"Strategic Innovation Promotion Program (SIP)
Automated Driving for Universal Service"
Analysis & research on future needs for automated driving and issue arising from them
- For research & examination on issues regarding realization of automated driving and the direction of their resolution

Report

March 9th, 2018

SC-ABeam Automotive Consulting

Table of Contents

1． Background and Objectives

Strategic Innovation Promotion Program (SIP) is a program that Council for Science, Technology and Innovation established using its own budget and operated beyond the bounds of the government and industry. The aim of the program is to promote initiatives including regulatory and institutional reformation, looking ahead at basic research through to exit (practical applications, commercialization, and international standardization). FY2017 is considered the time when the research and development outcomes of SIP Automated Driving for Universal Service (SIP-adus) to date are finalized in order to ensure that they lead to practical applications and commercialization. SIP looks ahead at further advancement and development after SIP ends and focuses its budget on the following four areas:

(1)Promotion of research and development centered on large-scale demonstration experiments

(2) Development of commercialization and business models

(3) Local deployment and government-industry-academia collaboration

(4) International collaboration and standardization activities

With regard to "(4) International collaboration and standardization activities" above, the international collaboration working group is working on the following to promote international corporation activities.

<1> Information distribution

<2> Organization of international conferences in Japan

<3>Establishment of research and development environments open to international communities

<4>Creation of social acceptance for automated driving systems

As for activity <4>, it is essential to create social acceptance for automated driving systems in deploying them in society. To do so, SIP organized three citizens' dialogues in FY2016 as venues for interactive communication, where participants discussed and exchanged opinions on social needs for and various constraints (technical limitations and legal aspects) of automated driving systems.

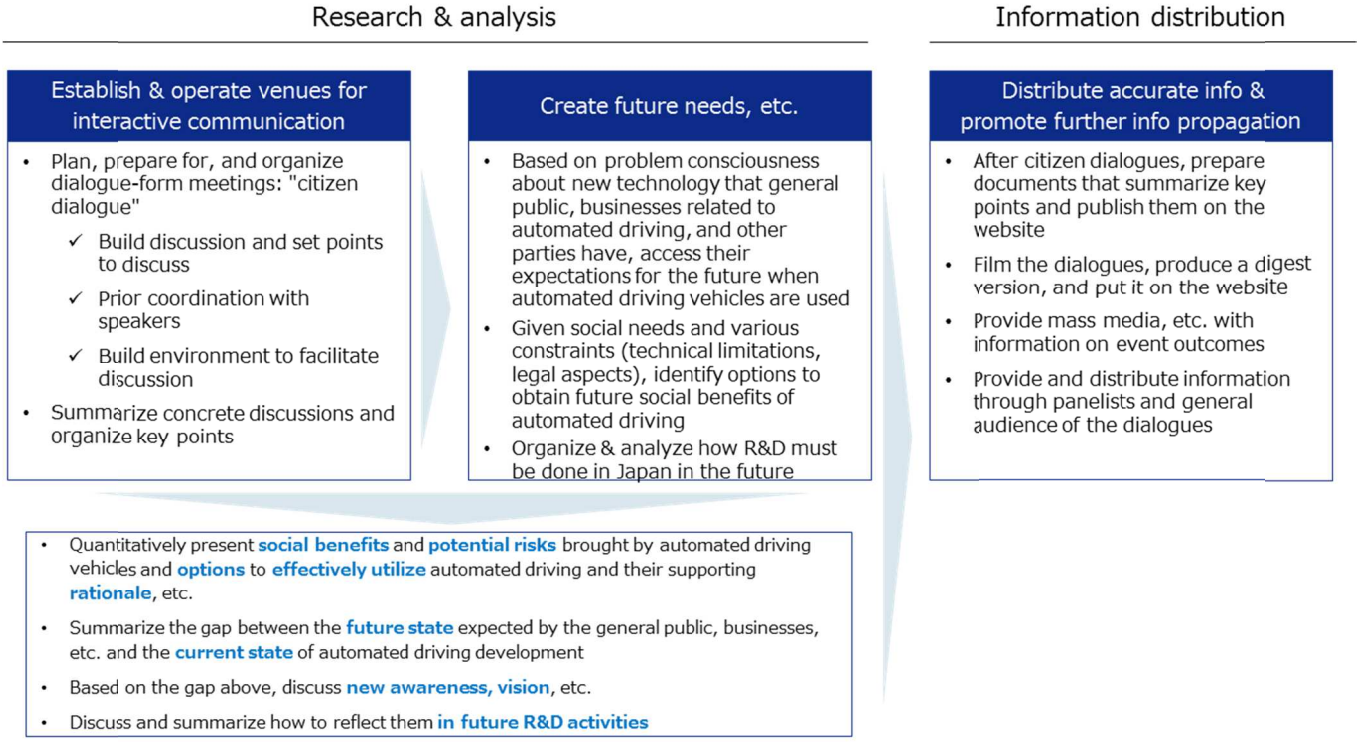
In FY2017, focusing on the benefits and potential risks of automated driving vehicles, SIP aimed to continue to create opportunities for discussion between experts and parties such as the general public and businesses that are deeply related to automated driving, envision the future state of automated driving, and extract and analyze future needs based on problem consciousness and expectations created through the above-mentioned discussion, thereby facilitating proper assessment of research and development of current automated

driving systems and exploration of the future direction.

2. Research Structure

・SIP organized citizens' dialogues as a venue for interactive communication to extract and analyze future needs, etc., and discussed new awareness, visions, and the like through dialogues with citizens.

・ SIP distributed accurate information in effective ways through panelists, the general audience, and others who participated in the citizens' dialogues, and the outcomes were published on the SIP-adus website, and received media coverage.



3. Project Execution Report

3.1 The position of the citizens' dialogues

The citizens' dialogues organized by the Strategic Innovation Promotion Program Automated Driving for Universal Service ("SIP-adus") are designed to create dialogues with

the general public in order to draw a future picture of automated driving and urban transportation based on problem consciousness and expectations and extract and analyze future needs for automated driving systems. Having a venue of interactive communication with citizens provides new awareness, visions, and the like that differ from existing perception or perspectives. This can be reflected in future research and development activities and facilitate distribution of accurate information and further information propagation, thereby creating social acceptance.

FY2017 is the second period of the citizens' dialogues.

In the first period (FY2016), 17-24 citizens gathered for dialogues to discuss one of the three themes each: "Society changed by the realization of automated driving," "Connection between automated driving and society," and "Drivers' rights and responsibilities," and every dialogue created meaningful opinion exchange. SIP aimed at further development in FY2017 by making new attempts based on the previous results.

3.2 Features of citizens' dialogues in FY2017

(1) Collaboration with Tokyo Motor Show

The first citizens' dialogue in FY2017 was held on November 3 in Conference Tower of Tokyo Big Site, where the 45th Tokyo Motor Show ("TMS") was organized. This was made possible through collaboration with TMS organizer, the Japan Automobile Manufacturers Association, and Mr. Masami Misaki, chief member of the association's mid- and long-term mobility vision investigative commission, who addressed the dialogue.

This was the first attempt for an SIP-adus citizens' dialogue to team with a large-scale external event. The invitation of the public audience resulted in 399 applications and 311 visitors, the largest audience ever. In addition, the TMS website and materials distributed on the day covered the citizens' dialogue, which informed a large number of citizens of SIP-adus and its citizens' dialogues.

(2) Dialogue design

The first dialogue held in collaboration with a large-scale event presented an excellent opportunity to inform not only visitors but also other citizens of SIP-adus and its citizens' dialogues. On the other hand, panelist chairs needed to be placed to face the audience since the spacious venue had large audience. As a result, panelists tended to speak to the audience rather than having a dialogue among themselves.

Therefore, the second dialogue focused on activating a dialogue among the citizen panelists by not inviting a wide audience and by arranging the venue so all panelists were seated face to face . This helped to keep panelists on track giving opinions in response to others' rather than making isolated statements.

The two dialogues played different roles, the first one serving as an effective venue for distributing information and the second one facilitating a deeper dialogue.

(3) Introduction of new approaches

The first dialogue introduced an online opinion posting tool, sli.do (the same pronunciation as "slide"), which allows the audience to post opinions or questions using their smartphones. Panelists can also view opinions and questions from the audience in real time. In some cases, questions from the audience were answered on the spot. See p.39 for details.

The second dialogue introduced graphic recoding, i.e., an approach to record things with visual expressions. Professional graphic recorders hired for the occasion recorded the content of the dialogue using illustrations or other means. The approach is characterized by a visualized output and allowed panelists to view posts during the dialogue, further activating it. See p.26-27 for details.

(4) Active utilization of the youth responsible for the next generation

SIP-adus looks ahead to 2030 and beyond and the citizens’ dialogues are also expected to create dialogues about 10 or more years into the future rather than discussions on immediate issues. To discuss the future, the unique perspectives and ideas of young people, who are responsible for the future society, would be essential. Therefore, the dialogues in FY2017 involved from the planning stage of a student group that participated in the citizens' dialogues in FY2016.

In light of creation of social acceptance as well, which is one of the key roles of the citizens’ dialogues, recruiting members of the young generation is effective. They utilize SNS and other means to actively distribute information and also have held a series of discussions by organizing study sessions, for example. It can be said that information was successfully delivered to the youth, who were suspected to be losing interest in cars, in a different way from that in FY2016.

(5) Theme setting based on the perception of automated driving as an ecosystem

SIP-adus examines technical development and social acceptance centered on automated driving vehicles. Meanwhile, development of automated driving technology

is expected to have extensive influence. Therefore, the scope of discussions is broadening from vehicle bodies to infrastructure including roads, to people's lifestyles, and to community building.

In view of the above, the themes of the citizens' dialogues in FY2017 were decided considering that the focus of discussions had moved from tangible goods, or vehicles, to intangible qualities brought by travel. Additionally, the dialogue design adopted the back-cast approach whereby an ideal future picture is drawn first and then what to do now to realize it is discussed, rather than the forecast approach whereby discussions are based on the perspectives of current issues and technical development. The citizens' dialogues are a forum for dialogue with various citizens and the best opportunity to extract elements of an ideal future state.

(5-1) The first dialogue - "Mobility and urban design"

While the term "mobility" is given a variety of meanings, it refers to travel itself in the citizens' dialogues. It includes travel by not only automobiles but also by bicycles, elevators, or walking. Similarly, "Urban" does not refer to specific cities, but refers to the space where people live and the functions that people use. Further, "urban design" does not mean the physical design of buildings or streets, but means design, plan, approach, methods, etc., used to realize better space and functions.

In short, the scope of "Mobility and urban design" is travel within the space where people live and all the functions linked to such travel. Exchanging opinions from these standpoints is expected to reveal various travel needs in the living space and at the same time lead to discussion on what kinds of automated driving systems are required.

Also, involving citizens from the non-automobile industries such as construction and urban design or railways enables incorporating in the dialogues their insight into travel services that they could think of from their perspective. Discussions on mobility would need to cover not only the design of public transport infrastructure including automobiles but also the design of towns that make people desire to travel, the structure of buildings that serve as nodes of different types of travel, the way railways should be as one of the travel means, and utilization of data obtained in the urban space.

In other countries, knowledge of urban design architectonics and that of IT service are combined to promote discussions from the perspective of redesigning the whole city to improve travel. An example is a project by Alphabet (Google's parent

company), "Sidewalk Toronto." We set themes of the citizens' dialogue hoping that it would also create new points of view.

(5-2) The second dialogue - "Future society and MaaS"

"MaaS (Mobility-as-a- service)" has recently attracted the world's attention. In *Public-Private ITS Initiative/Roadmaps 2017* issued last May also introduced it as an approach that indicates changes in business models related to automobiles and mobility occurring with the developments in automated driving systems and the sharing economy.

Specifically, MaaS refers to services that comprehensively propose the best way of travelling from Point A to Point B among a variety of public transportations and allow reservations, payment, and other procedures on the spot. MaaS can be considered pioneering in that it starts from intangibles, rather than mobile objects themselves or service providers, to realize a travel experience that satisfies individual users' needs by properly combining various means of travel.

"Future society and MaaS" was set as the second citizens' dialogue's theme with an aim to present examples of existing MaaS while looking also at travel services that do not exist yet.

The dialogue pursued to discuss MaaS from viewpoints of "how civic life will change" and "how we hope it changes" rather than talking about the technical aspects of automated driving."

To do so, it was necessary to deeply examine the needs of citizens who receive services. The second citizens' dialogue identified the needs regarding travel of goods and humans and then discussed what kinds of services would address such needs. In addition, citizen panelists were selected from various occupations, family environment, and residential areas in order to draw out various travel needs from various lifestyles.

3.3 Summary

The information gained through both of the two dialogue sessions has been organized as below. These indicate courses to take in future research and development efforts.

