2018

# "Strategic Innovation Promotion Program (SIP) for Automated Driving for Universal Services/Large-Scale Field Operational Test"
# **"Comprehensive Study Regarding Social Acceptability"**

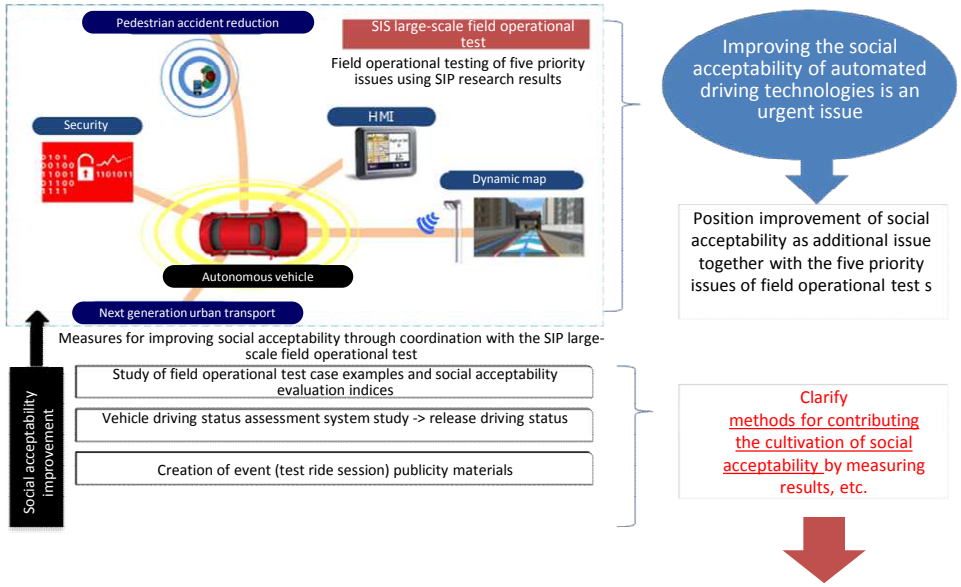
# **Report (Overview)**

February 28, 2019

NIPPON KOEI CO., LTD.
Nagoya University
Nikken Sekkei Ltd.

# Study objectives

The objective of this research study is the clarification of methods which contribute to the improvement and cultivation of the social acceptability of autonomous vehicle and related technologies when conducting the SIP automated driving large-scale field operational test planned by the Large-Scale Field Operational Test Secretariat since last year. Specifically, it seeks to assess methods for cultivating social acceptability by clarifying indices and methods that contribute to social acceptability through various studies and events, etc.




In order to clarify methods that contribute to the fostering of the social acceptability of automated driving, the following were studied.

1. Study of Japanese and foreign field operational test methods related to automated driving
2. Study of social acceptability evaluation methods and indices
3. Display of driving status in large-scale demonstration tests of automated driving systems (implementation of movement management systems and performance of movement management)
4. Study of methods for improving social acceptability by communicating information such as automated driving system/large-scale field operational testing events and public relations materials, etc.
5. Study of social acceptability through the implementation of automated driving system/large-scale field operational testing

# Study objectives

There is a need to investigate methods that contribute to the improvement and fostering of social acceptability based on stakeholder and automated driving technology application situations.
This study focused on private vehicle owners and drivers, investigating methods for improving and fostering social acceptability by communicating information such as information regarding field operational tests.

## [Automated driving technology stakeholders (examples)]

| Element | Stakeholder |
|---|---|
| System | Police (Road Traffic Law), Ministry of Land, Infrastructure, Transport and Tourism (Road Act, Road Transportation Law, Road Trucking Vehicle Act), etc. |
| Market | Vehicle related, insurance related, public transport related, local government agencies, etc. |
| Technology | Private companies using autonomous vehicles in business operations |
| Region | Private vehicle drivers, public transport passengers, people living along roads, pedestrians, etc. |

## [Automated driving technology usage scenarios (examples)]

Private, commercial



Transportation, logistics

# Study items and responsible parties

| No. | **Study items** | Responsible parties |
|---|---|---|
| 1 | Study of social acceptability evaluation methods and indices | Nagoya University<br>NIKKEN SEKKEI<br>Research Institute |
| 2 | Display of driving status in large-scale demonstration tests of automated driving systems | NIPPON KOEI |
| 3 | Study of methods for improving social acceptability by communicating information such as automated driving system/large-scale field operational testing events and public relations materials, etc. | Nagoya University<br>NIKKEN SEKKEI<br>Research Institute |
| 4 | Study of social acceptability through the implementation of automated driving system/large-scale field operational testing | NIPPON KOEI |

# 1. Study of social acceptability evaluation methods and indices

Nagoya University
NIKKEN SEKKEI Research Institute

# 1.1 Study of effectiveness of measuring method of social acceptance improvement and information dissemination method

# Public relations based on hypothesis for expectation and anxiety

We carried out case studies on smartphones and other popularization stages of innovative products that occurred in the past and clarified types and differences.

1 Actual safety and sensible anxiety are not the same. You often see or are more receptive if around you already introduced.
⇒ Intensive Public relations in areas targeted for diffusion, PR using mass communication such as SNS.

2 The greater disadvantage of existing options, the easier it is to shift to new options
⇒ Emphasize the merit of new options by highlighting the disadvantages of existing options

3 Having a firm belief in early adapters and giving a role as an influencer
⇒ Experience Share of Experienced Person (Experimental Practice Experiment Participant Always Posts Impression on SNS)

4 It is necessary to raise the exposure degree of autonomous driving in various media to form Early Majority and Late Majority
⇒ Increase the exposure frequency of keywords of "autonomous driving" consciously with various media

# Public relations based on hypothesis for expectation and anxiety

5 It may be possible to ease somewhat anxiety by promoting to the whole country (giving incentives for industrial and tourism promotion) and presenting success stories in other countries etc.

⇒ Disclose information proactively not only in Japan but also on trends in other countries

6 Extensive PR triggered by a symbolic large-scale event is effective

⇒ Raising awareness triggered by national projects such as the Olympics and showcase at the exposition etc.

7 PR as a tool for expression of self expression and status as well as tools to make life more convenient (convenient for economic reasons such as temporal and spatial effects)

⇒ Public relations with combined tastes and lifestyle regarding the image of fun, luxury, fashion, modern, smart, cool, and future oriented

# 1.2 Study of measurement investigation on social acceptance

# I. Internet questionnaire survey

# 1)Comparing the acceptance of self-driving cars in the United States, the Netherlands, and Japan

<Purpose>

In this study, we sought to examine whether the acceptance of self-driving cars differs according to one's degree of contact with and degree of understanding of self-driving cars. Thus, in regions of both Japan and other countries where there is a high degree of contact with self-driving cars as well as regions that lack this contact, we sought to understand residents' degree and nature of this contact, as well as to shed light on the relationships of these factors with acceptance.

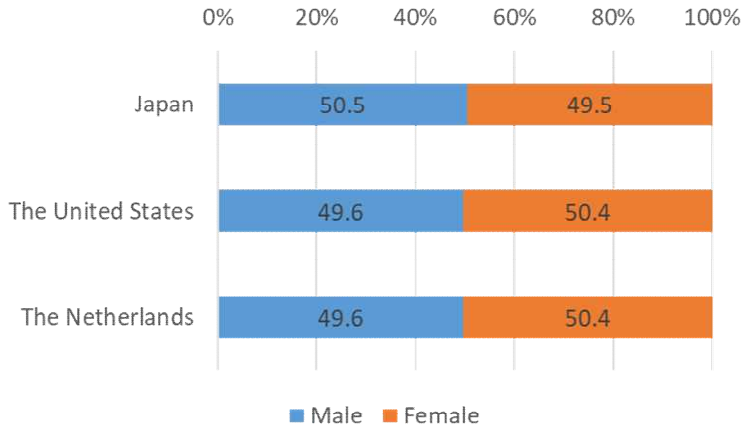
<Survey overview>

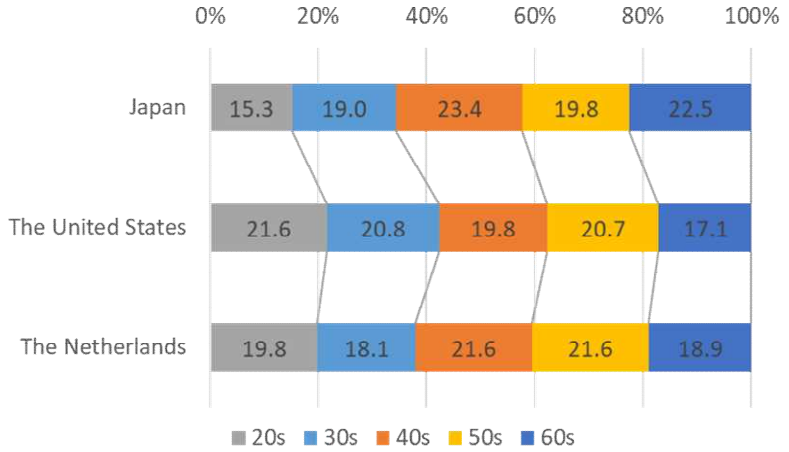
| | |
|---|---|
| Survey method | Web-based questionnaire survey |
| Survey date | February 2019 |
| Countries surveyed | Japan, the United States, the Netherlands |
| Number of respondents | 1000 samples in each country |
| Survey content | Acceptance of autonomous driving<br>Recognition and image of self-driving cars<br>Hopes and concerns regarding self-driving cars<br>Intention to use autonomous driving technology<br>Awareness of driving<br>Ordinary transportation behavior<br>Individual characteristics |

# Individual characteristics of survey respondents

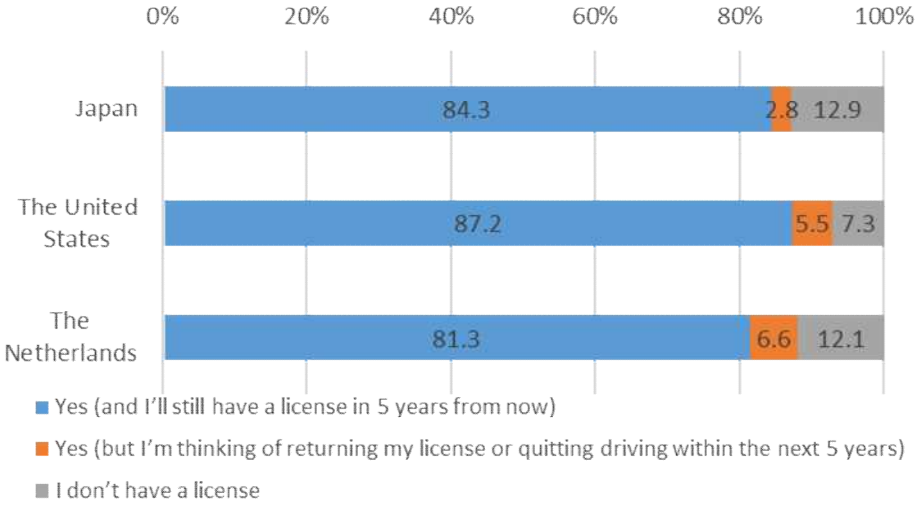
<Sex/age>

Respondents aged 20-70 were recruited in accordance with each country's population distribution




<Driver's license status>

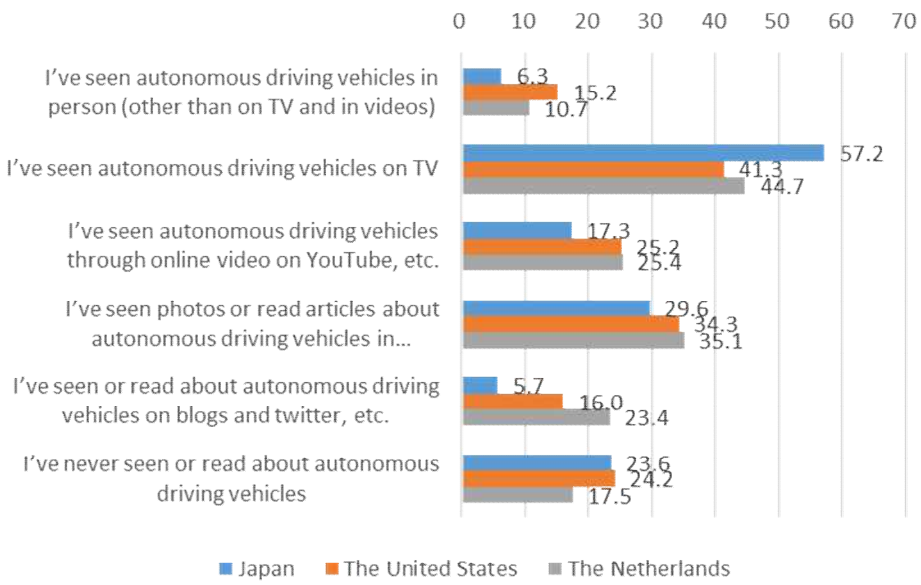



<Household car ownership>

| | Number of cars owned (cars/household) | Number of households that do not own cars (households) |
|---|---|---|
| Japan | 1.27 | 208 |
| United States | 1.79 | 50 |
| Netherlands | 1.25 | 139 |

