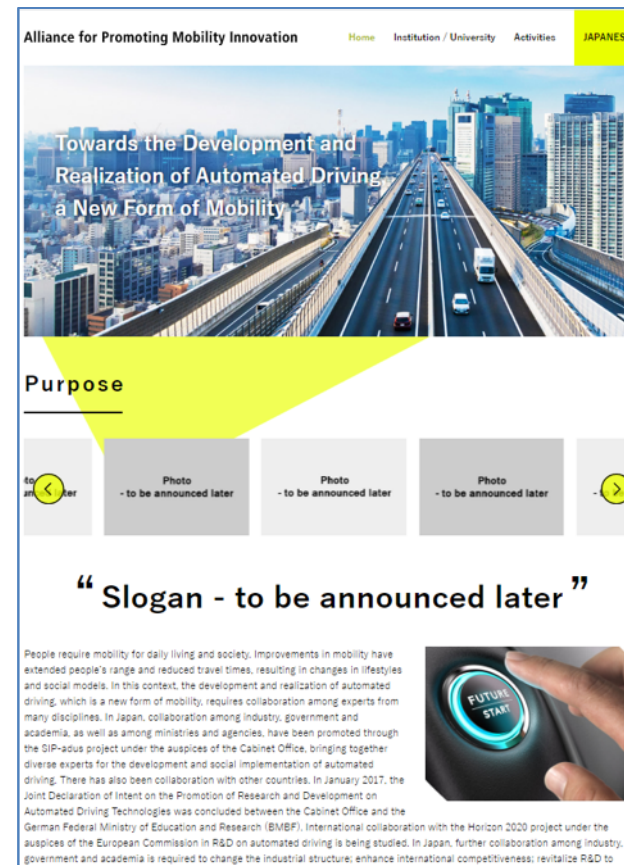
- Based on the result of Bi-lateral meeting on Nov., following candidate lists for future collaboration with European Horizon 2020 project were created and circulated to relevant stakeholders.

Project acronym	Project name	Project duration	Call ID
5G-CARMEN	5G for Connected and Automated Road Mobility in the European Union	2018/11-2021/10	ICT-18-2018
5GCroCo	5G Cross-Border Control	2018/11-2021/10	ICT-18-2018
5GMOBIX	5G for cooperative & connected automated MOBility on X-border corridors	2018/11-2021/10	ICT-18-2018
ARCADE	Aligning Research & Innovation for Connected and Automated Driving in Europe	2018/10-2021/9	DT-ART-02-2018
AVENUE	Autonomous Vehicles to Evolve to a New Urban Experience	2018/5-2022/4	ART-07-2017
DriveToTheFuture	Needs, wants and behaviour of 'Drivers' and automated vehicle users today and into the future	2019/5-2022/4	MG-3-3-2018
ENSEMBLE	ENabling Safe Multi-Brand pLatooning for Europe	2018/6-2021/5	ART-03-2017
Hadrian	Holistic Approach for Driver Role Integration and Automation Allocation for European Mobility Needs	2019/12-2023/5	DT-ART-03-2019
HEADSTART	HARMONISED EUROPEAN SOLUTIONS FOR TESTING AUTOMATED ROAD TRANSPORT	2019/1-2021/12	DT-ART-01-2018
ICT4CART	ICT Infrastructure for Connected and Automated Road Transport	2018/9-2021/8	ART-01-2017
L3Pilot	Piloting Automated Driving on European Roads	2017/9-2021/8	ART-02-2016
Levitate	Societal Level Impacts of Connected and Automated Vehicles	2018/12-2021/11	DT-ART-02-2018
MEDIATOR	MEdiating between Driver and Intelligent Automated Transport systems on Our Roads	2019/5-2023/4	MG-2-1-2018
OSCCAR	Future Occupant Safety for Crashes in Cars	2018/6-2021/5	MG-3.2-2017
PASCAL	Enhance driver behaviour and Public Acceptance of Connected and Autonomous vehicles	2019/6-2022/5	MG-3-3-2018
Show	Shared Automation Operating Models for Worldwide Adoption	2019/12-	H2020-EU.3.4.
SUaaVE	SUpporting acceptance of automated VEhicle	2019/5-2022/4	MG-3-3-2018
Trustonomy	Building Acceptance and Trust in Autonomous Mobility	2019/5-2022/4	MG-3-3-2018
WISE-ACT	Focuses on the wider implications of the deployment of autonomous vehicles, taking into account anticipated future mobility trends and implications on travel behaviour, such as car sharing, travel time use, residential location choice and broader social issues.	2017/11-2021/10	FP7

2) Creating research themes for international cooperation with expert level

Creation of information sharing web-site for future academic cooperation

- In order to announce and promote academic knowledges related to automated driving technologies by academic cooperation, creation of electrical file of information web-site was addressed.




Web-site image (Left : Japanese version, Right : English version)


2) Creating research themes for international cooperation with expert level

Study of new international collaborative research theme

- As a new international collaborative research theme considering post-SIP, “driverless mobility service” was studied based on past discussion results in SIP-adus workshop, by recruiting the members from academia and industries.





「Level 4 Mobility Service実用化検討会」の取り組み



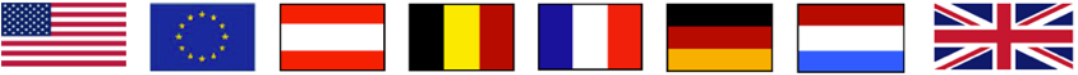
- ITS Japan自動運転研究会活動
 - Level 4 モビリティサービスの実用化を焦点とした課題を検討

↓

- 東京大学モビリティイノベーション連携研究機構 (UTMobI)との連携活動



- 国際調和のとれた実現解を検討



3) Expansion of the database of researchers regarding automated driving

Activities in FY2019

- The database of researchers regarding automated driving research, created by “Basic research towards the guideline for joint research on Automated Driving with overseas research institutions” in FY2018, was updated with expansion of researchers.
- The database exploitation was discussed at Mobility Innovation Liaison Conference and various views and opinions were collected.