(1) Think with an autonomous decentralized model in line with regional characteristics

In the dialogue the needs and issues concerning mobility were approached by the

citizen panelists. A wheelchair-using citizen said that “I can drive by myself now, but as I get older I’m worried whether I’ll be able to still move like I can now”, and an exchange student from Paris told how “in Japan it’s inconvenient to travel around in the middle of the night”. Also while there were unique perspectives such as “I want to move while in the bath” and “ultimately I’d love for my house to move”, it was also indicated that “in disaster hit areas there’s movement that would be very important to one person although others might think it unreasonable”. From the individual environments and backgrounds of the citizen panelists it became clear once again that diverse needs and issues of mobility are being perceived.

Also in the metropolitan area, particularly in the center of the city, the public transportation net is well developed, and although there are issues, such as with work commuting, in terms of regular transport it’s the non-urban areas that tend to have the most deep-rooted issues. This was reflected in the opinions from the citizen panelists and also the many comments from the survey and Sli.do.

Many people also sounded their expectations that automated driving systems could be able to respond to more diverse needs.

A nationally unified infrastructure environment should probably be somehow secured, also from a public notion. However instead of simply expanding a standardized service, an autonomous decentralized model that matches different traits and regions, while also securing a fixed platform for the whole of society, will probably be accepted by each regional area as something sustainable.

(2) Perceiving automated driving systems not as a singular thing but as a common foundation and ecosystem of society

In the first session about cities, and the second one about MaaS, it was understood that in order to create better services a common platform, as well as a variety of players being perceived as an ecosystem, are needed.

Professor Shibasaki from The University of Tokyo, who talked in the second session, explained about the “necessity of a platform that can smoothly and also seamlessly match the users who want to move with the suppliers who offer that mobility that includes trains and buses”. Also from citizens who were affected by the heavy snowfall in January, the problem was raised that information on public transport operation is fragmentary and is not really responding to true mobility needs. For this reason as a platform it needs to surpass the barriers between businesses and be collaborative in the utilization of data. Though in order to actually build and run this, there are many issues that need to be solved.

Also in order to realize an automated driving service, an ecosystem needs to be formed, and by governmental and private enterprises fulfilling their individual roles in that ecosystem, sustainable socioeconomics can be preserved.

(3) Offering a place to convey information

For the citizens' dialogue, which has a mission to bring about social acceptability, the conveying of information is an important function.

While information related to automated driving systems is increasing in recent years, if information isn't actively attained out of interest, accurate information is not conveyed to citizens. This is reflected in how in the first session's survey around half of the participants didn't know about SIP-adus's activities. There's a need to convey correct information on automated driving systems to those passive to it and avoid overestimations and fallacies.

The citizens' dialogue was planned as an occasion where experts that include SIP-adus members, intellectuals, and general citizens can talk together in the same place. We think that properly offering accurate information to general citizens through this occasion is greatly significant in bringing about social acceptability.

There was also the opinion that by actualizing the service it's possible to deepen understanding and absorb the needs of automated driving systems even more, and this will allow for them to be seen as something attractive.

(4) Future possibilities of the citizens' dialogue

The first session gathered a wide general audience by collaborating with the Tokyo Motor Show, however we felt the difficulty of accommodating both the sides of conveying information and needs in the one project. On the other hand we held the second session just with interested parties and, in terms of the dialogue with citizens and the needs that were pointed out, we felt the benefits of how a smaller scale event can make deeper conversations possible. This year a total of 18 panelists participated (1 was absent on the day due to sickness), and also it was held in Tokyo so it was hard to extract the issues and needs related to non-urban areas.

Through the second session's dialogue this year, the opinion came up that transport should match the separate issues of individual regions. Those issues are understood best by the citizens living in those particular regions. By holding citizens' dialogues in a diverse number of regions, and with the participation of people from a wide variety of social stratums, such as the elderly and people

currently engaged with child rearing, perhaps the needs and issues of mobility that could not be understood just in Tokyo will start to come forth.

4. Citizens' dialogues in FY2017 Organization Report

4.1 Dialogues organized

	1st	2nd
Date & Time	Friday, November 3rd, 2017 15:00-17:30	Monday, February 5th, 2018 14:00-16:00
Venue	Conference Rooms 605-608, Conference Tower, Tokyo Big Site	Presentation Room, Bldg. S, Institute of Industrial Science, The University of Tokyo
Moderators	Mr. Kazuo Shimizu: Promotion Committee member, SIP-adus Ms. Rumiko Iwasada: Promotion Committee member, SIP-adus	Mr. Eitaro Suda: Postgraduate student, science & technology journalist - Supervisor Mr. Kazuo Shimizu - Overall host Ms. Rumiko Iwasada
Speakers	Mr. Takayuki Kishii: Professor, Dept. of Civil Engineering, College of Science and Technology, Nihon University Mr. Seigo Kuzumaki: Program Director, SIP-adus Mr. Tateo Arimoto : Sub-Program Director, SIP-adus Mr. Masami Misaki: Japan Automobile Manufacturers Association, Inc.	Mr. Takashi Oguchi: Professor, Institute of Industrial Science, The University of Tokyo Mr. Ryosuke Shibasaki: Professor, Center for Spatial Information Science, The University of Tokyo Mr. Seigo Kuzumaki Mr. Takeo Arimoto
Citizen panelists	**10 panelists** Ms. Obinata: Media outlet employee, universal design consultant Mr. Kamei: Postgraduate student, biomimetic designer in Japan and UK Mr. Suda: Postgraduate student, science & technology journalist Ms. Takahashi: Construction consultant, urban mobility designer Mr. Tanaka: University staff, AI researcher with financial background Mr. Toriumi: Entrepreneur implementing IoT across city Mr. Mibuchi: Railway company employee, city planner knowledgeable about child-rearing situations Mr. Yabe: Property developer employee, developer of complex building	**8 panelists** Mr. Yamanami: Postgraduate student Mr. Tanada: Consultancy employee Ms. Yasutomi: Postgraduate student Mr. Kinoshita: Adult postgraduate student Mr. Moriya: General electric-appliance manufacturer employee Ms. Takahashi: Construction consultancy employee Mr. Maniwa: Agricultural business entrepreneur, university student Mr. Hayashi: Transportation company employee Note: Mr. Ichikawa (medical journalist) was absent due to sudden illness

	1st	2nd
	Mr. Yamanami: Postgraduate student, urban data analyst Ms. Lebreton: Postgraduate student, criminal law researcher from overseas	
Audience response	Preregistered visitors: 399 / Actual visitors : 311 Questionnaires collected: 216 Sli.do posts: 372	Unpublished
Media coverage	**7 times** (45th Tokyo Motor Show official website, carview, Asahi Shimbun Digital, Response, Nikkan Jidosha Shimbun, Kotsu Mainichi Shimbun, ReVision Auto&Mobility)	**4 times** (Response, Kotsu Mainichi Shimbun, ReVision Auto&Mobility, Car Graphic)

4.2 Common action items

(1) Prior briefing

A briefing was provided to enable a series of suitable dialogs between citizen panelists. The main subjects were the confirmation of the timeline for the day, a warm-up session among participants, etc. and the secretariat also provided communications and related matters. In addition, behaviors such as PC operations were confirmed in advance with speakers.

Scene of the prior briefing

(2) Greetings, speeches, etc. by speakers

This was the first occasion prior to the citizens' dialogue, Mr. Misaki of Japan Automobile Manufacturers Association, Mr. Arimoto, sub-PD of SIP-adus, Mr. Kuzumaki, PD of the same and professor Kishii at Nihon University appeared on the stage. Mr. Misaki gave a speech and Mr. Arimoto and Mr. Kuzumaki offered greetings, respectively.

Professor Kishii delivered a speech titled "Mobility and Urban Design."

"The evolution of mobility has changed urban design." "In the early 1900s, cities bustled with trams and carriages, which were replaced with automobiles in the 1920s. However, traffic congestion and road accidents have frequently occurred and have been recognized as social problems, thereby, ideas were conceived such as the sidewalks to be separated from the roadways." "Other ideas included, for example, a community bus on which a nurse or nutritionist could ride to help the community residents to maintain good health? I would like people to put more energy into taking care of people rather than taking care of cars. To bring this to reality, discussions should be expanded asking what automatic driving is for and what we want from automatic driving, which will transform cities."

Professor Kishii at Nihon University

On the second occasion, just like the previous time, Mr. Kuzumaki and Mr. Arimoto offered greetings to the attendees at the beginning.

Mr. Shimizu, moderator

After that, Mr. Shimizu who is a member of the promotion committee of SIP-adus and acted as a moderator on the day explained the purpose.

“Various changes have occurred including automatic driving, electric cars, connected cars. GM announced that it would start a rideshare service using its Cruise AV, the automatic driving vehicle having no steering wheel and pedals, by no later than 2019. Learning of this, I realized that, at last, America was also working seriously on MaaS. Rideshare makes vehicles become commoditized, thus generating more sophisticated needs. While Daimler showed a new possibility with ‘smart vision EQ for two,’ Google has launched city design for several years through its “Sidewalk Labs” activities. I would like to press forward with the discussion today along these lines.”

Following this, professor Oguchi at the University of Tokyo delivered a presentation.

Professor Oguchi at the University of Tokyo

“In public transportation services from now on, consideration shall be given to the introduction of BRT which allows mass transport to highways and driverless compact cars cruising on ordinary roads. With automatic driving introduced, the former is expected to improve safety and comfort through the evolution of vehicles while the latter is expected to be a new transportation service which will bring solutions for problems such as shortage of manpower and population aging in sparsely populated areas. At such time, what kinds of cars would be needed and what service designs needed? The important thing is it should be established as an ecosystem.”

Next, professor Shibasaki at the University of Tokyo made a presentation titled “’Mobility as a Service’ from the viewpoint of the service platform.”

“While grasping the data about the movement and activities of people on a real time basis, I have studied how to make use of this information. There are customers demanding travel and, on the other hand, providers of services for buses, trains, etc. in society, so that a

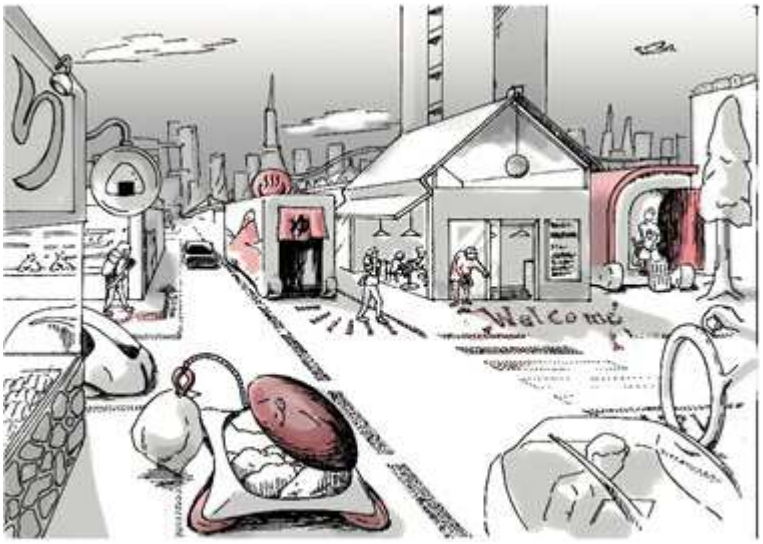
Professor Shibasaki at the University of Tokyo

platform which can provide a smooth and seamless match between both sides as needed. With such a platform, various kinds of things can be seen in the data. For instance, if data about a person going to buy a product after previously viewing an advertisement is obtained, this makes monetization possible. What is more, it would be possible to control traffic volumes by varying tolls according to congestion situations."

4.3 The 1st citizens' dialogue for the year of 2017: Theme "Mobility and urban design"

Mr. Shimizu: "General Motors exhibited the diorama "Futurama" at the 1939 World Exhibition. The vision of the future in which cities and suburban areas would be connected with a network of roads was depicted in the era which had not seen high-rise buildings and, these days, this has been re-evaluated. What is important is to think of the future before it arrives. In spring this year, Daimler and Bosch, holding a vision of Stuttgart of 2030, have actually started to develop a picturesque city based on this vision. Taking advantage of this dialogue, we would like to think of the future for around 2050."

Mr. Yamanami: "As for movement, we focused on two points, 'what?' and 'for what purpose?' When it comes to the means of transportation, only means of travel for which time is reflected in the cost catch our attention. On the other hand, there is another form of mobility for which the value does not lie in high-speed travel but in traveling at a slow pace allowing the passengers to enjoy the scenery like a mountain railway in Switzerland. Customer needs will become even more diversified in the future.



Picture in Mr. Yamanami's speech (Created by Scheme Verge)

Personally, I think it would be nice to have a bath while travelling (drawing on the right), but some people would say such thing is needless. Cities are required to meet more diverse needs. For this reason, it's necessary to diversify providers of value and I think it better to make the concept of decentralized and open infrastructure."

(1) Theme 1 : Issues and needs in the current situation

Ms. Obinata: "I travel in a wheelchair. Partly because I sometimes need support when getting on or off a train car or bus, I can't estimate the time required to travel. As I drive myself in the case of a skiing expedition, I can travel as long as 300 km without stress. But I am concerned whether I can move in the same way as now when I get older."