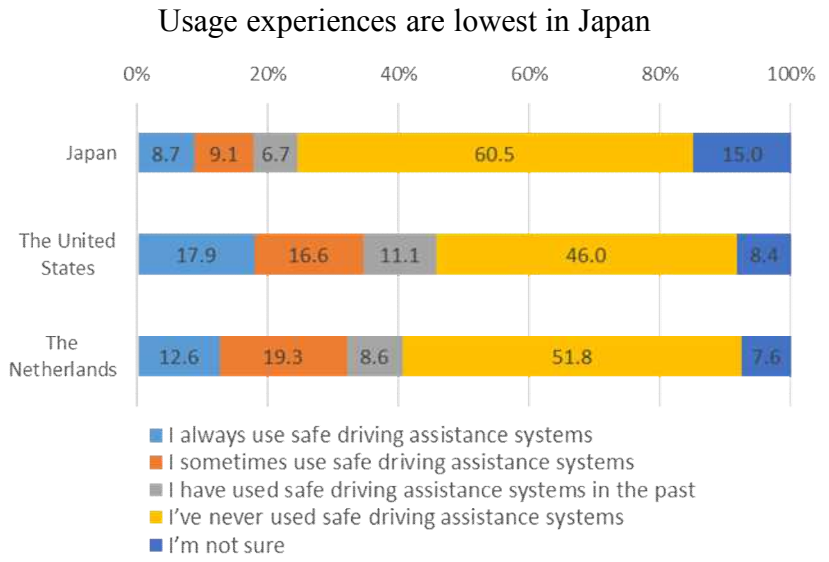
# Contact with information about autonomous driving and usage experiences

<Medium of contact with information about autonomous driving>




<Experiences using driver assistance systems>

* Only license holders



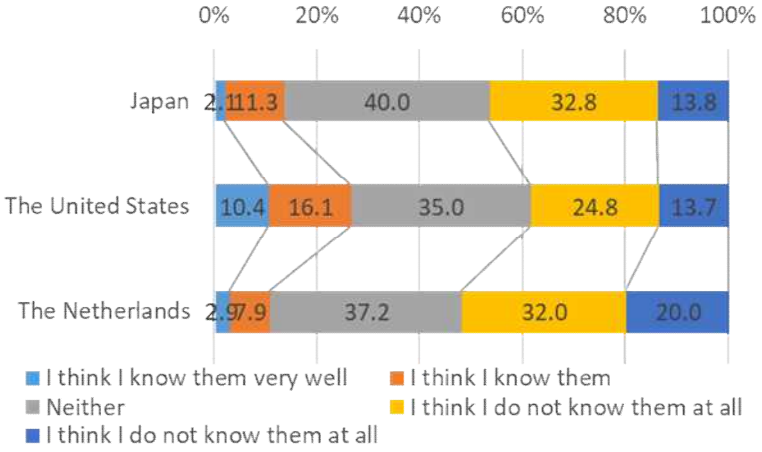

- The percentage of people who have actually seen these cars being driven is 15% in the United States and 6% in Japan
- The proportion of people who have seen videos on TV and other media is just under 60% in Japan (perhaps due to the influence of TV commercials)
- The proportion of people who have never seen or read any information about autonomous driving is just under 25% in Japan and the United States

- Usage experiences are lowest in Japan, and around 25% of people have only had one experience
- This proportion is higher than 40% in the United States and the Netherlands

# Recognition of self-driving cars

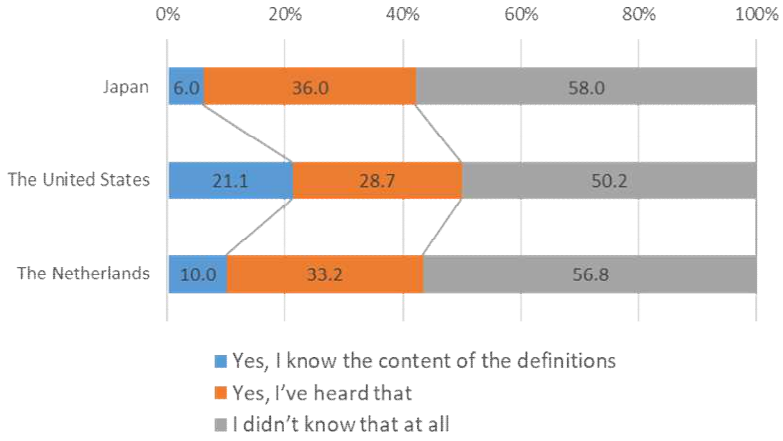
## <Recognition of self-driving cars>

The United States has the highest number of people that know about self-driving cars



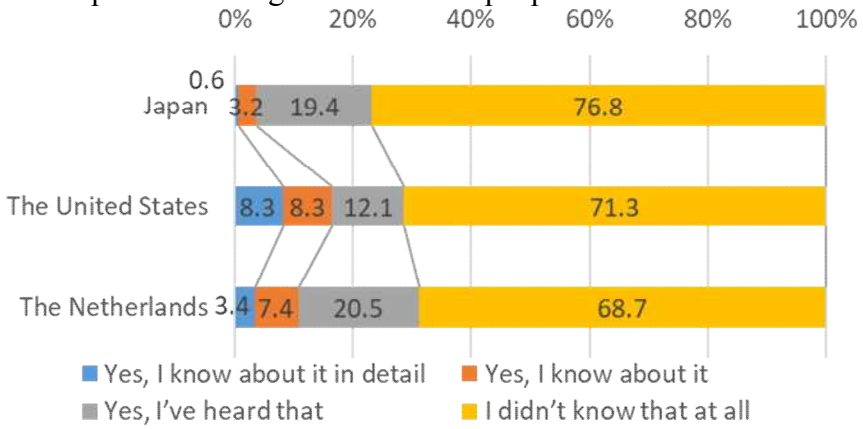

## <Recognition of levels of autonomous driving>

- In the United States, half of people do not recognize levels at all, and the proportion is just under 60% in Japan and the Netherlands



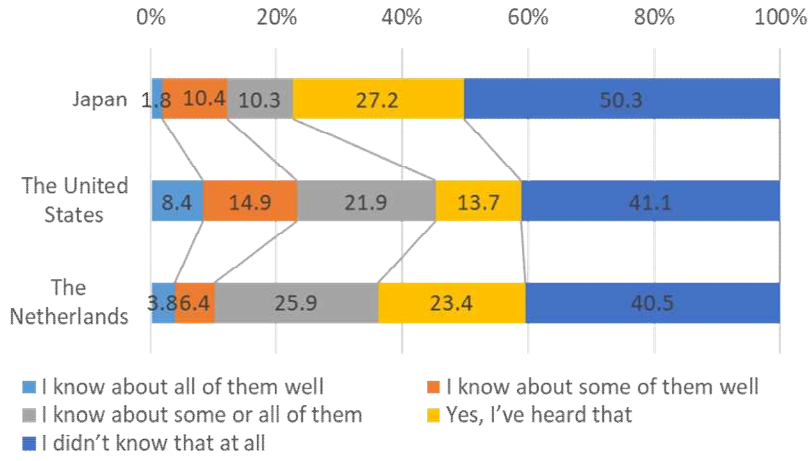

## <Regarding example of usage of self-driving buses in Switzerland>

Japan has the highest number of people who are unaware



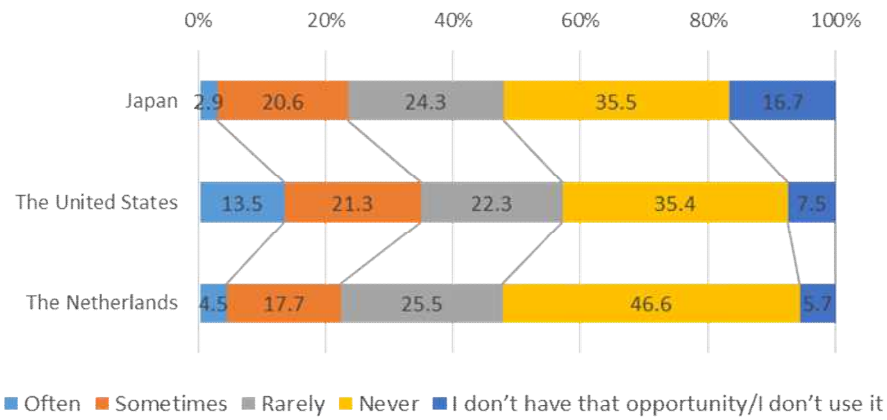

## <Examples of self-driving vehicle accidents in the United States>

Japan has the highest number of people who are unaware

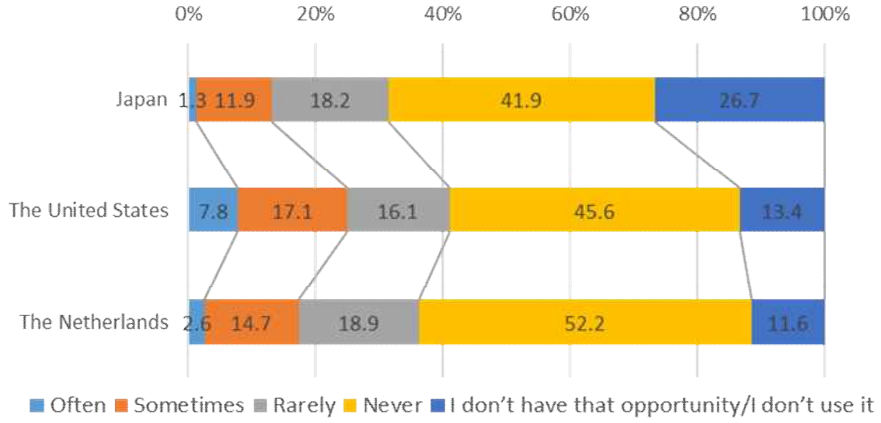


# Everyday conversations about autonomous driving

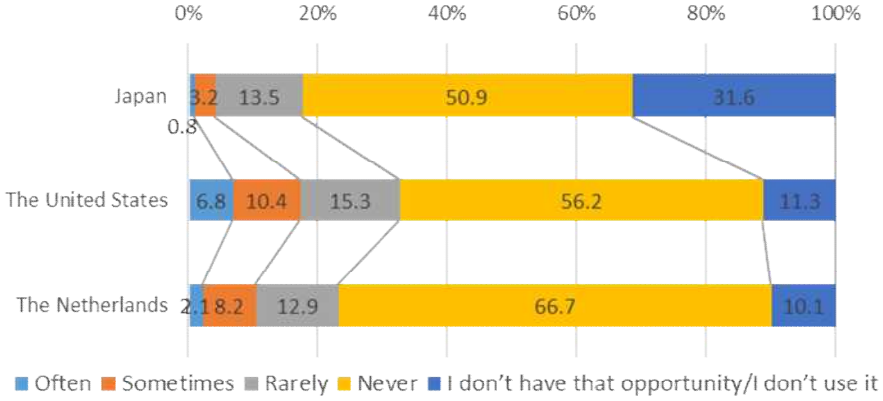
<Conversations with family members, friends, and acquaintances>




<Conversations during work and in school>




<On blogs, social networks, etc.>

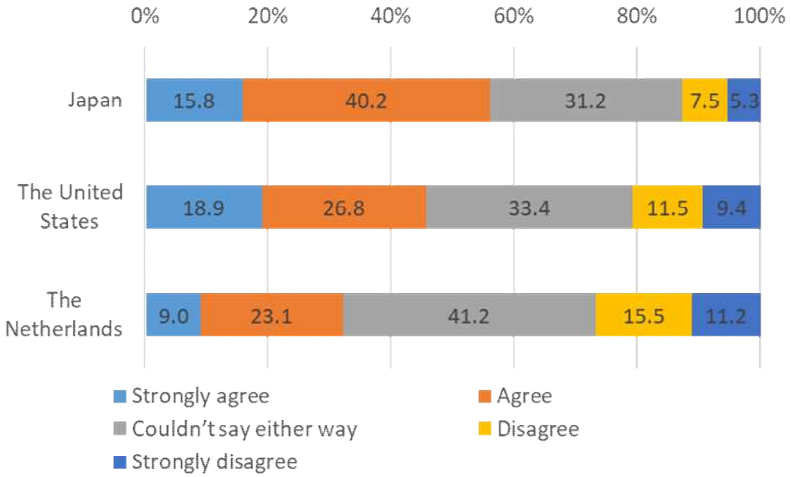



- In all situations, everyday conversations about autonomous driving are most common in the United States
- In Japan, conversations about autonomous driving with family members, friends, and acquaintances are as common as they are in the Netherlands, but at work and on blogs, such discussions are less common than in the Netherlands