Information source organization for the database of researchers regarding automated driving research

- Kanazawa Univ., Institute for Frontier Science Initiative, Future Society Creation Research Core, Autonomous Vehicle Research Unit
- Kyushu Institute of Technology
- Gunma Univ., Research and Industry-Academia Collaboration Promotion Organization, Center for Research on Adoption of NextGen Transportation Systems (CRANTS)
- Keio Univ., Mobility Culture Research Center
- Univ. of Tsukuba, Center for Artificial Intelligence Research (C-AIR)
- Univ. of Tsukuba, Headquarters for International Industry-University Collaboration
- The Univ. of Tokyo, Mobility Innovation Collaborative Research Organization (UTmobl)
- Tokyo Univ. of Agriculture and Tech., Smart Mobility Research Center
- Tohoku Univ., New Industry Creation Hatchery Center (NICHe)
- Doshisha Univ., Institute for Tech., Enterprise and Competitiveness (ITEC)
- Doshisha Univ., Mobility Research Center
- Nagoya Univ., Institutes of Innovation for Future Society, Global Research Institute for Mobility in Society (GREMO)
- Nihon Univ., Institute for Industrial Tech., Center for Automotive Research (NU-CAR)
- Meiji Univ., Institute of Autonomous Driving (MIAD)
- Yokohama National Univ., Research Center for Sustainable Mobility System
- National Institute of Advanced Industrial Science and Technology (AIST)
- Japan Automobile Research Institute (JARI)
- National Traffic Safety and Environment Laboratory (NTSEL)
- RIKEN

2. Create the plan and arrange the establishment of research bodies for promoting international collaborative research in automated driving area

1) Studying future sustainable collaboration model

Investigation of activities in Japanese academia

- Collecting information regarding academic activities for automated driving vehicles in Japan was carried out through participating the council for promoting mobility innovation, symposium and seminar.

Date	Place	Information source	Contents
2019/7/22	Nagoya Univ. Higashiyama Campus (Nagoya, Aichi)	Kyushu Institute of Technology, Tohoku Univ. NICHe, Nagoya Univ. GREMO, Nihon Univ. NU-CAR, Meiji Univ. MIAD, Yokohama National Univ. Research Center for Sustainable Mobility System	Information and opinions were exchanged by participated researchers at the council for promoting mobility innovation (1 st in FY2019).
2019/11/20	Nagoya Univ. Higashiyama Campus, Environmental Studies Hall (Nagoya, Aichi)	Nagoya University GREMO	Information and opinions were exchanged by participated researchers at the symposium organized by Nagoya Univ.
2019/11/27	Fukushima Robot Test Field (Minamisoma, Fukushima)	Tohoku University NICHe, Meiji University MIAD	Information and opinions about the latest mobility trend were exchanged by participated researchers at 3 rd Fukushima Hamadori next generation mobility seminar.
2019/12/12	ISHIKAWA Industrial Promotion Center (Kanazawa, Ishikawa)	Tohoku University NICHe, Nagoya University GREMO, Doshisha University ITEC, Doshisha University Mobility Research Center	Information and opinions were exchanged by participated researchers at the council for promoting mobility innovation (2 nd in FY2019).
2020/1/21	Fukushima Robot Test Field (Minamisoma, Fukushima)	Tohoku University NICHe, Meiji University MIAD	The latest mobility trend was presented, and Information and opinions were exchanged by participated researchers at 5 th Fukushima Hamadori next generation mobility seminar.
2020/1/28	Ochanomizu sola city Conference Center (Chiyoda, Tokyo)	Nagoya University GREMO	Information and opinions were exchanged by participated researchers at the symposium organized by Nagoya Univ.
2020/2/26	Iwaki City Chuodai community center (Iwaki, Fukushima)	Tohoku University NICHe, Meiji University MIAD	Information and opinions about the latest mobility trend were exchanged by participated researchers at 6 th Fukushima Hamadori next generation mobility seminar.

1) Studying future sustainable collaboration model

Future research body

- The framework for future study towards future research body was sorted out from “Role of industry-academia-government”, “Flow of sustainable fund”, “Human development” and “Collaboration among different fields” viewpoint, based on the outcome studied in FY2018.

Function image of future research body

Role of industry-academia-government	As an image of framework, Industry provides the budget and human resources, Academia deploys human resources, and Government supports additional budget (subsidy) to the organization.
Flow of sustainable fund	Study a flow of sustainable fund by industries’ funding and tax incentive or subsidies by government.
Human development	Assume that human resources are provided by Industry and deployed by Academia. Assume developing human resources through demonstrative research to actual field & issues from the both practical science and theory.
Collaboration among different fields	Academia will gather experts from various field as a hub, and new generated issues will be addressed.

2) Creating the plan and arranging the establishment of research bodies (Conduct after FY2020)

- In this part, an establishment of research body which can face to overseas research institutes (coordinated among Industry-Academia-Government), can address unique issues in Japan and can contribute keeping international competitiveness in automotive industries, will be studied.
- Towards the establishment, a time schedule will be planned and outline of research body (legal personality, participation members, business scale, function, etc.) and required regulations will be established after reached consensus with relevant government ministries and agencies, relevant organizations in each industries, etc., by coordinating with Cabinet Office. These activities will be addressed in FY2020 or later.

END