Ms. Lebreton: "There is a bus service which can be used after the last train in Paris, which is convenient. But there is a strike once a month, so I sometimes walk to the University in the early morning. In Japan, although late-night traveling is inconvenient, strikes such as those held in Paris do not take place. I think both cities have advantages and disadvantages."

Ten citizen panelists on the stage

Mr. Mibuchi: "Urban transportation has a problem of concentration in peak hours. Since people all take Saturday and Sunday off together and get to work at 9 o'clock on weekdays, roads and railways get seriously jammed. Changing the way of working is important. At present, as, in most cases, there is a good distance between the workplace located at the heart of a city and the residential area in the suburbs, people travel the distance by train. But in the future, mobility may be required to fit the ways of working and of living of each individual."

Mr. Yabe: "I think it necessary for cities to have many various jobs. What kinds of jobs will be taken away and created by more automatic driving vehicles should be discussed. when developing a city, as it's important to create jobs."

Mr. Tanaka: "Although only employment insecurity is noted, there is a demand for AI researchers and in the other fields, there is shortage of manpower in Japan. Automatic driving does not invite the loss of jobs but the creation of jobs which are different from previous ones. I think urban development allowing this to be promoted is required."

(2) Theme 2 : For the social implementation of technologies and ideas

Mr. Kamei: "To avoid hampering flexible ideas, how about first advancing the discussion away from the subject of automobiles? I think a city is akin to a life form. Within the cells of a living organism proteins perform a vast array of functions using information encoded in genes and various things work autonomously. There is a possibility that we can get clues from micro-phenomena in the human body for future cities and mobility. If so, a word like autonomous driving might become used, instead of automatic driving."

Mr. Tanaka: "To Google a vehicle means a bundle of sensors. The data obtained from the sensors are valuable."

Mr. Toriumi: "We conduct traffic surveys using sensors installed in higher places and the counts obtained are more precise than those counted by hand. Automatic driving may be technologically possible if it's used only for running without hitting other vehicles. But there are some barriers other than technology for a social implementation. Variety is required for its operation. I think automatic driving equipped with sensors is suitable for use in urban areas while running autonomously in suburban areas."

Collecting opinions and questions from the audience seats via sli.do

Mr. Yamanami: "I think it useful to evaluate the current situation in the city on a case-by-case basis. The types of data used for planning and design increase through the use of sensors and cameras, which require the study of how to take advantage of them."

Ms. Takahashi: "In urban space, the boundary between public life and the private one becomes blurred. It's important to consider how to bring out what city-dwellers want to do."

Mr. Tanaka: "(via sli.do from the audience seats) Our opinion is that 'although it's very difficult to say that Shibuya's scramble intersection is a rational system, it attracts a large number of people resulting in traveling.'

Citizens with various backgrounds getting together on the stage

I think it better that for this kind of thing, everyone thinks and creates together, instead of someone. Giving more flexibility to the design side which allows them to believe that we can get this done is suitable for the current age."

Mr. Kamei: "Thinking based on flexible ideas such as a movable building would be fine."

Mr. Mibuchi: "Ultimately a car becomes a house. I'm happy if my houses come to pick me up after drinking."

Mr. Yamanami: "Instead of making a trip after the destination is determined, mobility services might provide traveling for the purpose of finding new needs or value."

Hall is close-to-capacity at 400 seats

(3) Theme 3 : Mobility and cities from now on

Mr. Tanaka: "Singapore had no regulations on personal mobility, so there are various kinds of mobility brought in it, resulting in x a social experiment eco system. If that's impossible in Japan, this could be in another country or by establishing a special zone. Something that we can't conceive of should be tried."

Mr. Suda: "Utilization of big data. There has been the comment that when a person is in their best working condition at the workplace, this results in higher productivity and more happiness. I think it necessary to discuss the opinion that walking or using a bicycle might be better."

Ms. Takahashi: "As the realization of automatic driving could eliminate driving and anyone can travel in a car, it's likely that suburban areas will become more valuable. I would like to consider topics including what causes a lot of people to gather together and whether or not people should gather together."

Ms. Obinata: "People travel for happiness and pleasure. It's important for everyone can enjoy that. We should not have people who are left behind. I would like to continue this discussion, keeping in mind that cities should be developed based on diversity."

Mr. Arimoto: "His comment that e people should not be left behind is quite true. This can be said about communities as well as people. This event is taking place in Tokyo today. But from now on we should consider holding these kinds of discussions in various other regions."

4.4 The 2nd citizens' dialogue: Theme "Future society and MaaS"

(1) Theme 1 : Living and movement, the needs for MaaS in Japan, in 2030

Mr. Hayashi: "I am involved in a public transportation service. When we had heavy snowfalls in January, I was right there at the Warning Center. Our fundamental premise is the safety of our customers. So in addition to securing customers' safety, I was considering how to operate the transportation system."

Mr. Yamanami: "Since all customers make movements during the same time zone, confusion may occur. We, graduate students, think it would be better to sleep over at our laboratory if a heavy snowfall prevents us from using the means of transportation. Apart from the discussion of whether that is good or bad, speaking of the promotion of reforms in the way of working, it seems that no influence has been observed from the viewpoint of transportation."

Mr. Tanada: "I guess the heavy congestion happening as a result of January's heavy snowfall is caused partly by a lack of information. I learned of the delays in the railway system ahead of time, thinking that even if trains were delayed, if not stopped, I could get on a train, I went to the station, where restricted admission prevented me from entering the station. If I had known the actual situation, I would have had the options of staying at the office or considering alternative means. I think it is more important to give information which allows stranded people to travel smoothly than to provide information about whether or not there are trains running."

Mr. Shibasaki: "Business operators have the necessary data. But, in practice, they don't share that data. Although a more convenient service could be provided if all location information obtained by taxies and trains via GPSs were gathered together, this is not implemented."

Mr. Kinoshita: "I am an adult graduate student. I would like to take a seat in a train to study. I need to get even only several minutes or just ten minutes and manage to make the best use of such small amount of time."

Panelists in dialog with one another face-to-face

Mr. Moriya: "I work as an engineer in Yokohama on weekdays, while engaging in business development in Tsukuba on holidays. I spend the time to travel to Tsukuba or back to Yokohama in preparing my mind. I put myself into the mode of the other job on the train ride."

Mr. Maniwa: "Visiting a mandarin orange grower's house, I find first that there is a long distance from the station to the house. Even on the farm, we move from one place to another many times. In addition, famers have to ship their agricultural products. Although there is a community bus service in the area, farmers who don't have vehicles are limited in their means of mobility. I felt they were cut off from other areas."

Mr. Kuzumaki: "Senior citizens go to hospitals for medical treatment, and hospitals are also used for their social relationships. People move not only for traveling but for interaction with others as well."

Mr. Shimizu: "I think what is beyond mobility is communication."

(2) Theme 2 : Consideration of ideas to realize needs

Mr. Shibasaki: "I wonder how much money we can spend on across-the-board mobility among the various needs and ideas. What about now? What about the future? If we don't discuss this topic, giving personal opinions such as 'I would like to travel in this fashion,' and 'I would like to do such a thing,' results in dreamy ideas."

Ms. Yasutomi: "I engage in supportive activities in a disaster-stricken area. There are some of the sufferers living in a new place who sometimes visit the place where they lived before the earthquake disaster. Their purposes are to visit their ancestors' grave, farmland management, etc. and their traveling is not always economically rationale. Rather, it seems wasteful from the viewpoint of others. For the concerned sufferers, however, such traveling is very important. I don't think these kinds of needs should be ignored."

Ms. Takahashi: "I guess mobility may have a stronger aspect in terms of a pleasure-oriented journey or trip. The implementation of MaaS provides a wider range of mobility options. The day may arrive where we can choose the interior, how to spend the time, etc. in a train car and there is a possibility that many and

unspecified persons get together to interact with one another, which transforms daily mobility into a pleasant journey or trip. A journey or trip offers the joy of encountering something new. Considering the places to visit or means of mobility is also the joy of a journey or trip. I think daily mobility will be transformed into a pleasure-oriented experience."

Mr. Yamanami: "Automobiles can be counted as one of the few democratized places in which making ear-deafening sounds is freely allowed. I hope, personally, that cars are moving vehicles where we can have discretionary time."

Mr. Shibasaki: "If automobiles are "something running," various kinds of services can be conceived like a running karaoke room or a running movie theater, etc. If you sing karaoke during travel, it is more convenient to have no driver. Such situation is suitable for automatic driving. There is a possibility that combining this with other services increases its attraction."

Visualizing the dialogue content via graphic recording

Mr. Kinoshita: "My father-in-law drives his car when going to play golf. He usually travels by car with three or four friends and says the ride time is also enjoyable. My mother said she had a lot of trouble boarding a train or bus to go to a hot spring. Only family members or close companions get in a car and enjoy the traveling time itself. Such trips are also needed. "

(3) Review so far: utilization of graphic recording

All the panelists reviewed the discussion to that point using graphics drawn based on the discussion. Each panelist was handed two seals of different colors and put each seal on the most impressive idea and the second most impressive one respectively. Graphics with many seals on them are highly likely to be especially important in this discussion. The panelists conducted an exchange of

Panelists putting seals on the boards

views when looking at the graphics.

Mr. Shibasaki: "I put a seal on the ideal of cooperation (among business operators). I think it important.

Mr. Oguchi: "I also put a seal on cooperation. In addition, I was impressed by the idea that traveling is 'preparation' for the next job to be done because this viewpoint is new to me."

Mr. Kuzumaki: "The aging population is an important perspective. I will be joining them in the near future. If our society does not become more convenient, it will affect me. But developing a more convenient society costs a lot of money. I'm worried a lot about what will happen to me after I return my driver's license."

Mr. Hayashi: "I put a seal on cooperation toward sharing data, because I myself get irritated every day in this respect."

Mr. Maniwa: "I put weight on communication."

Ms. Takahashi: "I'm interested in how to spend money. What's more, if many and unspecified persons just get together, this does not create communication itself. So, I am interested in how we can communicate with one another."

Mr. Moriya: "I put a seal on communication, because traveling is for seeing persons or doing some work."

Mr. Kinoshita: "Measures to address the aging population are a must. It's also necessary to add value to the aging society. Cooperation among business operators sometimes does not work well for the ecosystem, so (as a researcher of ecosystem) I feel smooth and seamless cooperation is difficult."

Moderators, Mr. Suda (right) and Mr. Shimizu(left)

Ms. Yasutomi: "What to do after traveling has an influence over the meanings of the travel. Form this viewpoint, I think lifestyle may be changed."


Ms. Iwasada, general moderator

Mr. Tanada: "I'm interested in a platform for matching demand to supply and in content provided for matching. We have to consider what we can offer when there is a demand for movement

while grasping the demand.

Mr. Yamanami: "I think the platform and its contents may coexist. Conversion to a pleasure-oriented journey or trip and services for senior citizens are important content. As common sense in a local region differs from that in a city, in this respect I expect the MaaS unique to a local region will emerge."

Mr. Shimizu: "I hear that in Shodoshima Island, the disappearance of a driving service caused pubs to get into financial trouble. I think it necessary to make a trip to local districts and discuss topics such as these."

(4) Theme 3 : For realization of the service

Mr. Kinoshita: "It's important for MaaS to work well in terms of economy for its realization. I think it's not necessarily centered around automobile manufacturers. Travel companies provide services relating to travel. In this way, in-vehicle entertainment and other services should be separately commercialized. The important thing is to create an economically viable system."

Mr. Hayashi: "Considering only a sense of speed, I think bureaucrat-let approach will work quickly. To implement MaaS, it's necessary to coordinate between the concerned parties and also necessary to develop social acceptability. Considerable time and energy are required to form an extensive social agreement."

Mr. Kuzumaki: "The difference between MaaS and conventional services including taxis lies in the matching between personal needs and data providers. With respect to the way of collecting personal information and relationships between general interest and business engagement, I would like to have professor Shibasaki's views."

Mr. Shibasaki: "It's a fundamental policy in Europe that while it's acceptable to gather personal data anytime, permission to use the data is given by the person. By resting control rights with individuals, more detailed data can be accumulated. A reliable baseline is established with the information provided, a watchdog body is set up to monitor the scope of data which are allowed to be used in the public sector and, beyond that, the private sector engages in the customization of fees. By doing these things, I think MaaS will develop as an industry."