# Acceptance of self-driving cars

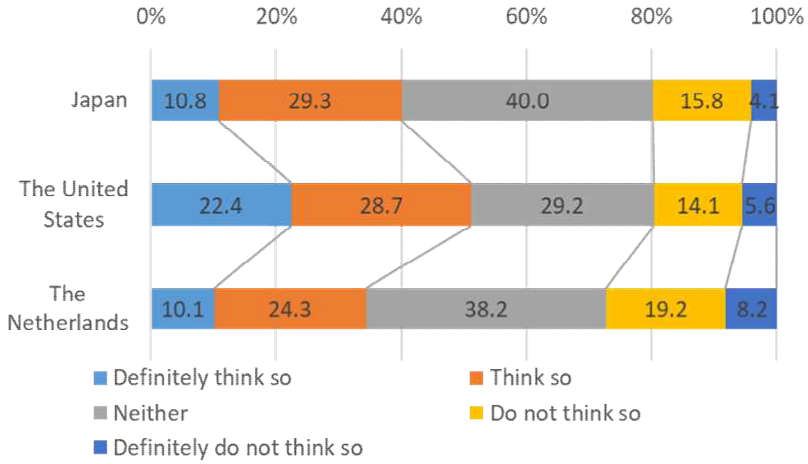
<Support for a society with self-driving cars>

Highest number of people agree in Japan



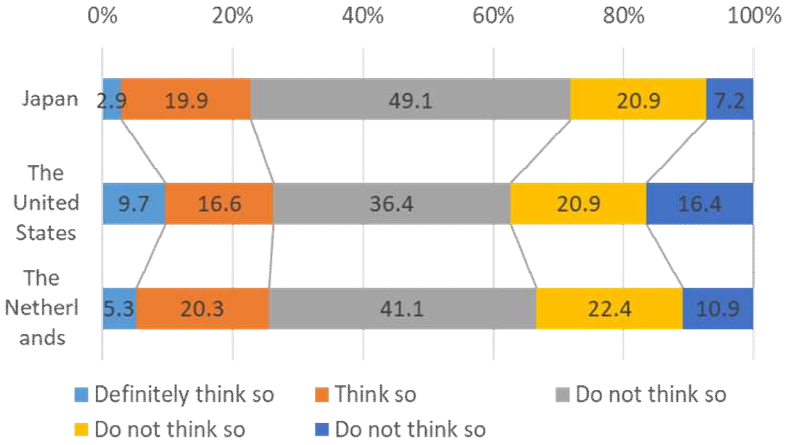

<Do you think self-driving cars are frightening?>

Highest number of people find them frightening in the United States



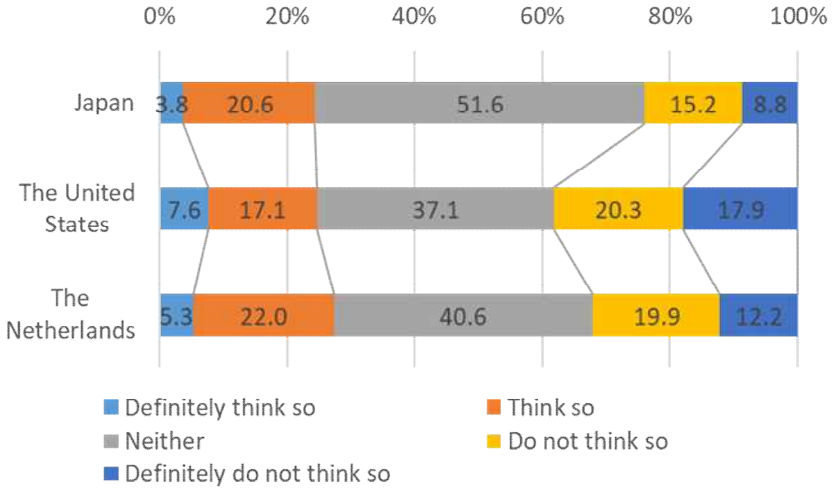

<Do you think self-driving car technology is trustworthy?>

More people find the technology untrustworthy



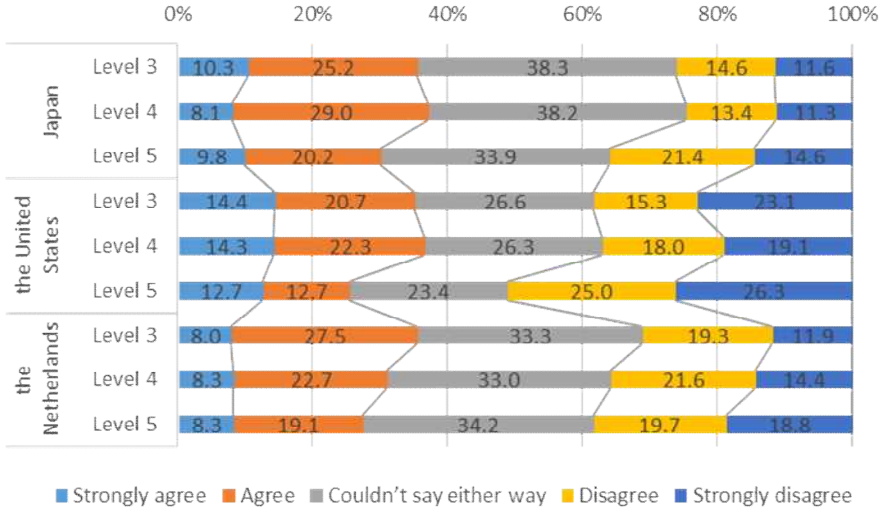

<Do you think the administrations and companies that create social mechanisms for autonomous driving are trustworthy?>

A high number of people responded "cannot say either way" in Japan

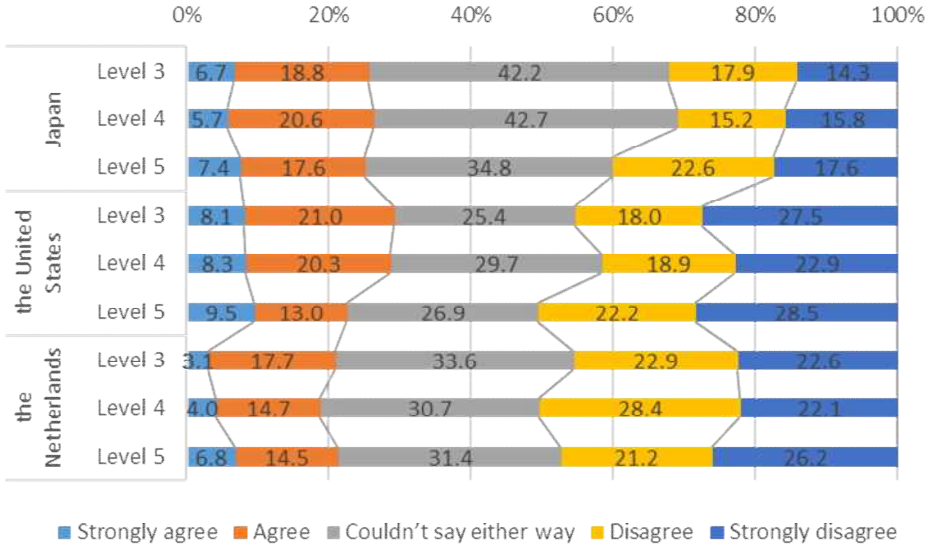


# Intentions to purchase and use self-driving cars (by level)

<Would you like to use a self-driving car on a daily basis?>



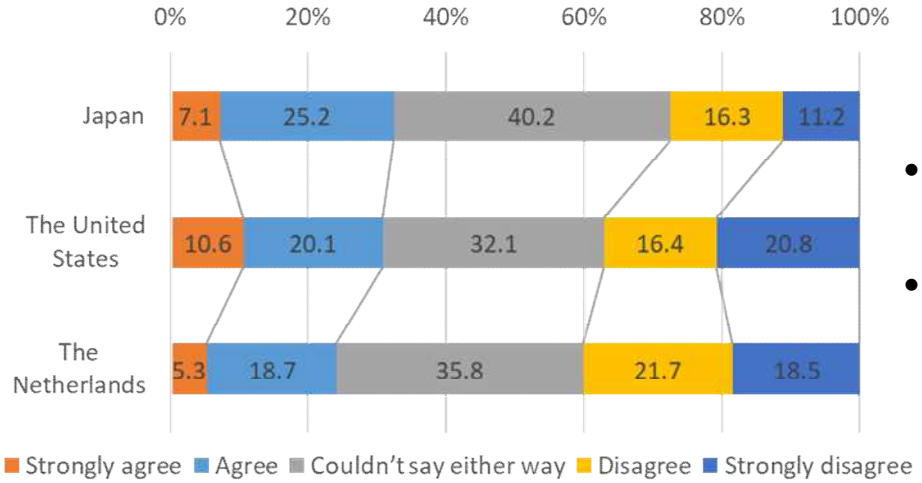

<Would like to purchase/own a self-driving car?>




- Just under 40% of people in Japan and the United States responded that they would like to use level 4 cars
- Intentions to use level 5 cars were low in all countries, but especially in the United States, where half of people would not like to use them
- Just under 25% of people responded that they would like to buy a self-driving car at all levels.
- In the United States, around 30% of people responded that they would like to purchase self-driving cars at level 3 and level 4, but the intention to purchase is lower at level 5 than other levels
- Intention to purchase is lower in the Netherlands than other countries, but intention to purchase is higher at level 5 than level 4

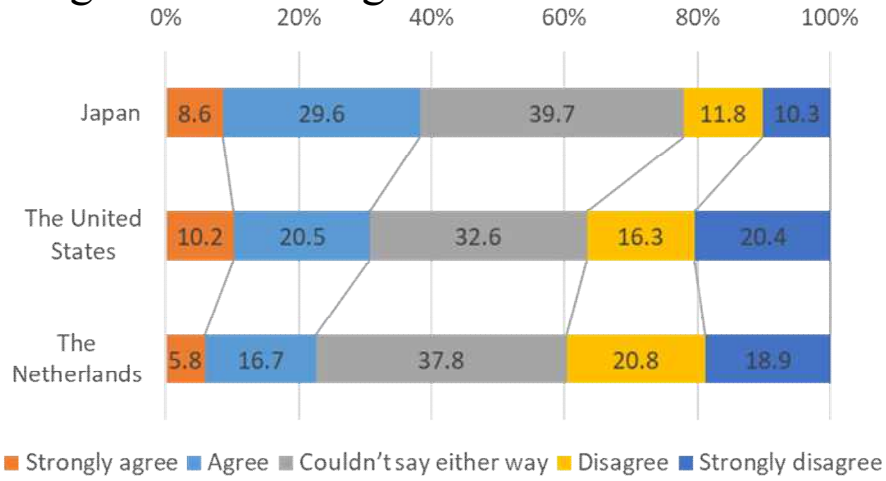
# Intentions to use self-driving buses (level 4 and above)

<Would you like to use a self-driving bus at level 4 or above?>




- Agreement is highest and disagreement is lowest in Japan
- Intention to use is lowest in the Netherlands

<Do you think it would be a good idea to introduce self-driving buses at level 4 or higher into the region?>

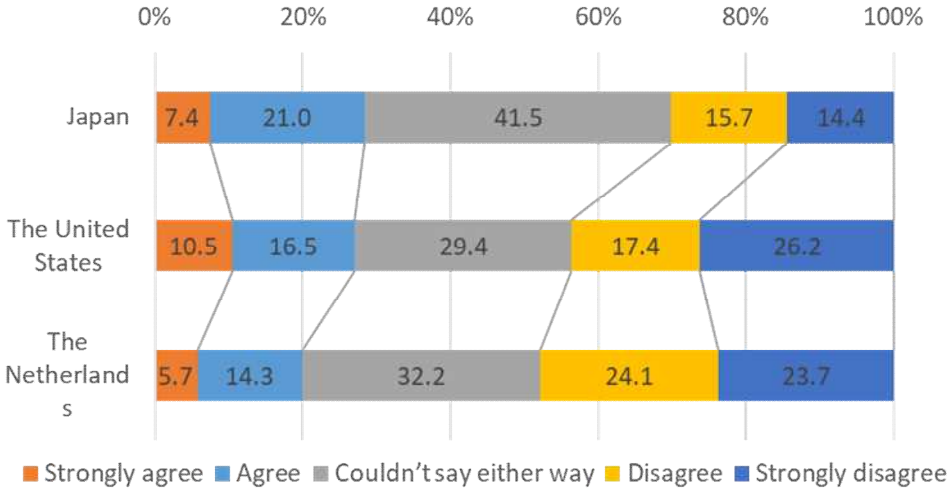



- The proportions of respondents are approximately the same as the above intention to use self-driving buses in the United States and the Netherlands
- In Japan, more people agree with this question than those that express an intention to use self-driving buses, and fewer people disagree

→ Some people think it would be a good idea to introduce self-driving buses even though they do not personally want to use them

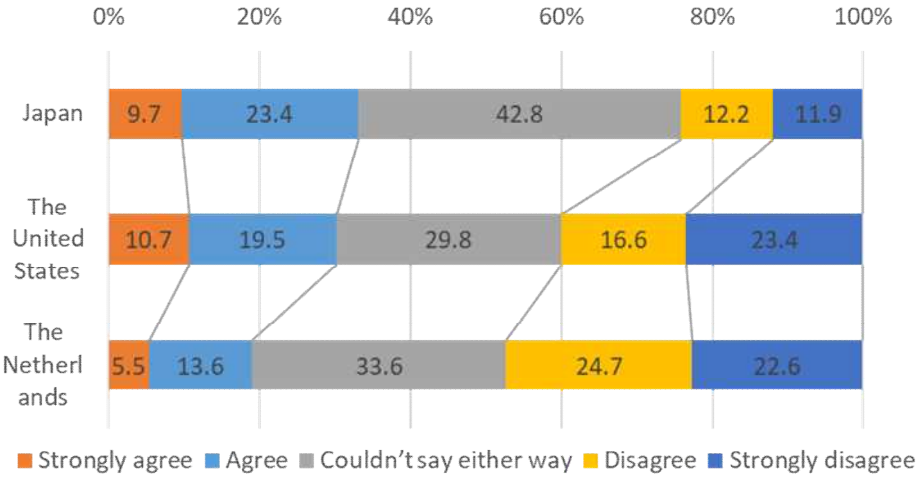
# Intentions to use robot taxis

<Would you like to use a robot taxi?>




- These proportions are about the same as intentions to use buses at level 4 and above, but in all countries, intention to use taxis is lower than intention to use buses

<Do you think it would be a good idea to introduce robot taxis into the region?>

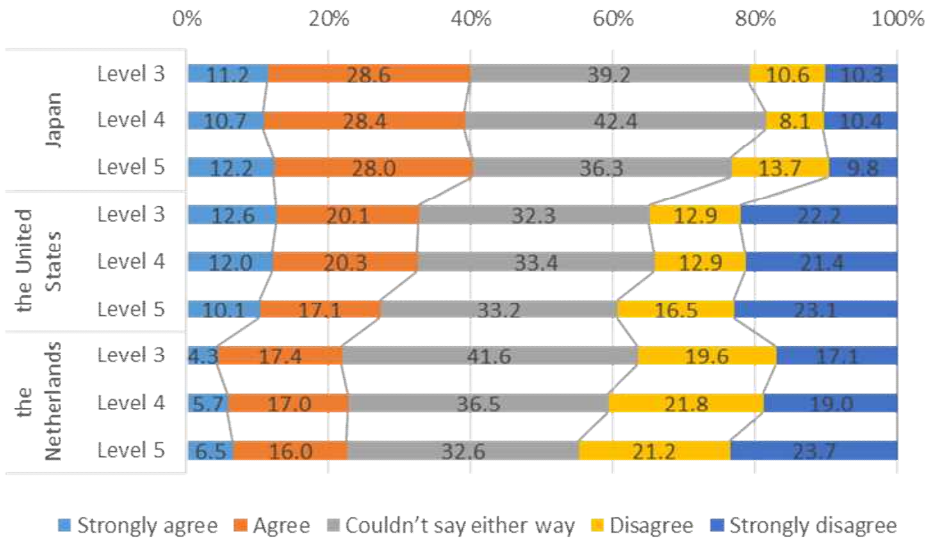



- In the United States and Japan, a higher proportion of people thinks it would be a good idea to introduce robot taxis into the region than those who want to personally use them

→ Some people think it would be a good idea to introduce robot taxis even though they do not personally want to use them

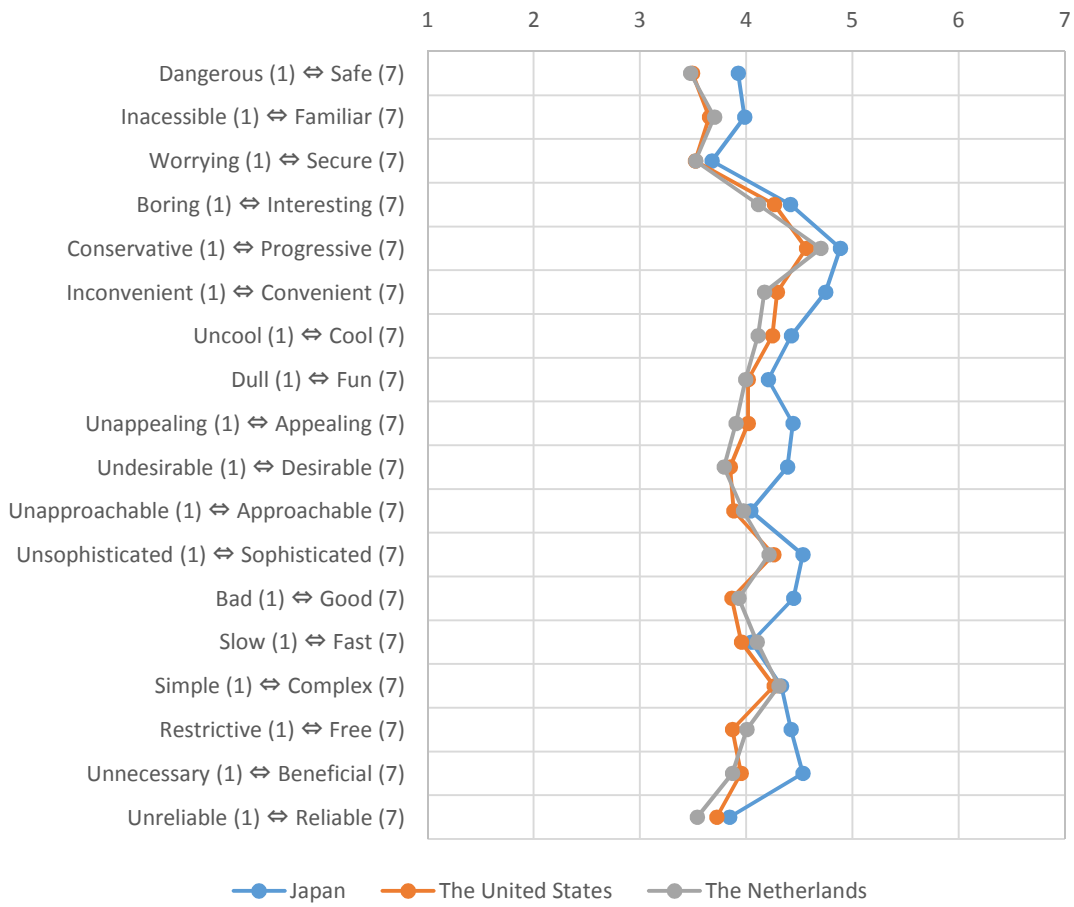
# Introduction of cargo vehicles that use autonomous driving

<Do you think it would be a good idea to introduce cargo vehicles that use autonomous driving?>




- At all levels, more people think it would be a good idea to introduce cargo vehicles using autonomous driving in Japan than in the other two countries
- The highest proportion of people opposed to it is in the Netherlands
- In the United States and the Netherlands, the higher the level of the autonomous driving technology, the higher the proportion of people who opposed to it

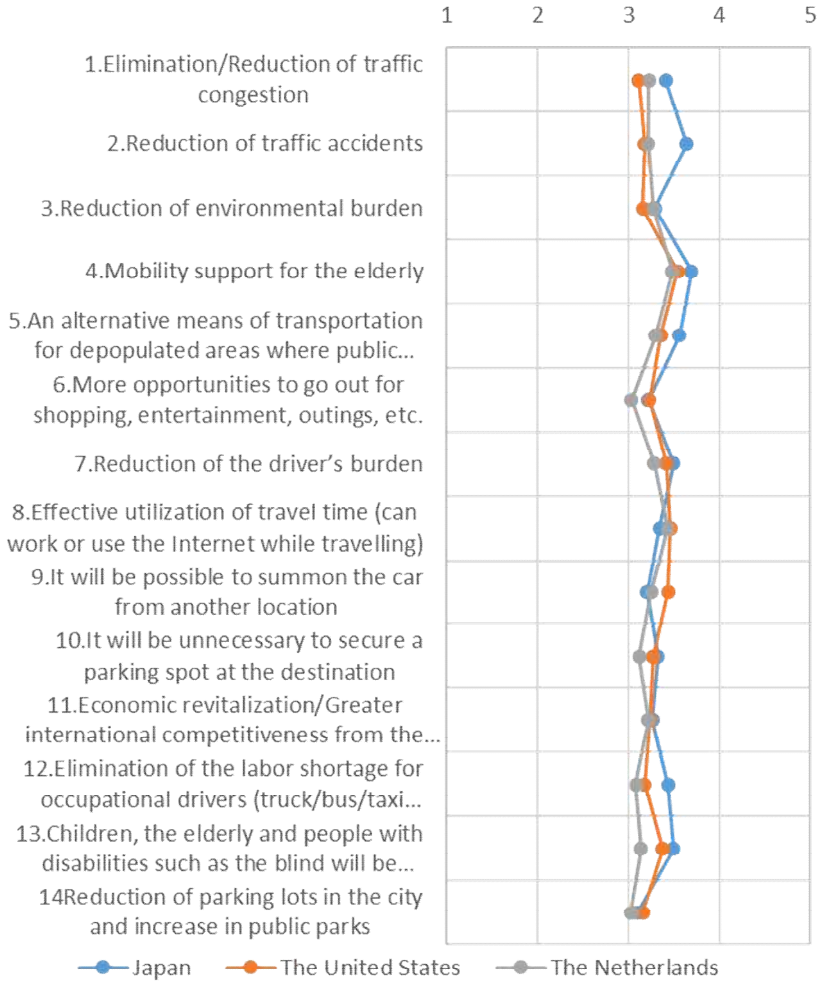
# Images of self-driving cars




- Self-driving cars have a better image in Japan than in the two other countries
- Average scores in the United States and the Netherlands are similar for most criteria

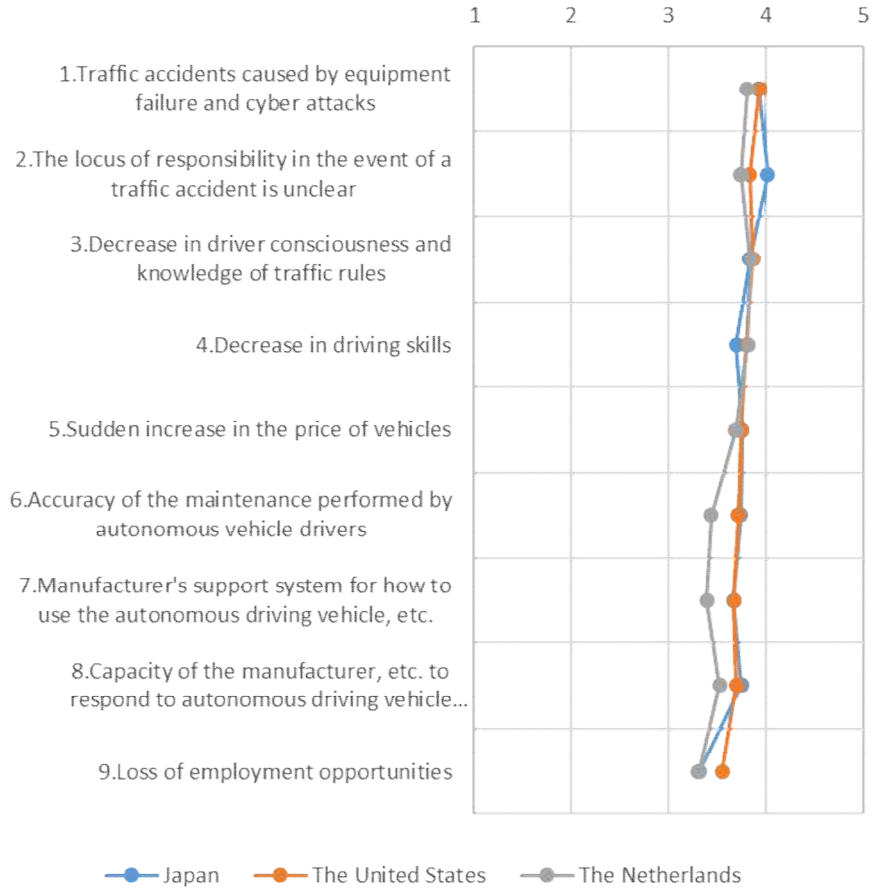
# Hopes and concerns regarding autonomous driving