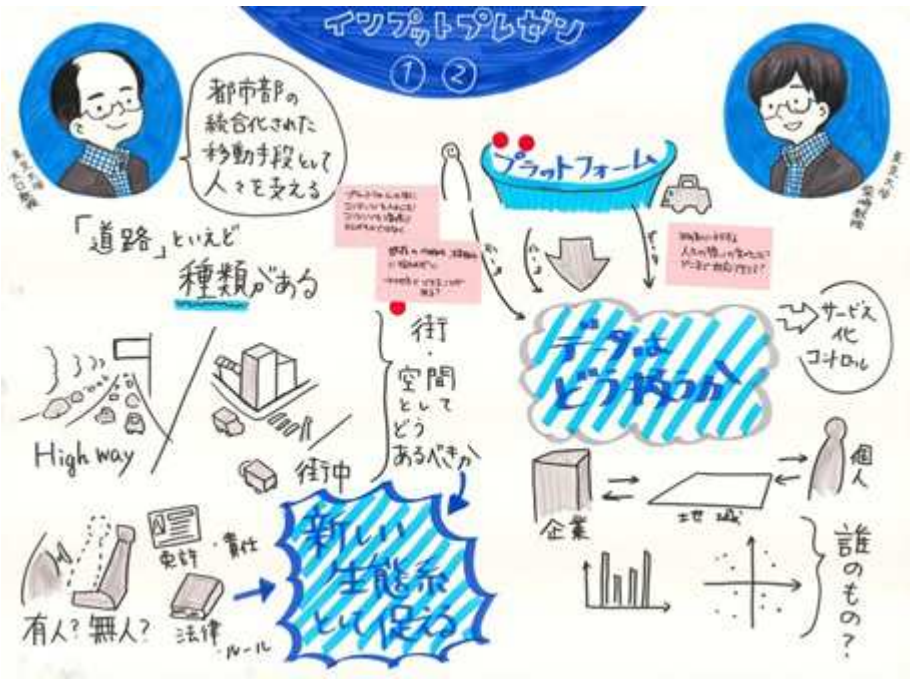
Mr. Oguchi: "As for tax payment, like a hometown tax, there is a system which changes the concept of tax money, that is, the money from a taxpayer is used for the purpose of enriching the payer's life. It's citizens that form a society. Sharing citizens' agreement creates a public service. Based on these concepts, we need to have the idea of creating services by ourselves."

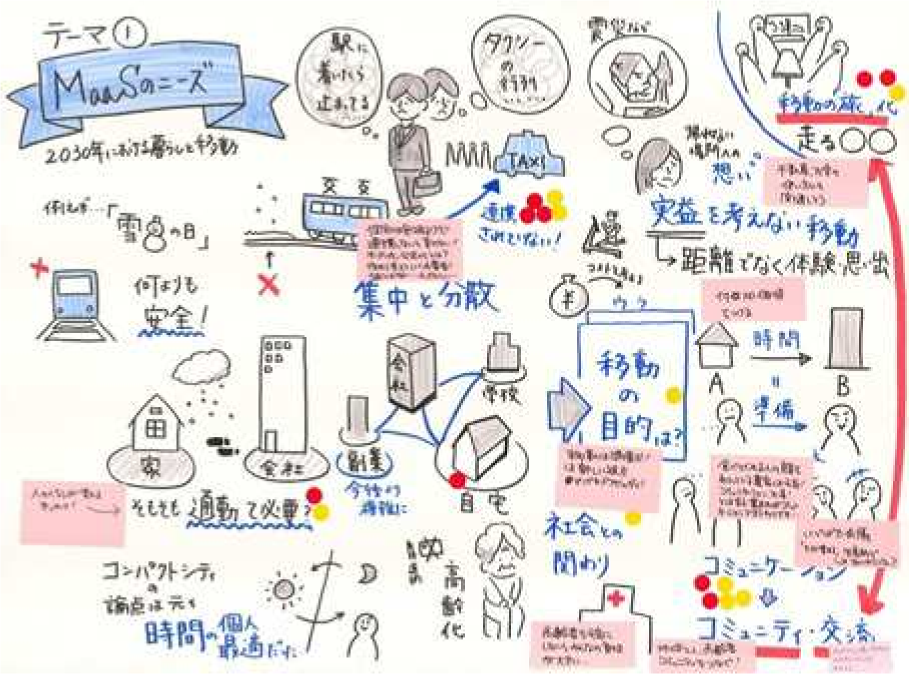
Mr. Yamanami: “Like a policy is determined in years, the shape of the mobility service may be shifted in years, or in decades as well.”

Mr. Kinoshita: “I have an interest in how to operate MaaS well as socio-economy. The government is a key player in ecosystems. As private companies work based on their own strategies, I would like the government to develop an overall environment conducive to activities by private companies.”

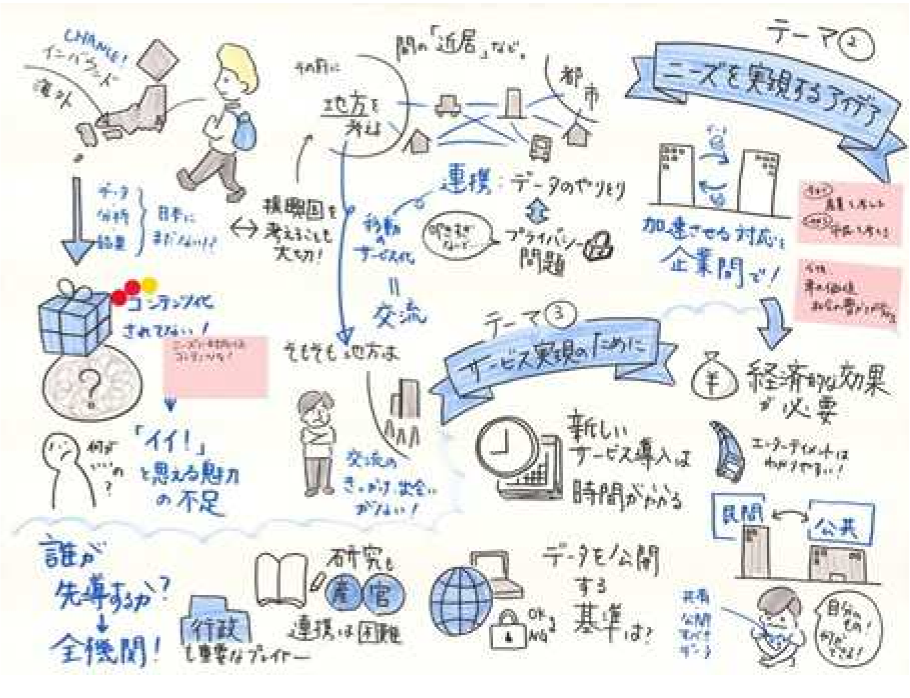
Mr. Shimizu: “Conventional automobiles attach a very high value to speed, which attracts the development of various technologies. MaaS should have richness instead of speed and I think that this will greatly change the value of automobiles. The late Hiroyuki Watanabe, the first PD of SIP-adus, said, “Let’s think about an automobile society for citizens.” I would like to think about what MaaS should be for citizens and continue to have opportunities to discuss its ideal model with citizens.”

(5) Outcome of graphic recording





テーマ①
MaaSのニーズ
2030年における暮らしと移動
駅に着いたら止まってる
タクシーの行列
例えば…「雪の日」
何よりも安全！
連携されてない！
集中と分散
実益を考えない移動
距離でなく体験・思い出
移動の目的は？
時間
準備
A
B
家
会社
副業
学校
自宅
そもそも通勤て必要？
今後の多様化に
社会との関わり
コンパクトシティの論点は元々時間の個人最適だった
高齢化
コミュニケーション
コミュニティ・交流
走る



テーマ②
ニーズを実現するアイデア
都市
地方を
連携：データのやりとり
移動のサービス化
プライバシー問題
交流
加速させる対応と企業間で！
コンテンツ化されてない！
「イイ！」と思える魅力の不足
そもそも地方は
テーマ③
サービス実現のために
経済的な効果が必要
新しいサービス導入は時間がかかる
エンターテイメントはわかりやすい…！
民間
公共
交流のきっかけ・出会いがない！
誰が先導するか？
全機関！
研究も
産
官
連携は困難
行政も重要なプレイヤー
データを公開する基準は？

5. Media Coverage

5.1 The First Citizens' dialogue

45th Tokyo Motor Show official website

carview (October 19, 2017)

SIP市民ダイアログ「モビリティと都市デザイン」in 東京モーターショーが開催...2017年11月3日（金・祝）

内閣府が推進する戦略的イノベーション創造プログラム(SIP)「自動走行システム」は11月3日（文化の日）、第45回東京モーターショー2017のシンポジウムの一環として市民ダイアログを開催する。

今回のテーマは「モビリティと都市デザイン」。自動運転に関する将来ビジョンや課題意識を多くの市民と共有するため、一般観覧者（事前登録制）を募集している。

レクサス、フラッグシップセダンの新型LSを発売。価格は980万円から

写真を拡大

写真を拡大

市民ダイアログとは、市民との対話を通じて自動運転に対する社会受容性を醸成し、市民の持つ問題意識や将来ニーズを今後の研究開発に反映することを目的に2016年度から始まり、通算4回目となる今回は初めて大規模展示会などイベントの一環として実施する。

登壇者は、日本大学・理工学部土木工学科の岸井隆幸教授、SIP 自動走行システム プログラムディレクターの葛巻清吾、同サブ・プログラムディレクターの有本建男の3名。それぞれが専門的な立場から講演を行った上で、都市交通やまちづくりに携わる社会人や学生からなる約10人の市民パネリストと対話する。

モデレーターは、SIP 自動走行システム推進委員会構成員で自動車ジャーナリストの清水和夫と、同推進委員会構成員でモータージャーナリストの岩貞るみこが務める。

■2017年度第1回市民ダイアログ開催概要
テーマ：モビリティと都市デザイン
日時：2017年11月3日（祝日・文化の日）15:00～

Asahi Shimbun Digital (October 30, 2017)

Nikkan Jidosha Shimbun (November 1, 2017)

2017年11月1日　日刊自動車新聞（2面）

自動運転テーマに 3日に市民対話

内閣府は、東京モーターショーを開催中の東京ビッグサイトで自動運転をテーマとした市民対話を11月3日に開く。「モビリティと都市デザイン」と題し、自動運転だけでなく、インフラや都市生活、街づくりまでを含めて意見を交わす。自動運転に関する社会的受容性を醸成する狙いもある。会場には東京モーターショーチケットを買わなくても入場できる。

今回の市民対話では、専門家による講演や日本自動車工業会による「中長期モビリティビジョン」の中間報告を紹介するほか、都市交通や都市計画に携わる社会人や学生ら約10人と専門家による対話を行う。人々の移動の姿と、求められる都市デザインのあり方を議論したり、長期的な視点で自動運転を考える。

Response (November 4, 2017)

Kotsu Mainichi Shimbun (November 9, 2017)

ReVision Auto&Mobility (November 10, 2017)

2017/11/17 自動運転は未来をどう変えるか 「モビリティと都市デザイン」をテーマに市民が意見交換 | ReVision Auto&Mobility

ReVision Auto&Mobility

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Run by InBridges

自動運転は未来をどう変えるか 「モビリティと都市デザイン」をテーマに市民が意見交換

ツイート LINEで送る

自動運転に対する社会受容性を醸成し、市民の持つ問題意識やニーズを今後の研究開発に反映することを目的にした内閣府・戦略的イノベーション創造プログラム（SIP）自動走行システムによる「2017年度第1回市民ダイアログ」が11月3日、東京ビッグサイトで総勢約300人を集めて開かれた。今回は「モビリティと都市デザイン」をテーマに掲げ、東京モーターショー2017シンポジウムの一環として実施。参加した市民パネリストから「安全性や利便性を享受する中で、何を失っているか把握することも必要」「移動する幸せをみんなが享受できることが重要」など様々な意見が出されたほか、会場からスマートフォン等で370件を超える質問やコメントが投稿されるなど、自動運転に対する市民の関心の高さをうかがわせるイベントとなった。

2017/11/10
友成 匡秀

「市民ダイアログ」は昨年度からSIP自動走行システムが継続的に実施している取り組みで、モーターショーなど外部イベントと連携し多くの観衆を集めたのは今回が初めて。「モビリティと都市デザイン」という今回のテーマに基づき、市民パネリストには、移動や都市に関わる研究や仕事をしている大学生や大学院生、鉄道会社社員、不動産会社社員、起業家、メディア企業社員、建設コンサルタントら10人が参加。なかには海外出身者や日常的に車いすを使う人も含まれるなど、多様な背景を持つ構成となった。

市民パネリストとの意見交換するダイアログ部分では、「モビリティと都市の現在 ～移動の課題・ニーズ」、「Beyond2030のモビリティと都市 ～自動運転×都市デザイン～」、「これからのモビリティと都市 ～実現に向けて必要なことから」の3つのサブ・テーマに沿って様々な意見が出された。

「日本は深夜の移動が不便だが、ストライキがない」

ウェビナー動画

近隣ブリーフ

ブログ一覧へ

第2回開催公開ウェビナー
12/5

http://www.in-bridges.com/revision/self_driving/%e8%87%aa%e5%8b%95%e9%81%8b%e8%bb%a2%e3%81%af%e6%9c%aa%e6%9d%a5%e3... 1/3

5.2 The Second Citizens' dialogue

Response (February 6, 2018)