<Hopes regarding autonomous driving>




Japan: Hopes for resolution of social problems
The United States: Hopes to personally benefit from usage, such as "8. Effective use of transit time"

<Concerns regarding autonomous driving>




Japan: Responsibility for accidents, capacity of manufacturers and others to respond to breakdowns
The United States: Loss of employment opportunities
The Netherlands: Less concerned about autonomous driving than other countries

# Summary of comparison of the acceptance of self-driving vehicles in the United States, the Netherlands, and Japan

- Regarding recognition of autonomous driving, among the three countries, the United States has the highest number of people who are well aware of the matter, while Japan and the Netherlands have about the same number.
- Autonomous driving is discussed more often in daily conversations in the United States than in the other countries, while in Japan it is discussed relatively often in conversations with family, friends, and acquaintances, and in the Netherlands it is discussed relatively often on the internet.
- Regarding the use of safe driving assistance systems, while the proportion of people that has used such a system at least once tops 40% in the United States and the Netherlands, in Japan it is low, at around 25%.
- Regarding hearing about and seeing self-driving cars, in the United States 15% of people has actually seen self-driving cars on the street, whereas around 25% has never seen nor heard of one. In Japan, perhaps due to the influence of television commercials, nearly 60% of people has seen self-driving cars on television.
- Japan has the highest social acceptance of self-driving cars and intentions to use and purchase them, whereas in the United States, approximately 30% of people intends to do neither, and about half of the remaining people are neither in agreement nor opposed to it. In Japan, the highest number of people responded “neither” to all questions, indicating that many people may have been unable to choose due to a lack of knowledge.
- Regarding hopes and concerns toward autonomous driving, in Japan there were higher hopes of resolving social problems than in other countries, and greater concern toward responses to accidents and breakdowns. In the United States, there were higher hopes of individual benefits such as efficiently using transit time than in other countries, and greater concern regarding social problems such as loss of employment opportunities.

# 2) How public opinion was changed by the world's first driverless car-caused pedestrian fatality

- Media coverage of Uber pedestrian fatal accident

The news of this traffic accident was reported all over the world.

The accident occurred in Arizona, USA, 2018, **March 18th (Sun) 9:58p.m (GMT-7)** which is, 2018, **March 19th (Mon) 4:58a.m (GMT) in the UK.**

**2018, March 19th (Mon) 1:58p.m (GMT+9)** in Japan.

■ Example of media coverage (UK time)

March 19th 16: 51 (US time 19th March 9: 51) **The earliest report： Uber's official twitter: Our hearts go out to the victim's family. We're fully cooperating with @TempePolice and local authorities as they investigate this incident.**

March 19th 16:56 「Uber Halts Autonomous Car Tests After Fatal Crash in Arizona」 by Bloomberg

March 20th 「Uber halts self-driving car tests after death」 by BBC

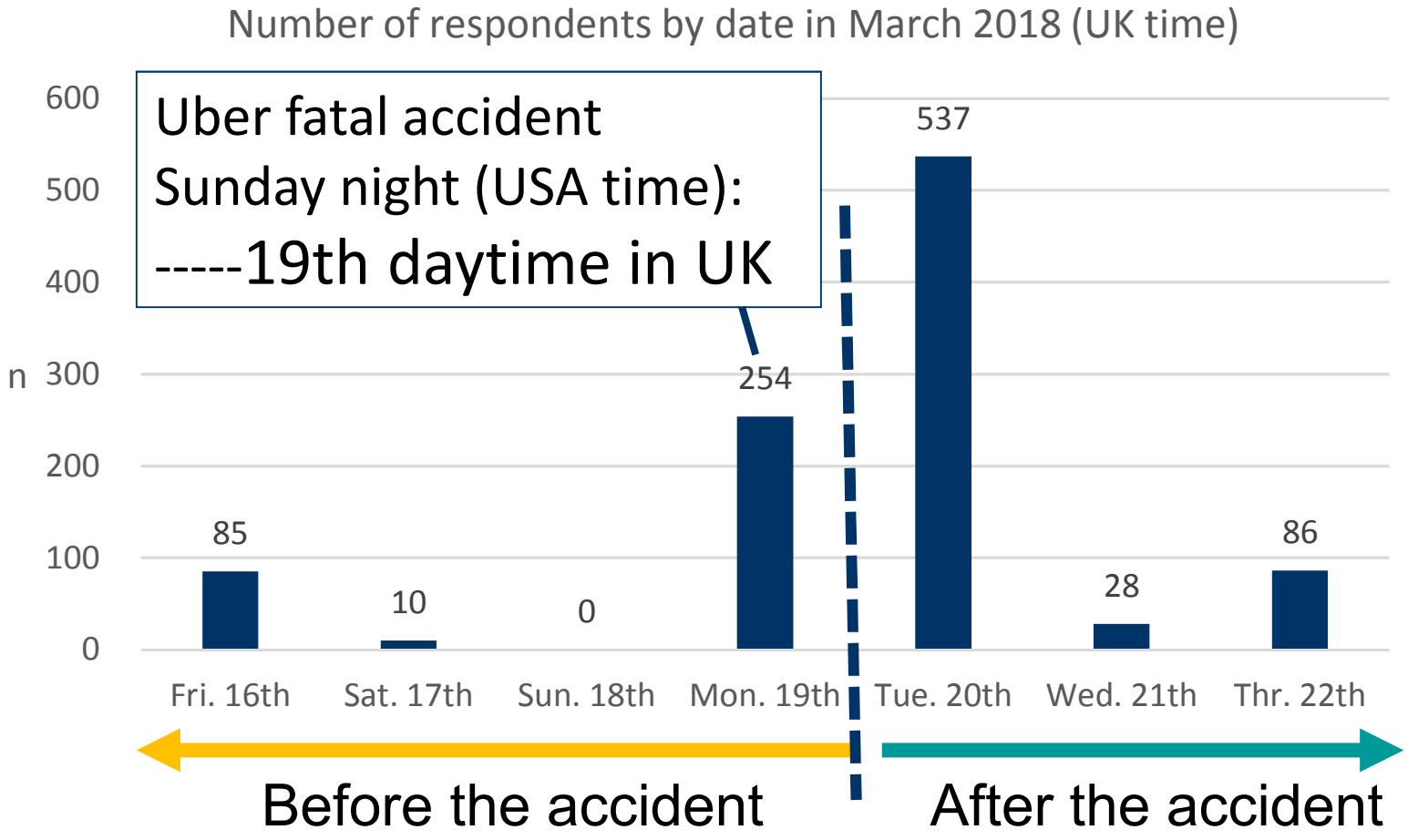
UK television and newspaper reports are unconfirmed, however usually the Internet report is the earliest. **Television and news coverage** are considered to be **later than the Internet, or at same time**.

**The earliest access of accident report by UK citizens** is assumed **in the evening at 19th March (Mon)**

# Social acceptance of AVs online Questionnaire survey in UK

Residents at Greater London (500) and West Midland (500) Gender and age were divided equally

Total sample size: 1,000



# Uber pedestrian fatal accident & sample

| | % | before n=349 | after n=651 |
|---|---|---|---|
| **Gender** | Male | 52.4 | 48.7 |
| | Female | 47.6 | 51.3 |
| **Age** | 20's | 13.8 | 23.3 |
| | 30's | 20.9 | 19.5 |
| | 40's | 20.6 | 19.7 |
| | 50's | 24.4 | 17.7 |
| | 60's | 20.3 | 19.8 |
| **Area** | West Midlands | 44.4 | 53.0 |
| | London | 55.6 | 47.0 |
| **Driver's license** | Having | 78.8 | 81.4 |
| | Not having | 21.2 | 18.6 |
| **Car ownership** | Owner | 67.3 | 71.0 |
| | No owner | 32.7 | 29.0 |

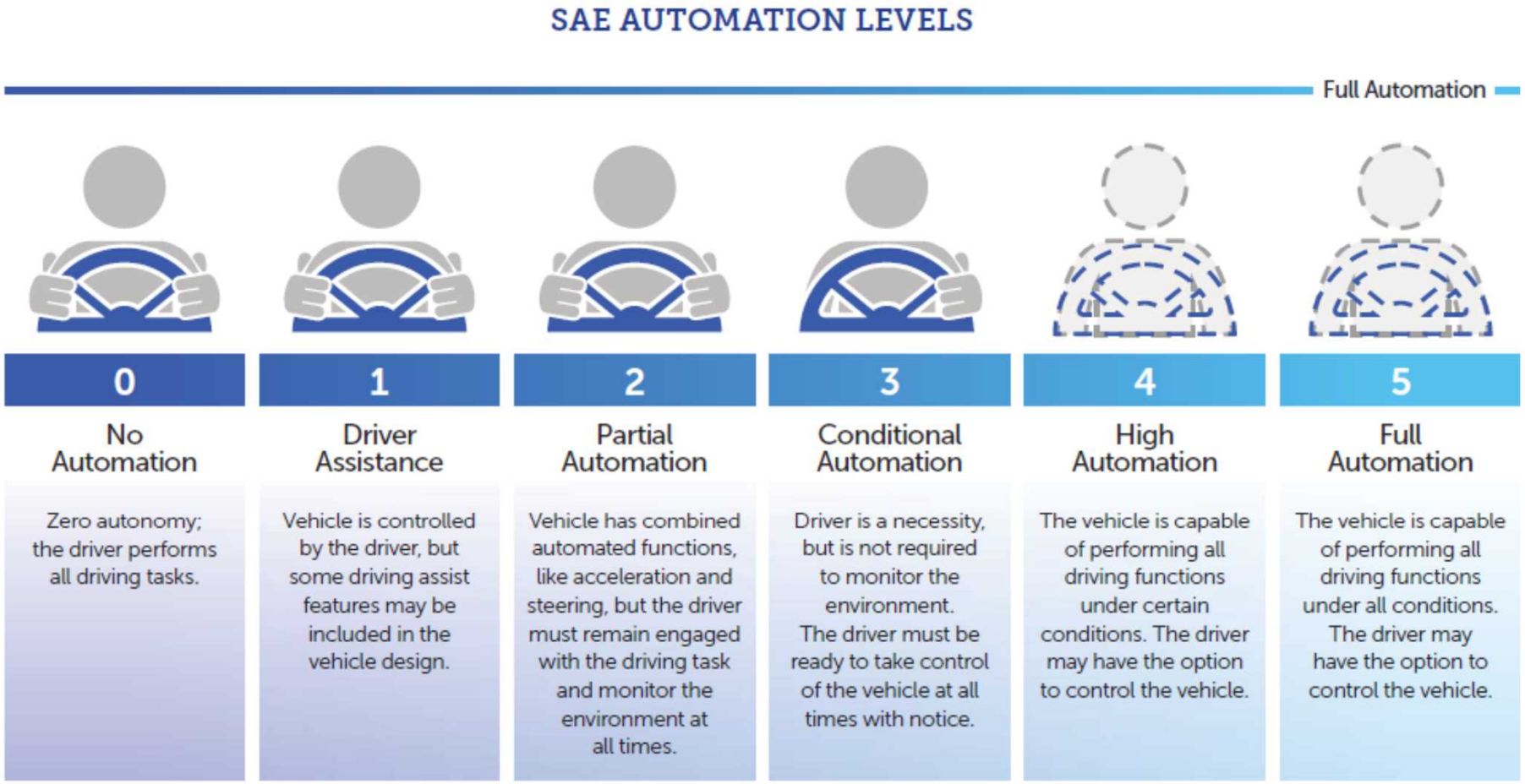
slightly more 20's in 'after the accident'

slightly less 50's in 'after the accident'