自動運転時代の近未来、移動シーンはどう変わるか…MaaS 市民参加ディスカッション｜レスポンス（Response.jp）

Response. moving media

Register Mypage English

ホーム 自動車 試乗記 モーターサイクル モータースポーツ スクープ リペア・メンテナンス カーオーディオ まとめ

ホーム › 自動車テクノロジー › ITS › 記事

自動運転時代の近未来、移動シーンはどう変わるか…MaaS 市民参加ディスカッション

A地点からB地点まで、あらゆる行程をアプリ一発で最適なルートで導いてくれる時代へ向け、どんな未来が描けるか…。

東京都内の東京大学生産技術研究所で2月5日、「未来社会とMaaS ～これからの移動を実現するサービス～」と題したディスカッションが行われ、SIPメンバーや市民パネリストらが語り合った。主催は内閣府・戦略的イノベーション創造プログラム（SIP：Strategic Innovation Promotion Program）。

登壇者は、SIP 自動走行システム 葛巻清吾プログラムディレクター、同 有本建男サブ・プログラムディレクター、国際自動車ジャーナリスト・同推進委員会 清水和夫構成員、モータージャーナリスト・同推進委員会 岩貞るみこ構成員、東京大学 生産技術

› 自動運転、高度運転支援（ADAS）特別編集

エヌビディアの純利益は97%増、自動運転事業が牽引 201…

自動車ITセキュリティ研究の第一人者、フィッシュマイスター…

トヨタ、自動運転の研究開発を促進…米政府利用体への支…

https://response.jp/article/2018/02/06/307232.html(2018/02/09 16:36:13)

Kotsu Mainichi Shimbun (February 8, 2018)

ReVision Auto&Mobility (February 16, 2018)

2018/2/19 市民と共に考えるMaaSと未来 | ReVision Auto&Mobility

ReVision Auto&Mobility

ログイン | 有料メンバー登録 | 無料メンバー登録 | お問い合わせ | 編集方針・チーム

Run by InBridges

市民と共に考えるMaaSと未来

2月5日，戦略的イノベーション創造プログラム（SIP）自動走行システムは2017年度第2回市民ダイアログを催した。8名の市民パネリストと「未来社会とMaaS　～これからの移動を実現するサービス～」をテーマに2時間にわたる議論が交わされた。

Date : 2018/02/16

Text & Photo : ReVision Auto&Mobility編集部

内閣府が主導する国家プロジェクト「戦略的イノベーション創造プログラム（SIP）」は今年度で実施4年目を数える。そのなかの自動走行システム（SIP-adus）では先進科学技術の社会受容性を育むとともに，研究開発に資する情報を獲得することを目的に「市民ダイアログ」を昨年度より開催している。

2017年度第2回は東京大学生産技術研究所S棟のプレゼンテーションルームで開催され，テーマにはMaaS（Mobility as a Service）が取り上げられた。

MaaSは昨今，世界的に議論が白熱しているテーマだが，日本ではモノとしてのクルマと，コトとしてのサービスが別のテーブルで議論されることが多い。今回の市民ダイアログにはSIP関係者ともに，当該分野を専門とする大学教員2名，総合電機メーカーや交通事業者に勤務する社会人および大学生8名が車座となり，利用者である市民の目線でMaaSを議論した。

2017年度第2回はある市民パネリストが参加

ReVision Premium Club 第2回ウェビナー

ReVision Premium Club ウェビナー・スケジュール

無料 ウェビナー動画

ReVision Premium Club ウェビナー動画

facebook

週間ブリーフ

https://rev-m.com/mobility/dialog20180216/ 1/5

Car Graphic (April, 2018)

清水和夫

WARNING LAMP

第92回 異分野交流の必要性

report：清水和夫 Kazuo Shimizu

CG 2020

「MaaS」とは何か

私が所属している内閣府SIP（戦略的イノベーションプログラム・自動走行推進委員会）は、去る2月5日に平成29年度の施策として第2回市民ダイアログを催した。8名の市民パネリストと一緒に未来のモビリティ社会を考えてみた。

最近は「MaaS＝モビリティ・アズ・ア・サービス」という言葉を聞くようになった。1月に開催されたCES（ラスヴェガスの家電ショー）でトヨタは「eパレット」を発表し、その場で豊田章男社長は「モビリティサービスを提供する企業になる」とスピーチしたことが記憶に残る。コネクトや自動走行の実用化が進むと、私たちの社会はどうなるのか。技術の積み上げではなく、未来社会のビジョンを考えることで、MaaSの社会受容性を考えてみるのが「SIP市民ダイアログ」の狙いである。

H29年度の第1回市民ダイアログは昨年の東京モーターショー会場で開催し、多くの来場者に市民ダイアログを披露した。そして2回目の市民ダイアログは東京大学生産技術研究所のプレゼンテーションルームで開催。テーマはずばり「MaaS」だ。

MaaSは昨今、世界的に議論が白熱しているテーマだが、日本ではモノとしてのクルマと、コトとしてのサービスが別のテーブルで議論されることが多い。今回の市民ダイアログでは大学教員2名、総合電機メーカーや交通事業者に勤務する社会人および大学生8名の市民の目線で議論した。

市民ダイアログの冒頭で瓜生大学・生産技術研究所の大口敬教授は、スイスのローザンヌ地方では地域交通が住民の足として充分に機能し、トラムや鉄道などの多様なモビリティを1枚のカードで利用できることをスピーチした。ローザンヌでは各種交通機関の連携がうまくいっており、住民にとって非常に利便性が高いことがわかった。

もうひとつの話題を提供してくださったのは、東京大学空間情報科学研究センターの柴崎亮介教授。スピーチでは、移動に対する需要と供給のマッチングがスムーズに実現するサービスプラットフォームの必要性を説く。そのプラットフォームではデータ処理が鍵を握るという。

ニーズに応える情報の提供

そのあとで議論した市民ダイアログは「ニーズ／アイデア／サービス」という3部構成で進められた。まず取り上げられたのは、関東地方で1月後半に降った大雪のことだった。雪は午後から降り始め、企業が早期帰宅を促した反面、急な積雪に多くの鉄道がダイヤ変更を余儀なくされ、一部の駅では入場制限がかけられた。その結果、駅周辺には人があふれ大混乱したことは記憶に新しい。

大学生のパネリストは混乱の原因に関して「全員が一斉に動くから混乱が起きるのではないでしょうか。僕ら学生は研究室に泊まろうなどと考えますが、社会人だとそれも難しいのだと思います」と率直な意見を述べていた。また、社会人パネリストは「情報不足」と指摘、各社のホームページから「遅延」という情報が提供されたが、その先はわからなかった。「遅休」ではなく「遅延」なので、時間はかかっても帰宅できるだろうと思って利用者が駅に向かったが、実際は人が溢れ駅に入ることさえできなかった。ユーザーはスムーズな移動が実現できる情報がほしかったのに、モビリティ事業者はそのニーズに応える情報を提供できなかったのだ。

柴崎教授は「各交通事業者のデータが共有され、統合できれば、もっと便利なサービスになると思うが、もうひとつの課題は何より誰がその開発費や運用費を負担するのか、ということです」と問題を提起した。私たちはモビリティ全般に対して、いったいどれくらいのコストを払えるのか。その議論がないと、自動運転も夢物語で終わりかねない。

私はSIP-ADUSの初代プログラム・ディレクターである故・渡邉浩之氏の「市民（実際の利用者）のためのモビリティ社会をもっと考えよう」という言葉を思い出した。

業界や分野の枠組みを外す

海外に目を向けると、グーグルのように自動車利用に関わるデータを用いてビジネスを行なうプレイヤーが急増し、自動車業界の構造は変化し始めている。クルマや人の移動から得られるビッグデータ時代に、どんな情報が提供され、モビリティ社会のダイナミズムがどのように変化していくのか。業界や分野の枠組みを超えてモビリティの可能性を探るべきときが訪れたのである。これからは自動車業界に関わる人たちだけでなく、多様なニーズの創生のために、多くの分野の専門知識や経験を持つ人たちと議論するインターディシプリナリー（interdisciplinary）的な思考実験が必要なのであろう。SIP「市民ダイアログ」はその好事例ではないだろうか。

6. Survey results

The first citizens' dialogue session was held publicly, and watched by a general audience of 311 participants. The dialogue was stimulating, and in order to collect information for contributing to research and development, the tool "sli.do" was used on the day which allowed opinions and questions to be posted. In addition a survey was also conducted after the dialogue had ended. The results of these will be reported in this chapter.

6.1 Online opinion posting tool "sli.do"

(1) What is sli.do

The online opinion posting tool "sli.do" was utilized in the first citizens' dialogue session. By accessing the event's specific webpage via smartphone or computer, opinions and questions could be casually posted anonymously.

The "sli.do" control screen

Features of the tool include collecting posts from event participants in realtime and also being able to instantly share posted information. During the citizens' dialogue a great number of questions and opinions directed towards the speakers were received.

In addition, even if not posting your own posts, there are also buttons allowing you to agree with or disagree with the opinions and questions of other people, which allowed even more people to participate. For the posts that received a large amount of agreements or disagreements one could see that those opinions/questions were being paid particular attention to by the listeners.

(2) Analyzing the effects and results of sli.do

The degree of use in the first citizens' dialogue was as below.

- Active users: 139
- Questions posted: 372 (49% of which were non-registered users)
- Clicks of agreement or disagreement buttons: 773

Those posts which received at least 5 clicks of either agreement or disagreement are particularly noteworthy within the large amount of posts. These posts have been extracted and listed in a table in order of clicks (see next page). Moreover, because an agreement or disagreement button can only be pressed once per post for each person, these amount of clicks also represent the amount of people who responded to the post.

(3) Table: Posts with the most responses

Ranking	Posted content (comments are the original text)	No of clicks
1	When talking about mobility of the future, “reasonable movement” was mentioned, but isn’t movement reasonable depending on the circumstance? For example, you could never say that Shibuya’s scramble intersection was a reasonable system and yet many people are fascinated by it and move through it.	20
2	(This isn’t directly connected to today’s topic but,) I noticed that the content of the committee for promoting the SIP Automated Driving System and the working group are not really being made public. Shouldn’t the details being examined and the results be made more open, for example on the web?	18
3	Why do children get excited by cars and trains? Is it because of the fundamental fascination with things that move??	14
4	It doesn’t matter if it’s a “dialogue” or “discussion”…, I don’t get who is trying to take action through this event and exactly where this content is aiming to be conveyed and actualized… Is it meant to be conveyed to the different types of people who are sitting in the seats over here???	14
5	Is this a “dialogue”? I think the panelist’s opinions are important but I also think it’s going against the point of the event how most of the time is spent with them. So many citizens have gathered here especially. For this reason I think that diverse opinions should be gathered in order to deepen the discussion even more.	12
6	I think it's good to disperse these thoughts. By presenting the point and dispersing it, it gives us the thoughts of experts and intellectuals and I think it’s great if it can lead to deep discussions from now on.	12
7	From now on what type of direction will the SIP Automated Driving System head towards?	12
8	I see. With automated driving, we won’t have to avoid looking elsewhere when driving and miss seeing rare scenery and interesting landmarks. We can have the joy of “taking a stroll” in a car!	9
9	The conversation is sporadic and I can’t see the direction of the discussion… If you don't narrow down the thoughts to the key points they’ll still be dispersed after the hour’s over.	9
10	I’d like them to have a “dialogue”… but isn’t each person just saying what they want to say?	9
11	With the intention and way of running this event, wouldn't it be best to make it a simultaneous live broadcast over Niko-Niko Live?	9
12	Not only citizens move, shouldn’t objects and animals also be largely included? (In fact thinking on a world level of weight x distance, don’t objects tend to be greater?) Is a discussion about object-first mobility conceivable?	8

Ranking	Posted content (comments are the original text)	No of clicks
13	In the slide on page 16 it says that owner cars are up to level 2 (partial automated driving = drive support), shouldn't this be shown more in the table? Possibly many people do not think this is so, in other words it's highly likely they think owner cars are up to level 3.	8
14	It's great being able to exchange views to some degree with this sli.do. It sounds fun how conversations can bloom from the seed of the panelist's conversation.	8
15	Having looked at the 2030 video, I'm not excited at all… Is there no approach where the safe operating of cars is thought of enjoyably?	7
16	Aren't efficiency and fun conflicting with each other? Can efficient mobility inherit the fun of movement that's been in mobility up until now? Or do we divide mobility into two parts?	7
17	Are the people that come to the Tokyo Motor Show "citizens"? How will the opinions of people be reflected who are currently at this time in Disney Land or enjoying gateball, etc?	7
18	The spread of smartphone apps is largely due to the influence from young people, particularly junior/senior high school students. Upon introducing an autonomous decentralized system in automated driving, how will this generation be incorporated? Currently, due to the license system, junior/senior high school students are likely repelled from this market.	7
19	Automated driving in heading towards the 2020 Olympics/Paralympics… Isn't the motive impure? I'm worried this will be a repeat of the mistake of IMTS during the Aichi World Exposition.	6
20	They said many different people will participate in the demonstration experiment, but "many different" is just said within the industry and I feel that's not going to include "citizens".	6
21	In the discussion I want them to make clear what level of automated driving their talking about and the place of operation. If that's not clear between the panelists and listeners the conversation won't engage between them.	6
22	I want them to talk about non-urban areas too, not just cities.	6
23	> It sounds like there really are a variety of people living in the cities. What steps should happen for the one city plan to apply to each person's individual needs? Like the students said just before, it seems like systems need to be built like a smartphone app (after a platform is maintained to some degree, it goes on to develop to match individual needs).	6
24	Please answer with #InterestedInThis. This is a question to everyone using this posting forum. What type of talk did you want to hear when participating in this event? As a fellow participant I'm interested in what types of people are participating.	6
25	#InterestedInThis I think the biggest merit of automated driving is the methods of movement for elderly people in non-urban areas where there's no public transport. What do people think about the town design of non-urban areas, not just the discussion on big cities like Tokyo?	6