No significant difference in other ages

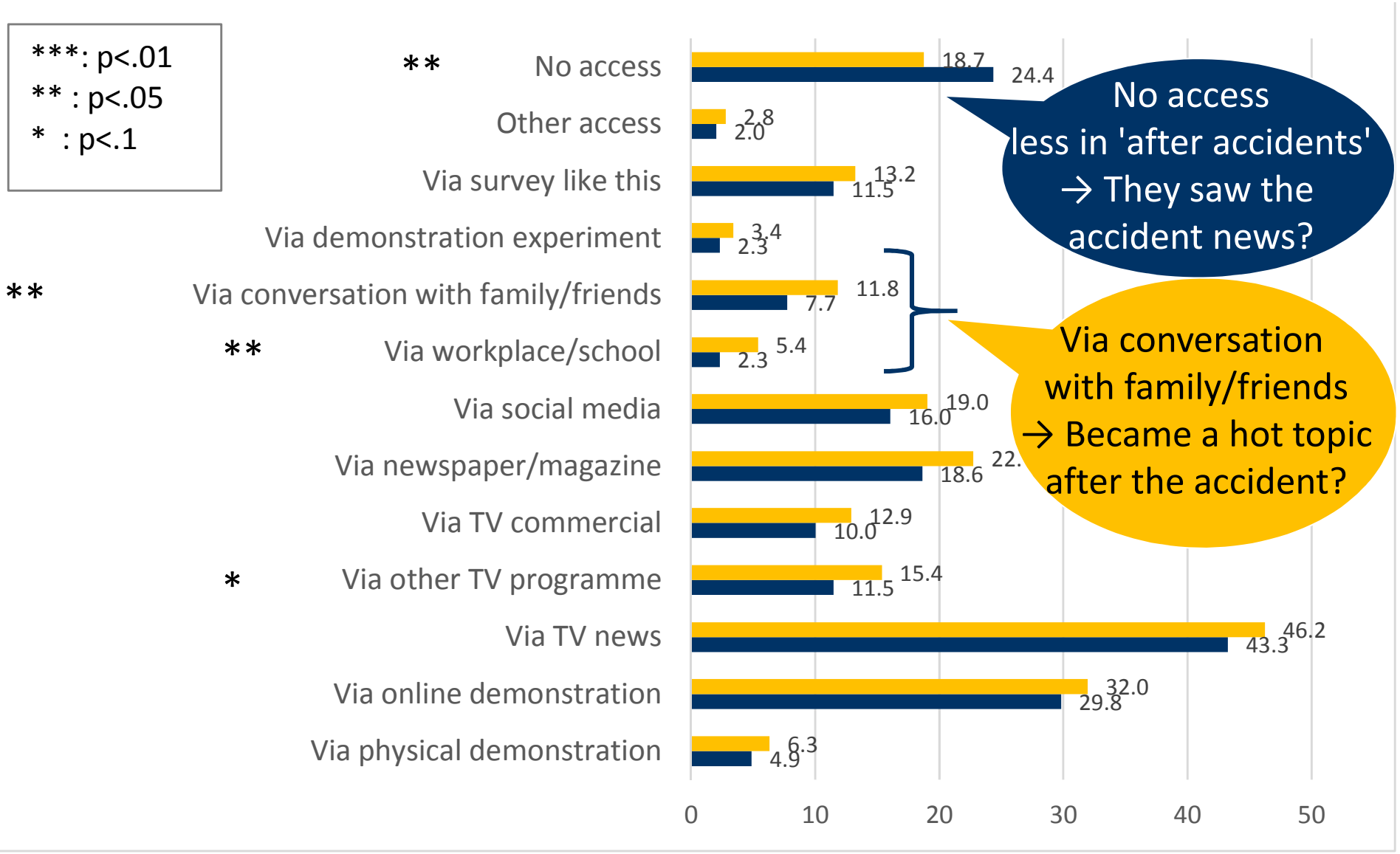
# Level of AVs

- Level of AVs was shown before questions in each level
- Questions in each level are set at the end (to avoid bias)

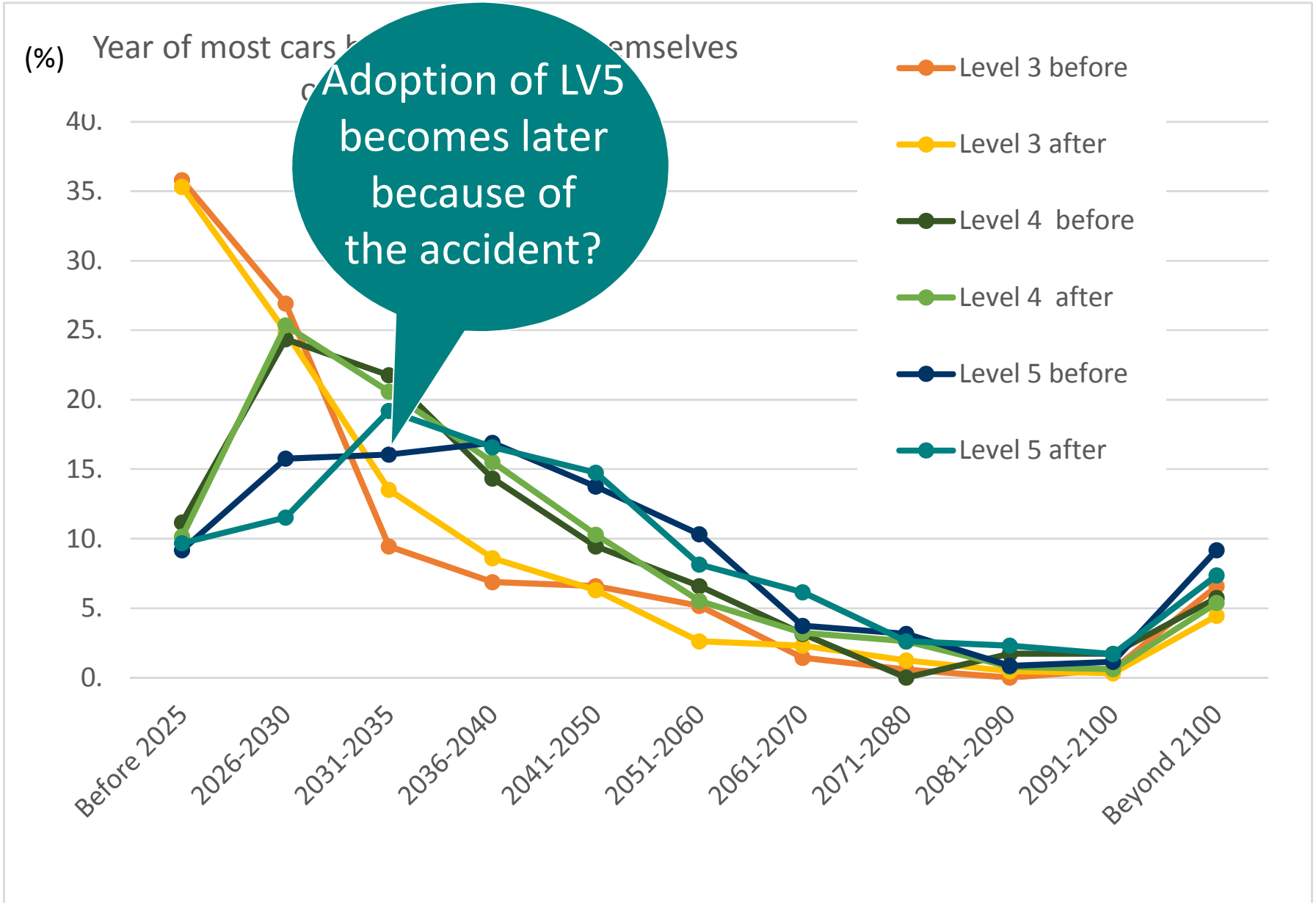


# Access to AVs information and demonstrational experiment

***: p<.01
** : p<.05
* : p<.1



# When do AVs come true? In each level



# Risk image

Car vs. airplane, which is more risky?

There is a **gap** between actual risk and risk perception

We **do not** recognize and judge all risks correctly,

It forms of some kind of **risk image** and we judge it by then.

→ How is risk image formed?

## Component of risk image(2)

■ 2 Factors of Slovic's Risk perception

Factor Ⅰ : Dread

Factor Ⅱ : Unknown

Factor Ⅲ : Number of people involved

Provision axis of risk image :

Many images are formed by combinations

like three primary colours in colour sense perception

# Component of risk image(3)

## Dread factor and unknown factor (Slovic, 1987)

**Characteristics which consist 'Dread' factor**

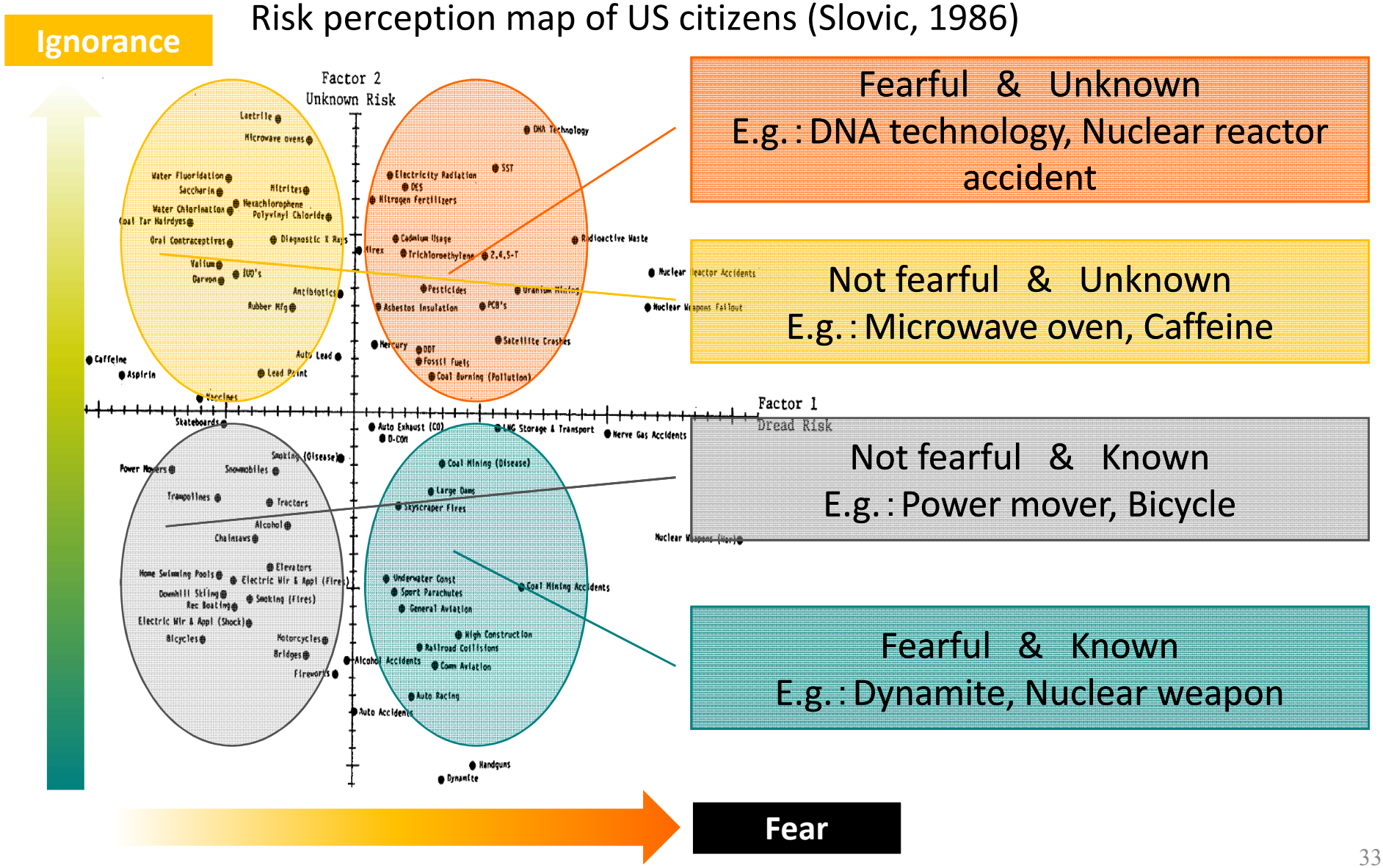
| | |
|---|---|
| Uncontrollable | Controllable |
| Dread | Not dread |
| Global catastrophic | Not global catastrophic |
| Consequences fatal | Consequences not fatal |
| Not equitable | Equitable |
| Catastrophic | Individual |
| High risk to future generations | Low risk to future generations |
| Not easily reduced | Easily reduced |
| Risk increasing | Risk decreasing |
| Involuntary | Voluntary |
| Affects me | Doesn't affects me |