Ranking	Posted content (comments are the original text)	No of clicks
26	I want to hear some examples of exactly what people think can be made / can be aimed for with using automated driving. The talk about the bath running from Yamanami-san at the beginning was good. (Like Tanaka-san mentioned, if everyone in the world is thinking about that, we want to here the discussion about the specific system and the reason why it's not happening now, and the harmful effects.)	6
27	What is mobility?	5
28	For low speed travel on expressways and underpopulated areas, it's thought that automated driving of level 3 and over is able to be realized, but will the era where most cars in a city are driven automatically really come? Can cost (LIDAR, even singularly, is not only expensive but does not last for many years) and safety (even if around 90% are safe the remaining 10% (bad weather, densely populated areas, etc) are not) be solved so easily?	5
29	Some makers have declared they will not do level 3. I think dividing partial automated driving up to level 2 (which is substantially driving support) and that of level 4 and over is "a good feel". After all level 3 is indecisive, and does it not actually increase the danger?	5
30	Personally, if we're talking about the acceptance of society I want experts to tell me in full about the exact current state of automated driving. From there I think we'll be able to see how it's possible in the future, because I think most people don't even know the current degree of driving assistance let alone the automated driving level.	5
31	It's mainly talk about land transport, but can it have practical use in say the fishing industry?	5
32	Mobility… I'd rather have an "Anywhere Door" (like in the Doraemon cartoon).	5
33	Whether it's realistic or not, I'm just hoping to hear some interesting talks.	5
34	Tokyo is spread out with train stations as the focus, however I wonder if automated driving will have some effect on the structure of the city.	5
35	Kamei-san, your scarf must be hot.	5
36	Movement is not the future, it's reality. There are some serious issues. 85% of roads do not separate pedestrians and vehicles. Half of traffic fatalities are with pedestrians and bicycles. Within this mixed traffic, how will automated driving and the technology behind it respond to this issue of casualties involving pedestrians and bicycles? For "beyond motor", pedestrians and bicycles are the most important thing. I want there to be a serious discussion.	5
37	The discussion is sporadic. The problem points need to be narrowed down.	5
38	The idea of buildings moving to spread out intersections is good. I thought it's similar to spreading out roads with demands like reversible lanes. Normally it's plantation but, if there's demand, what about the idea to bury underground and spread out the road?	5
39	Japan discusses without distinguishing personal information and personal data. It's 30 years behind digitally advanced nations.	5

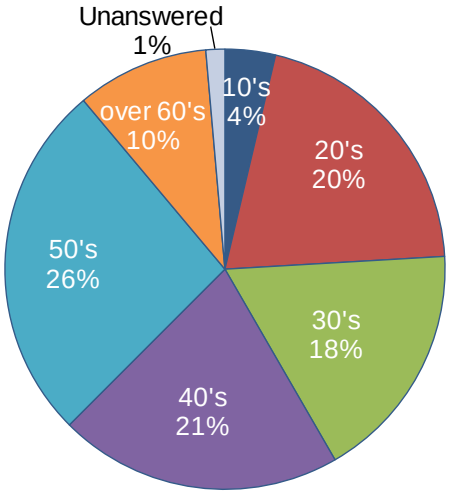
Ranking	Posted content (comments are the original text)	No of clicks
40	A wide-spread drop in lidar prices will not happen in 2 to 3 years.	5
41	What about the shops that are on roads that won't be used very much anymore due to automated driving routes? They will probably go into decline. I wonder if in order to be adopted by the route will advertising fees be asked for? Or maybe they'll end up being enclosed by shops.	5
42	From here on where should the stimulus and knowledge spread out and attained this time be converged? SIP or outside SIP?	5

6.2 Questionnaire Totalization Results

Number of collected questionnaires: 216

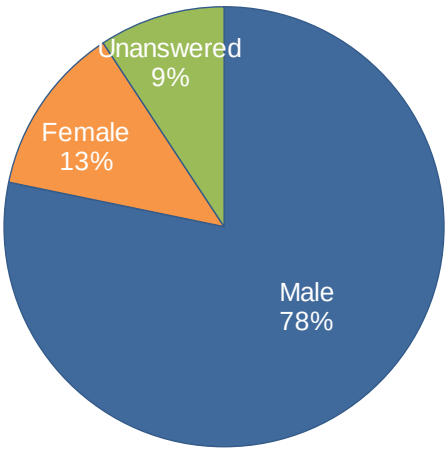
[Properties of Answerers]

・ Attendants by age group



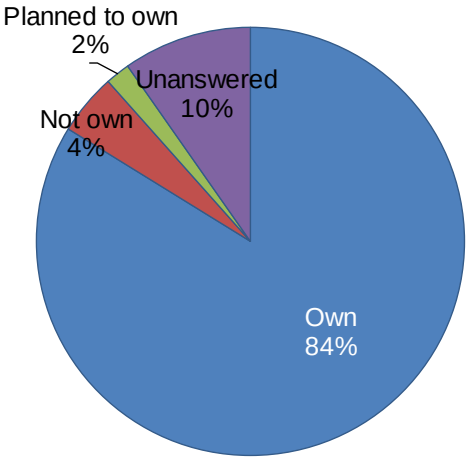
N=216

・Attendant gender



N=216

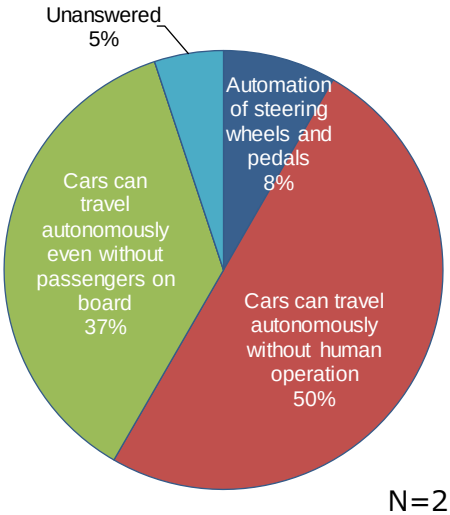
・ Whether to own a class I driver’s license



N-216

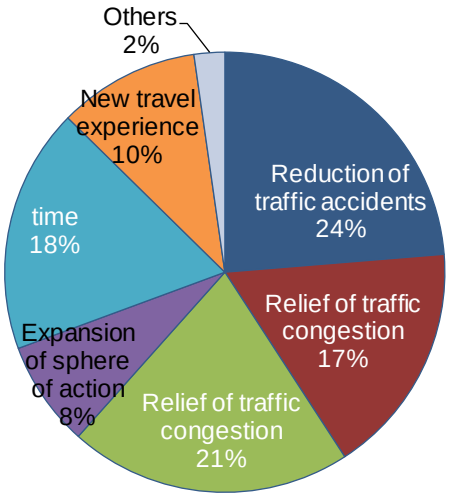
[Expectation of automated driving and intention of use]

・ What is your impression of "automated driving"? Please circle one that applies. Please write freely in the Others column when there are no items that apply.



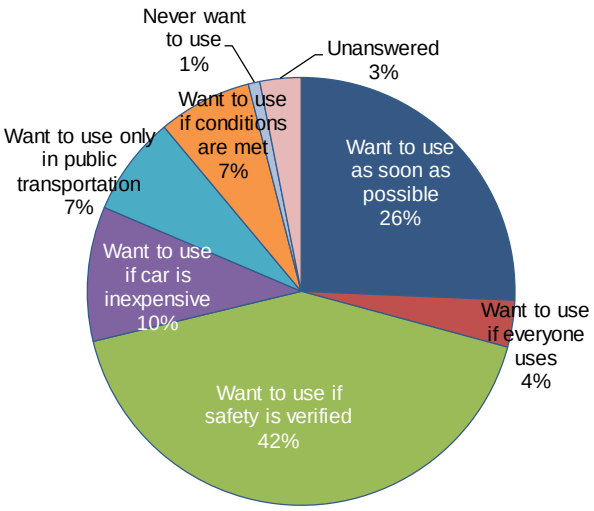
N=216

・What do you expect of automated cars? Please circle all those that apply. Please write freely in the Others column when there are no items that apply. (Multiple answers)



N=578

・Do you want to use an automated car? Please circle one that applies. Please write reasons, etc., as needed.

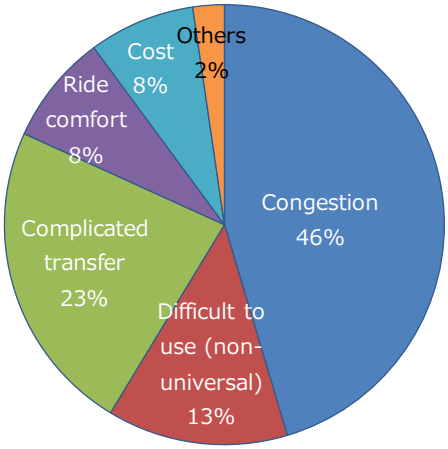


N=226

(Single answers. Some multiple answers also reflected totalization.)

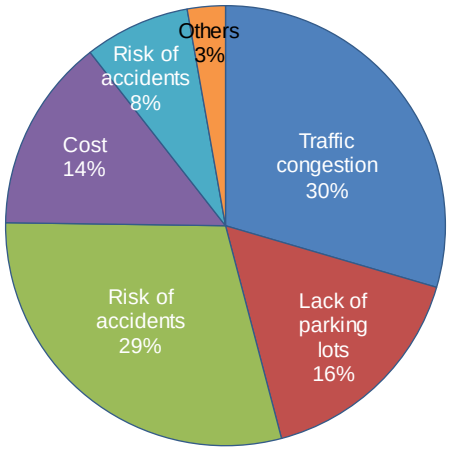
[Challenges of current transporters]

・Please circle all those that apply as items of improvements in current transporters. (Multiple answers)
<Public transportation>



N=346

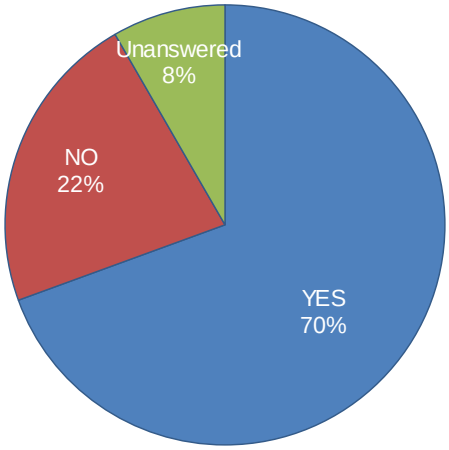
・Do you want to use an automated car? Please circle one that applies. Please write reasons, etc., as needed.
<Private car>



N=464

(Single answers.
Some multiple answers also reflected totalization.)

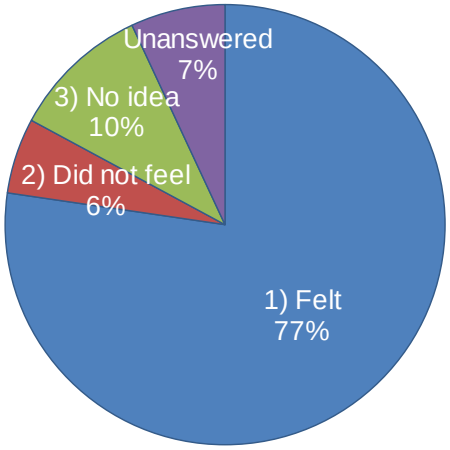
・Do you think the emergence of automated cars will bring improvements to items mentioned in the upper right?



N=216

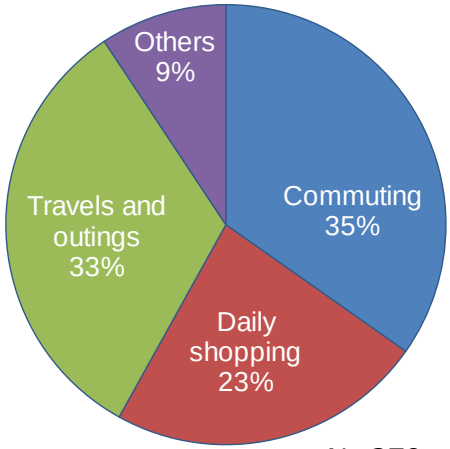
[Change of lives, ideal transporters, activities in the cabin]

・Did you feel that the emergence of automated cars will change lives?