**Characteristics which consist 'Unknown' factor**

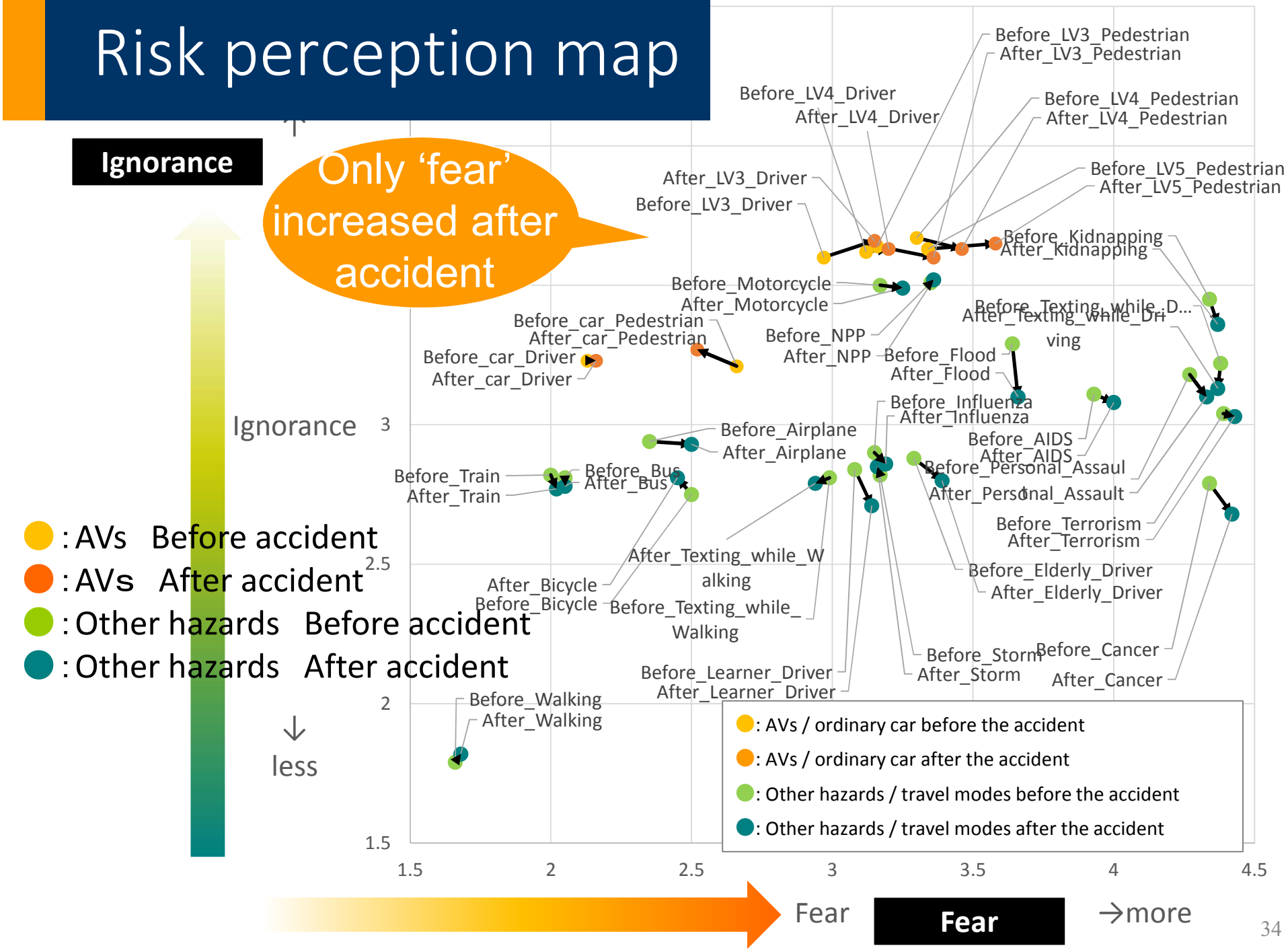
| | |
|---|---|
| Observable | Not observable |
| Known to those exposed | Unknown to those exposed |
| Effect immediate | Effect delayed |
| Old risk | New risk |
| Risk known to science | Risk unknown to science |

# Risk perception map?

Risk perception map of US citizens (Slovic, 1986)



# Risk perception map



# Psychological measurement

| Factors | Measurement |
|---|---|
| Social acceptance toward AVs | Please answer the following ques…bout your understandi…. Please tell us how much you agree wit…e following statements about lev…rtly automatically drive themselves). (LV3, LV4, LV5,respectively)<br>**Individual acceptance: I agree with the adoption of autonomous vehicles.**<br>**Societal acceptance: I think autonomous vehicles will be accepted by society.**<br>(Strongly disagree=1 <---> Strongly agree=5, 5 point scale) |
| Risk perception of AVs | Please imagine yourself as a driver. Please answer the following questions about autonomous cars. (LV3 & LV4, respectively)<br>Risk perception of AVs LV3 as Driver Fear: I think autonomous vehicles are frightening<br>Risk perception of AVs LV3 as Driver Unknown: I know a lot about autonomous vehicles |
| Risk perception of ordinary cars | Please answer the following questions about cars as a driver / as a pedestrian.<br>Risk perception of cars as Driver Fear: I think cars frighten me<br>Risk perception of cars as Driver Unknown: I know a lot about cars |
| Risk perception | Please answer your imag… Please answ…<br>Risk perception of w…hte…<br>Risk perception of …<br>(Strongly disagree…<br>[Hazards] Bicycle / M…e / …<br>walking / Texting while …ers / Elderly / …<br>Kidnapping / Storm / Personal a… / Terrorism |
| Trust (reliability) | Please answer the following que…ons about reliability of autonomous …<br>**Technological reliability**: Do you think that autonomous vehicle technolog…eliable?<br>**Administrative reliability**: Do you think that the institutions whic… are responsible for administering, regulating and insuring autonomous vehicles are reliably carrying out their functions? (Unreliable=1 <---> Reliable=5, 5 point scale) |

Do yourself agree with the adoption of AVs

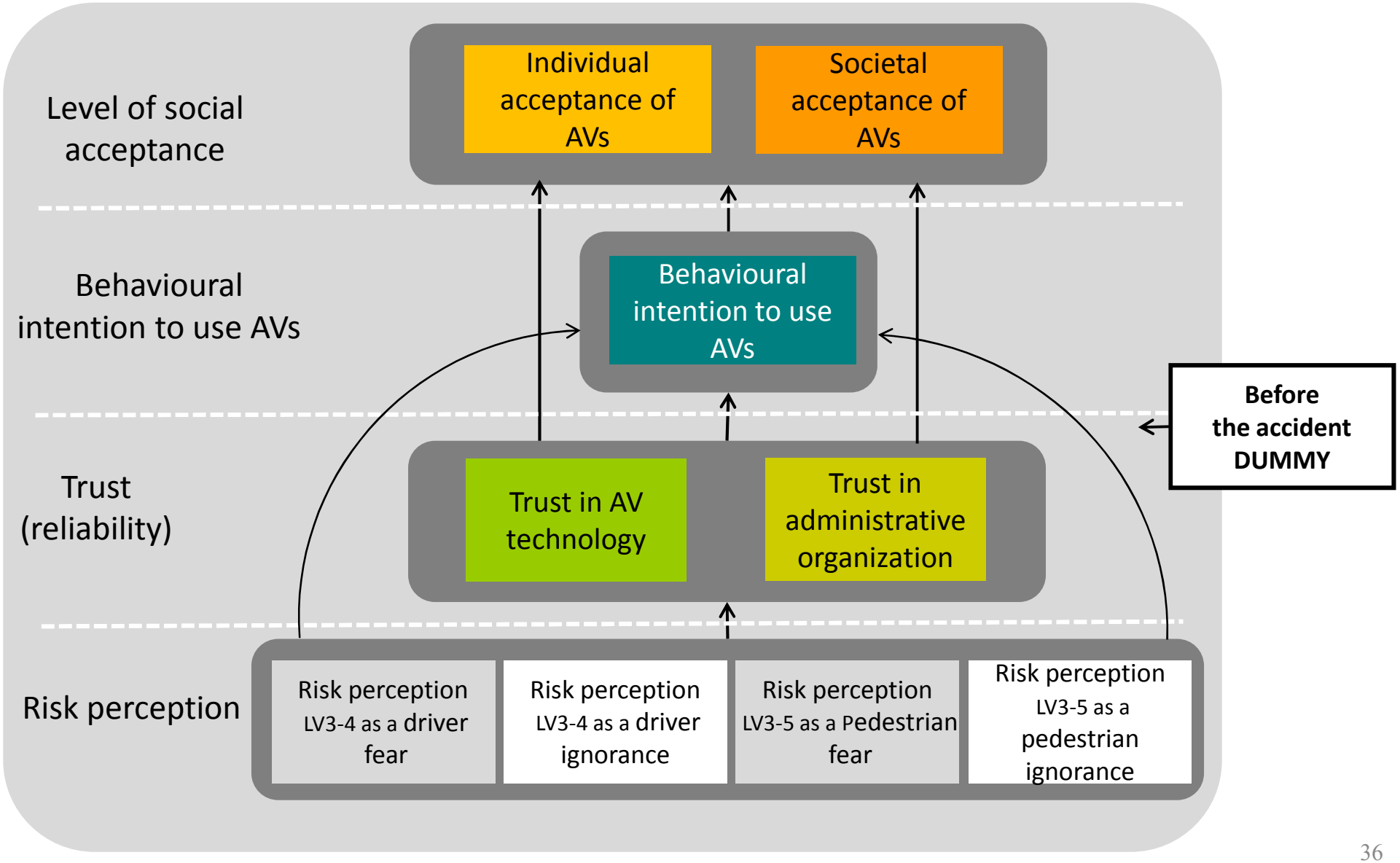
Can AVs be accepted by Others and the society

Can AVs be accepted by Others and the society

Trust in administrative organization

Do you trust government and companies which manage and regulated AVs

# Hypothesis model



# Results of t-test – before and after the survey

| | before the accident | | | after the accident | | | t test ***: p<.01, ** : p<.05, * : p<.1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | n | M | SD | N | M | SD | t | p (paired) | |
| Personal acceptance AV level 3 | 349 | 3.16 | 1.17 | 651 | 3.04 | 1.24 | 1.46 | 0.15 | |
| Societal acceptance AV level 3 | 349 | 3.19 | 1.18 | 651 | 2.94 | 1.24 | 3.14 | 0.00 | *** |
| Personal acceptance AV level 4 | 349 | 2.96 | 1.28 | 651 | 2.86 | 1.33 | 1.17 | 0.24 | |
| Societal acceptance AV level 4 | 349 | 2.95 | 1.25 | 651 | 2.79 | 1.29 | 1.80 | 0.07 | * |
| Personal acceptance AV level 5 | 349 | 2.80 | 1.35 | 651 | 2.67 | 1.41 | 1.40 | 0.16 | |
| Societal acceptance AV level 5 | 349 | 2.84 | 1.34 | 651 | 2.61 | 1.31 | 2.64 | 0.01 | *** |
| Risk Driver Fear AV level 3 | 349 | 2.97 | 1.24 | 651 | 3.15 | 1.24 | -2.16 | 0.03 | ** |
| Risk Driver Unknown AV level 3 | 349 | 2.40 | 1.18 | 651 | 2.34 | 1.17 | 0.85 | 0.40 | |
| Risk Driver Fear AV level 4 | 349 | 3.12 | 1.24 | 651 | 3.20 | 1.27 | -0.99 | 0.32 | |
| Risk Driver Unknown AV level 4 | 349 | 2.38 | 1.16 | 651 | 2.37 | 1.14 | 0.17 | 0.87 | |
| Risk Pedestrian Fear AV level 3 | 349 | 3.16 | 1.27 | 651 | 3.36 | 1.27 | -2.31 | 0.02 | ** |
| Risk Pedestrian Unknown AV level 3 | 349 | 2.36 | 1.20 | 651 | 2.40 | 1.18 | -0.51 | 0.61 | |
| Risk Pedestrian Fear AV level 4 | 349 | 3.30 | 1.29 | 651 | 3.46 | 1.28 | -1.89 | 0.06 | * |
| Risk Pedestrian Unknown AV level 4 | 349 | 2.33 | 1.16 | 651 | 2.37 | 1.16 | -0.47 | 0.64 | |
| Risk Pedestrian Fear AV level 5 | 349 | 3.34 | 1.36 | 651 | 3.58 | 1.32 | -2.67 | 0.01 | *** |
| Risk Pedestrian Unknown AV level 5 | 349 | 2.37 | 1.18 | 651 | 2.35 | 1.19 | 0.25 | 0.80 | |
| Trust in AV technology | 349 | 2.86 | 1.17 | 651 | 2.69 | 1.18 | 2.26 | 0.02 | ** |
| Trust in regulatory oversight of AVs | 349 | 2.97 | 1.05 | 651 | 2.87 | 1.08 | 1.31 | 0.19 | |

# Result of this research

To understand how mass media coverage of AVs pedestrian fatal accident occurred in the US influenced UK citizens

So-called 'not my business'

- After accident reports, AVs information acquirer increased
- After accident reports, expectation time of LV5 adoption is delayed
- According to risk perception map risk image for AVs is cleared
- After the accident, Risk perception of 'Fear' (only) has significantly changed
- To understand the relationship between individual acceptance, intention to use, trust and risk perception
- 'Individual acceptance' did not change before and after accident media coverage
- 'Societal acceptance' decreased only at LV3 and LV5 People tend to think that **others will probably become less acceptable to AVs**
- At LV3, LV5 risk perception of 'Fear' only increased

  People tend to think that **AVs are fearful.**

  Ignorance remains unchanged
- Only '**Trust in technology**' decreased at LV4 Trust in administrative organization remains unchanged
- The model fit well at LV5

3)Comparison Analysis on Acceptability of Autonomous Vehicles in the United Kingdom, Germany and Japan

Outline : online questionnaire survey in Japan, UK and Germany

【Survey period】

**Japan** : **January** 6th～10th **2017**

**UK** : **March** 16th ～22nd **2018**

**Germany** : **November** 28th～ **December** 10th **2018**

【Sample selection】

- ✓ 1.000 individuals at each countries**, total 3,000 participants** from monitor database of survey company
- ✓ The participants were **evenly distributed by age** band (20's, 30's, 40's, 50's, 60's), **gender**, and **region** (Capitol city and Industrial area including car company).