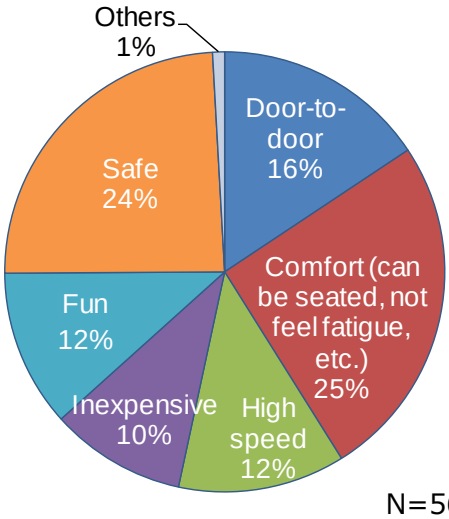
N=216

・For those who answered <1) Felt>, please answer the following question. What are automated cars likely to change? Please circle all those that apply. (Multiple answers)



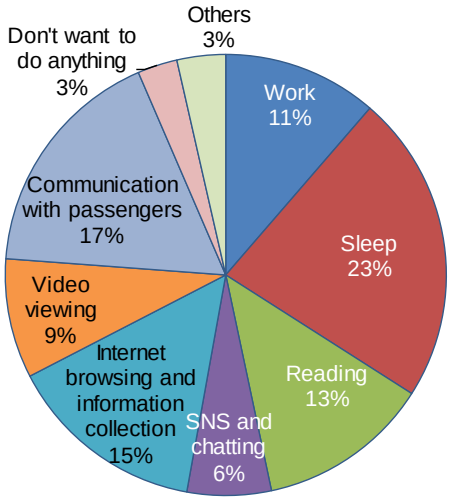
N=279

・What is an ideal transporter like? Please circle all those that meet the image of an ideal transporter. (Multiple answers)



N=562

・What would you like to do in the cabin when traveling in an automated car? Please circle all those that apply. (Multiple answers)

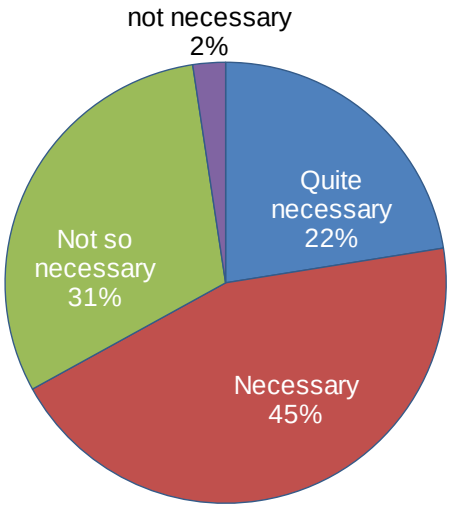


N=617

[Necessary Features for Automated Driving]

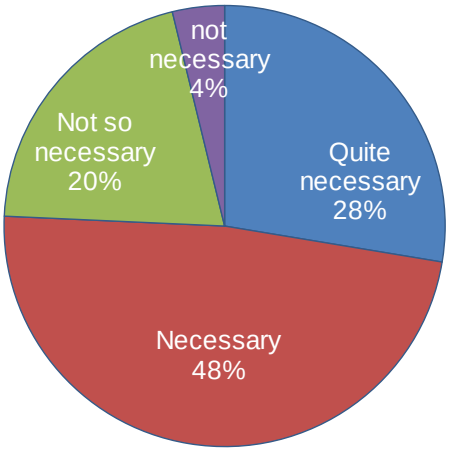
・Please circle one that represents a necessary feature when using an automated car.

1) Able to travel at high speed



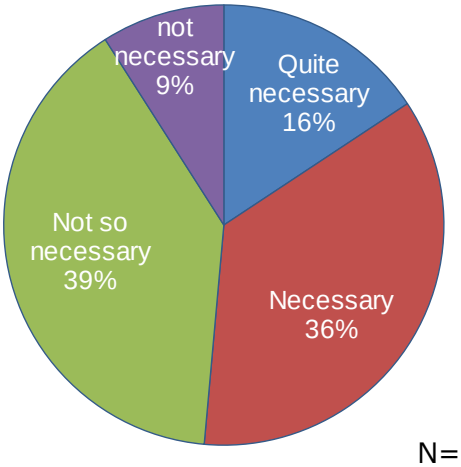
N=209

2) AI assistant such as Siri



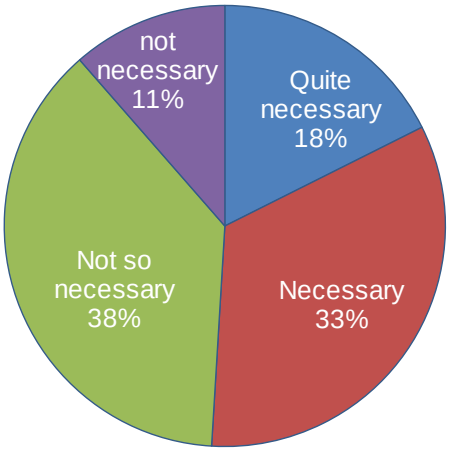
N=210

3) Cabin entertainment



N=210

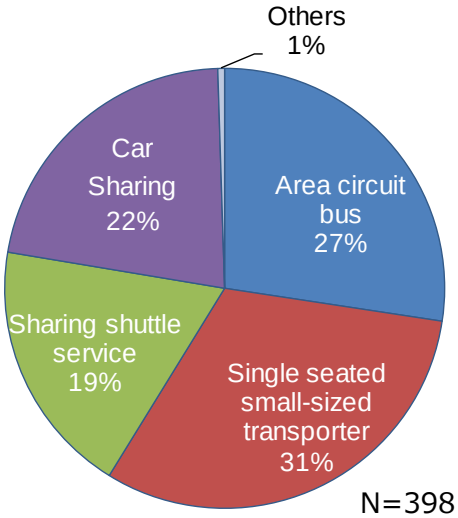
4) Stylish appearance



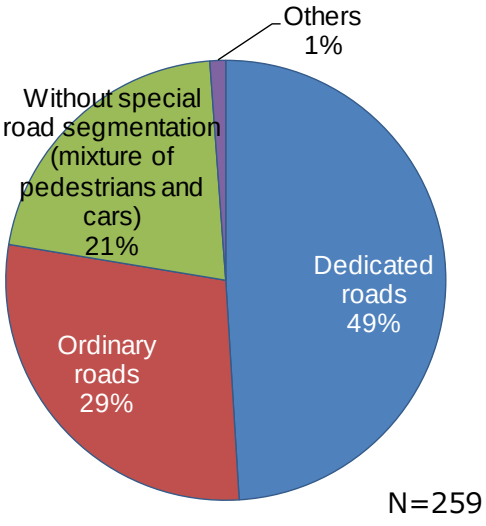
N=210

[Where does an automated car travel when in use]

・Please circle all those that you want to use when on board an automated car other than your private car. (Multiple answers)

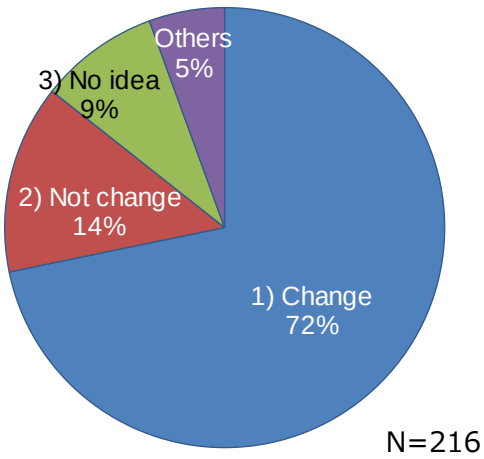


Please answer the questions about cities. Where do you think automated cars will travel? Please circle all those that apply. (Multiple answers)

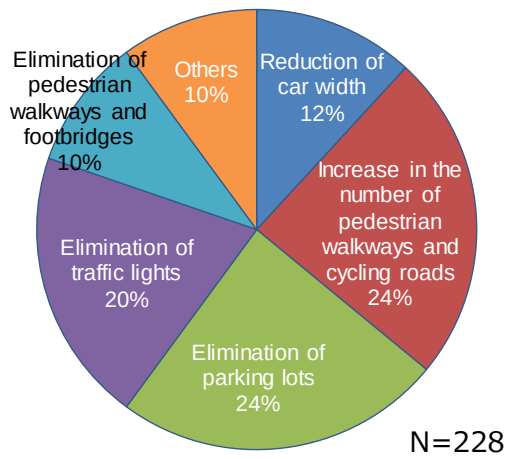


[Change of city landscapes]

・Do you think the emergence of automated driving will change city landscapes?

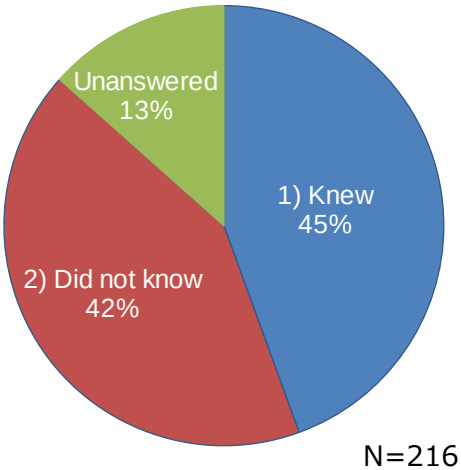


For those who answered <1) Change>, please answer the following question. Please circle all those that you think would be changed among the following items.



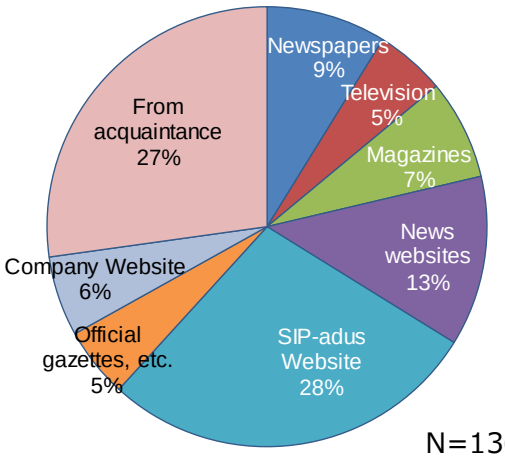
[About SIP-adus]

・Did you know of SIP-adus?



N=216

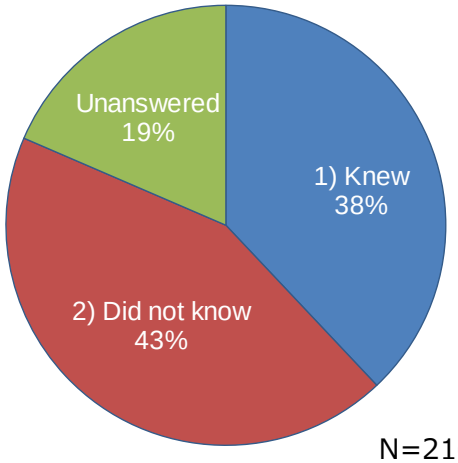
・For those who answered <1) Knew>, please answer the following question. Where did you see information on SIP-adus? Please circle all of those that apply. (Multiple answers)



N=136

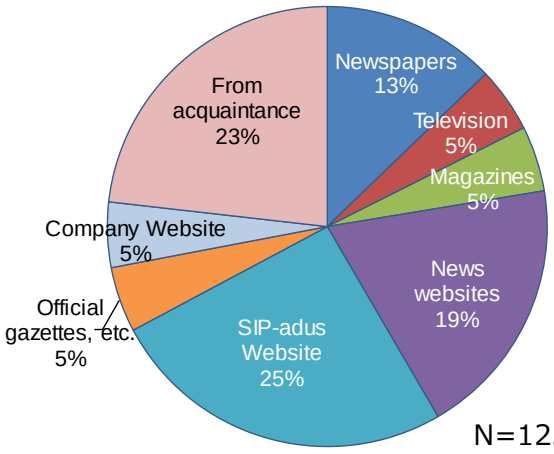
[About the large-scale field demonstration tests and civic dialog]

・Do you know of the large-scale field demonstration tests implemented by SIP-adus?



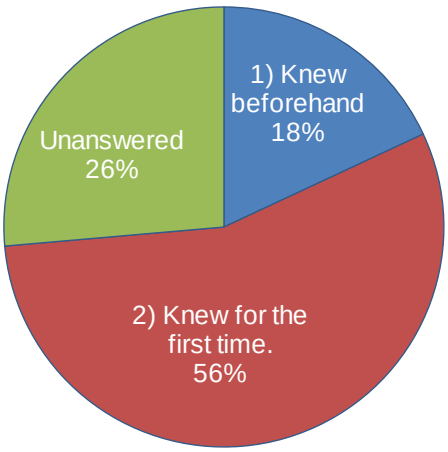
N=216

For those who answered <1) Knew>, please answer the following question. Where did you see information on the SIP-adus? Please circle all of those that apply. (Multiple answers)



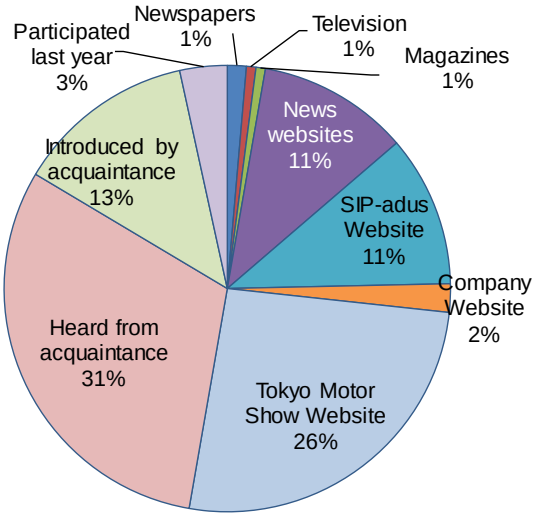
N=125

・Did you know of the SIP-adus Civic Dialog?



N=216

<For all viewers>, please answer the following question. Where did you learn of the Civic Dialog? Please circle all of those that apply. (Multiple answers)



N=146

6.3 Analysis of the results from Sli.do and the survey

Points extracted from Sli.do and the survey were as below.

(1) The need to accurately convey information

(1-1) The activities of SIP-ADUS are not correctly understood

<From Survey result>

Q: Did you know about SIP-adus? A: 42% said “no”.

Q: Did you know about the SIP-adus Citizens’ dialogue? A: 56% said “This was the first time I found out about it”.

<From Free Comments in Sli.do/survey>

- I was surprised at the 2,300 million yen of the SIP project. What’s it being used for?
- I want to know the specific contents of SIP.
- I noticed that the content of the committee for promoting the SIP Automated Driving System and the working group are not really being made public. Shouldn’t the details being examined and the results be made more open, for example on the web?

(1-2) How to convey information on automated driving to citizens

<From Free Comments in Sli.do/survey>

- I think the word automated driving speaks for itself. I think it’s important to increase the places where it’s explained in an easy to understand way, for example on YouTube, and not just through a dialogue.
- If we’re talking about the acceptance of society I want experts to tell me in full about the exact current state of automated driving.
- I want the current technical status of automated driving (what’s possible, what’s not possible, cost, reliability, etc.) to be shared. On top of that it ought to be discussed about what the benefits are for users.

(1-3)The need to correctly convey what’s possible and what’s not in order to not overestimate or distrust automated driving.

(1-3-1) Concerns about mixed traffic

<From Free Comments in Sli.do/survey>

- There’s high risk of automated driving cars and normal cars being intermingled.
- If automated driving and non-automated driving cars mix will there not be disorder?

(1-3-2) It’s important for cars to be safe and secure.

<From Survey results>

Q: What type of automated driving car do you want to try riding? (Free Answer) A: 25% of all comments (25 out of 99) answered “a safe one”.

Q: Do you want to use automated driving cars? (Multiple Choice) A: 1st was “I’ll want to use as long as the safety is proven” which was 42% of the whole.

Q: What is ideal mobility? (Can Choose Multiple) A: 2nd was “Safe” which was 24% of whole (1st was “Comfort”).

<From Free Comments in Sli.do/survey>

・ I think it would be good to have a session to think about methods of ensuring safety in automated driving, the responsibility of makers, and user’s methods of use.

(1-4) Sharing the vision for the future was effective in citizen’s understanding

<From Free Comments in Sli.do/survey>

・ A good method would be to properly indicate some common vision and then “mark in red” with everyone together, wouldn’t it?

・ I felt that having a clear vision when changing cities is important in spreading automated driving.

(2) How are diverse needs responded to

(2-1) The need to scoop up diverse needs

<From Free Comments in Sli.do/survey>

・ A discussion is needed with views of people from non-urban areas and the elderly included.

・ In Tokyo, and in non-urban areas as well, there are many people who are separated from this discussion, and how is that going to be tackled?

・ Japan’s society, when you think about it, is a forerunner in the world for a super aging society. Why are there no cane-wielding elderly people on the panel? The mobility needs of healthy young people and middle aged people (high mobility needs (industrial, commuting to work and school) are different than the urgent needs of elderly people (what do people who’s body functions are weakening think about living?). Diversity needs to be considered. I think it will connect with the opinions on the spreading of automated driving. The mobility of mobility-impaired people is also good for healthy people.

(2-2) “Flexibility and agile development” is required in order to respond to diverse needs. As a platform, is it not necessary when thinking to divide the parts that ensure safety and security and the parts that respond to flexibility?

<From Free Comments in Sli.do/survey>

・ In order to respond to diverse needs, it’s important to adopt repeated trial and error, such as

of demonstration experiments.

- The making of systems and cities is more opaque than I thought it was. I felt that trial and error is necessary. And a situation where it (trial and error) is permissible is necessary.
- The values of "security and safety" can be agreed with by anyone, but if that's treated with too much importance don't other valuable things get refrained from realization?

(3) Focus needs to shift also to other industries besides the automobile industry. Necessity of a whole design.

(3-1) Influence on town planning

<From Free Comments in Sli.do/survey>

- If automated driving allows movement to be realized without the need for human action, the proportional connection between distance and time will maybe collapse. If that happens, the compact city and making things compact loses its meaning.
- I feel that automated driving is an important technology in particular for non-urban areas. Because of that, town design in depopulated areas I feel has a major point.
- Streets in Japan have great quantities of information, such as signboards, and I've heard that it's harder to use automated driving technology when compared to Western roads. However shouldn't we be thinking of not only automated driving technology but at the same time also the infrastructure and city construction for that technology?

(3-2) A change in work method

<From Free Comments in Sli.do/survey>

- In regards to work commuting, I hear that the idea of people all gathering in one place to work is not that necessary to begin with. If I were asked is Tokyo a place where innovation can easily occur, actually I wouldn't say so. If there's going to be overpopulation then shouldn't we be thinking of lifestyles that relieve that?
- About the work commute rush, and other related things, there's no point in expecting much from automated driving. Should we not be also thinking of solutions that don't cost money, for example the spreading of bicycle share riding?

(3-3) It would be good if physical distribution and parking management could be solved by automated driving

<From Survey results>

Q: Did you feel that lifestyles could change due to the appearance of automated driving?

A: 14% of total comments (4 out of 29) answered "physical distribution".

Q: Did you feel that city scenery could change due to the appearance of automated driving?

A: 24% who answered “it would change” selected “parking lots would disappear” (1st).

<From Free Comments in Sli.do/survey>

- Commuting to work in the city center is currently mainly by train, and taxis are only used in special circumstances or by special people. If cars are used just to commute to work in the city center, traffic jams would become even worse. That would affect important physical distribution and mobility to hospitals.

(3-4) The need for autonomous decentralized services that match regions and traits

<From Free Comments in Sli.do/survey>

- Even if people only move virtually, it doesn’t mean that they only move through regulated mobility conditions such as infrastructure and rules made by humans (ie. being controlled by restrictions). Automated mobility from automated driving, as a base for autonomous decentralized mobility, conversely changes and regulates the structure and infrastructure of society. This is called “a reversal happening and society becoming a dispersed model”.
- Infrastructure and the physical city, which is connected and will change to being autonomously decentralized, can perhaps be called the interface between data and people.

(4) About the plan of the dialogue sessions

(4-1) The method of collecting opinions from listeners

⇒ Many opinions were gathered using sli-do, and there were a lot of comments that hoped for a slightly more interactive experience.

<From Free Comments in sli.do/survey>

- I thought it was going to be a discussion with listener participation however it was disappointing that the discussion between the panelists was the main part (even though there were questions and live postings).
- I felt that next time they should structure it so anyone can participate. They ought to spread this more by launching websites that scoop up citizen’s opinions or some visualization of the efforts (broadcast, internet), and spread this socially and raise issues.
- Is this a “dialogue”? I think the panelist’s opinions are important but I also think it’s going against the point of the event how most of the time is spent with them. So many citizens have gathered here especially. For this reason I think that diverse opinions should be gathered in order to deepen the discussion even more.
- With the intention and way of running this event, wouldn't it be best to make it a simultaneous live broadcast over Niko-Niko Live?
- It would be better to narrow down the people and have a more concentrated dialogue. This

isn't a dialogue but just random talking.

(4-2) The method of electing panelists

⇒ About the panelist's traits and numbers, there were too many and their opinions were too dispersive. Also in what way should the general citizens be spread out within a wide spectrum? Another concern was that for people with different levels of understanding, what type of dialogue session should be brought about that's different from an explanatory meeting?

<From Free Comments in sli.do/survey>

- Are the people that come to the Tokyo Motor Show "citizens"? How will the opinions of people be reflected who are currently at this time in Disney Land or enjoying gateball, etc.?
- They need to gather more normal people, or give this to more experts. I felt this time that many of the members were unsatisfactory.
- There're too many people in the discussion. I think it would be more interesting to do it interactively with a smaller group. At least I want them to make jumping-in possible.
- We need people from car companies, general contractors, and town planners. We need to hear opinions from housewives, the mobility-impaired and the elderly.
- If you don't include real mobility-impaired people (the elderly and people in the non-urban areas that need a car to live) then it just becomes idealism and imagination. The purpose isn't automated driving in itself. We ought to be discussing about what method of use is needed and what is its ideal form for solving societal problems and improving the level of living.

(4-3) Other opinions concerning the operation (theme setting, discussion format, etc.)

⇒ Though the aim was to have a wide theme and disperse opinions, we received comments indicating that the listeners found it hard to understand. Also, in the first half of the event we gave time for conveying information to general listeners, but people who were hoping for it to be a dialogue found it different than what they were expecting.

In view of theme setting and the conveyance of information, it may be effective to think about dividing the places to convey information on a large scale and the setting of smaller scale places where needs are scooped up.

<From Free Comments in sli.do/survey>

- The discussion was dispersive so a conclusion was out of sight.
- Each of the individual panelist's talks were very interesting, but it was unfortunate that what each wanted to say was said dispersively in a short time and the subjects I was interested in were swept away without being delved into.
- The theme is not clear. There're too many panelists → how about dividing roles? The panelists are also not understanding the discussion. For example it would have been good to divide the themes specifically like "privacy and security", "transport that can be easily used by the elderly and the disabled", "reduction of accidents, reduction of traffic congestion", "regulations and societal experiments". You would gain more interest from the participants if it was based on taking questions from them.
- The introductory remarks were too long. Is this a presentation convention?
- Is this a "dialogue"? I think the panelist's opinions are important but I also think it's going against the point of the event how most of the time is spent with them. So many citizens have gathered here especially. For this reason I think that diverse opinions should be gathered in order to deepen the discussion even more.

6.4 Outcome of 2nd Citizens' dialogue –Obtained opinions and awareness

(1) Theme 1 : Need for MaaS

(1-1) Diversification of "purpose of movement"

- There are purposes of movement other than "to go to a target place" and "to move itself" such as "preparation time" for refreshing the mind and/or for preparation work, or as "a place for communication" between other people who happen to ride in the same vehicle.
- Future transportation may become complicated due to changes in the concept of commuting and/or increase of sideline businesses, etc. caused by changes in the way of working.

(1-2) Necessity for communities

- Communication is also essential for people to live a healthy life. Movement is needed for social relationships.
- Even groups of persons who can't drive should be able to move together. The demand for various services such as "driving [business]" will be generated by the realization of MaaS and automated driving.

(2) Theme 2 : Idea to realize needs

(2-1)Utilization of data

・ Interaction of data is essential for the development of services. Though individual companies have valuable data, most of them are reluctant to share it due to the risk of violating privacy even if it is not illegal. To enhance the level of service, companies and individuals need to make efforts with purpose.

(2-2) Penetration of services

・ Added value may be appreciated by providing package round trips tailored to the destination. One example is for a theme park, in which economic rationality can be pursued by staging as early as from the transportation hour. The penetration of such services will increase people’s understanding and lead to expansion of the services.

(3) Theme 3 : Toward realization of services

(3-1)Necessity of "content-creation" of services

・ Because no service has been realized yet, it’s difficult for people to imagine an attractive lifestyle. In order to grasp people’s need for automated driving, "contentization" is necessary.

(3-2)Collection and utilization of data

・ The concept of "public" may change. Public communication may be re-examined based on "autonomous distribution" tailored to each district.

・ A platform which enables the collection of data related to movement is needed. Using such a platform, open data will be combined, utilized for public services, and processed in the private sector to provide customized services. Service design that also takes economic rationality into account is necessary.

(3-3) Importance of "interaction"

・ Though existing route navigation systems are convenient in daily life, people can’t access necessary information in case of an emergency such as heavy snowfall. Data interaction is needed in order to provide information on the optimal means of transportation in such cases.

・ Although public services should be formed based on consensus and sharing by citizens, the government should also play an important role by enabling the private sector to take action easily. Moreover, because there are many transportation operators, a top-down approach may be effective in some cases for quick action.