※Residential area of participants

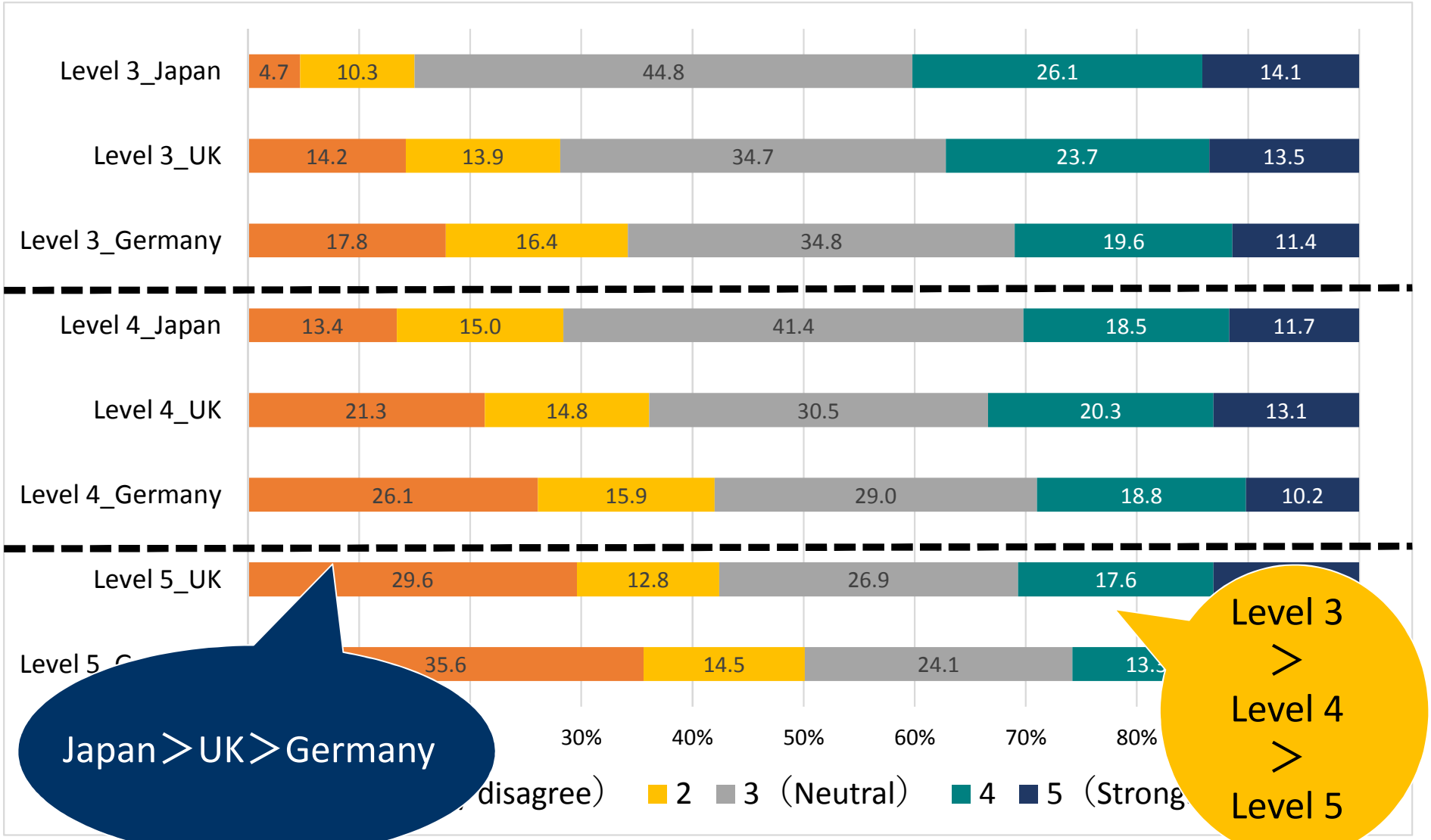
Japan: Tokyo 23 wards, Aichi prefecture

UK : Greater London, West Midlands

Germany : Berlin, the Ruhrgebiet

# Individual acceptance of AVs

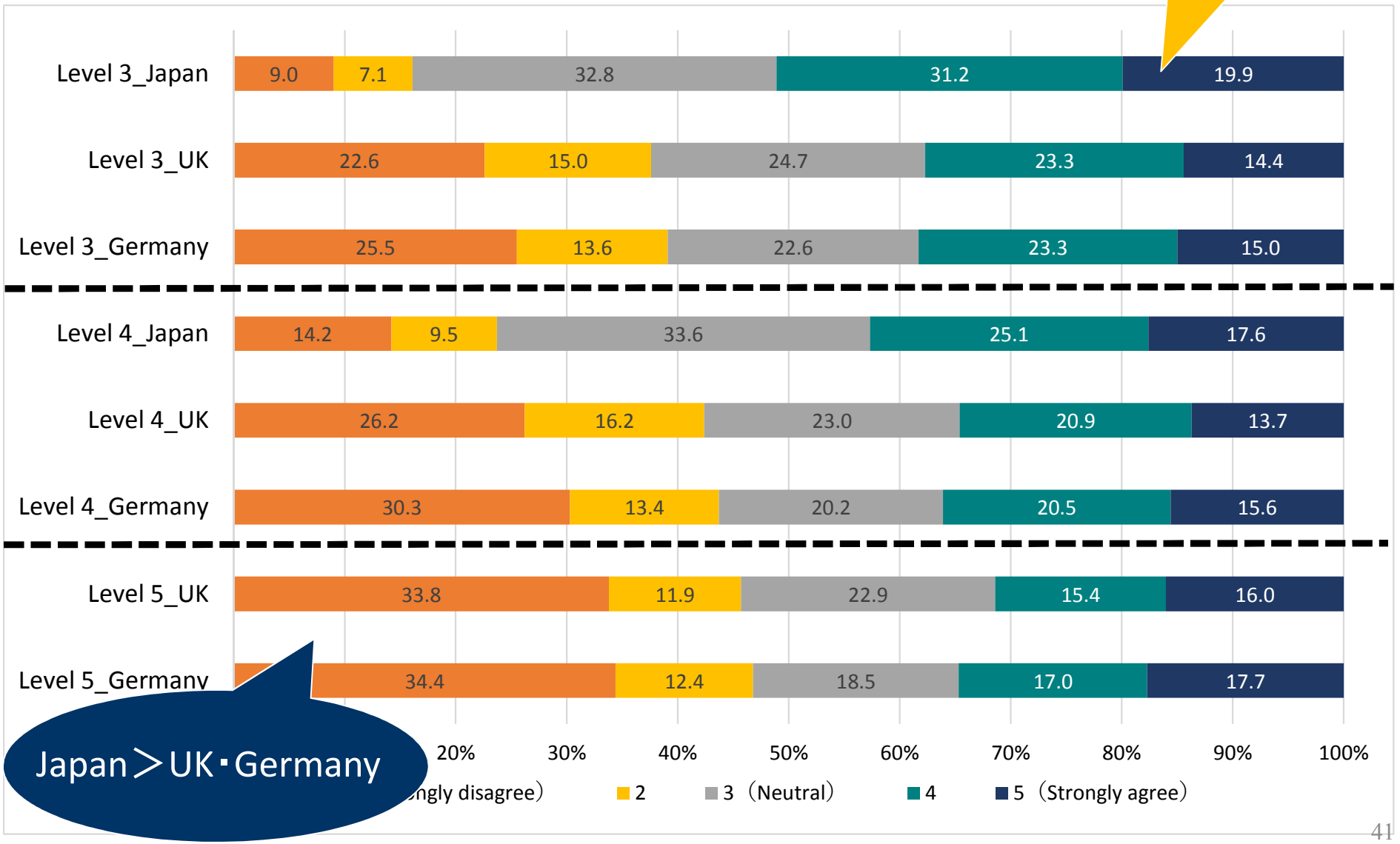
Individual acceptance: I agree with the adoption of autonomous vehicles



# Intention to use AVs

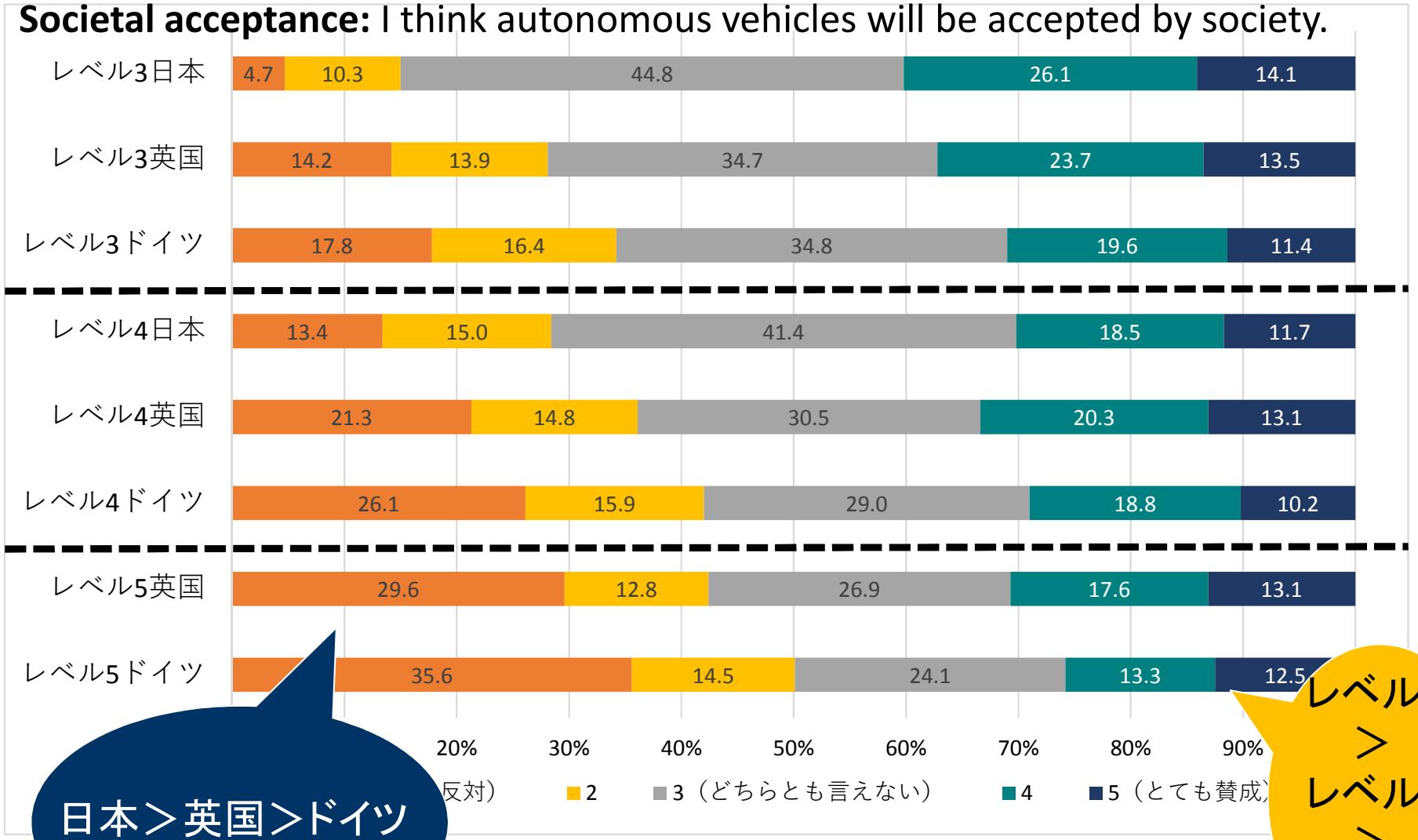
Level 3
＞
Level 4・Level 5

Intention to use AVs: I want to try using an autonomous vehicle



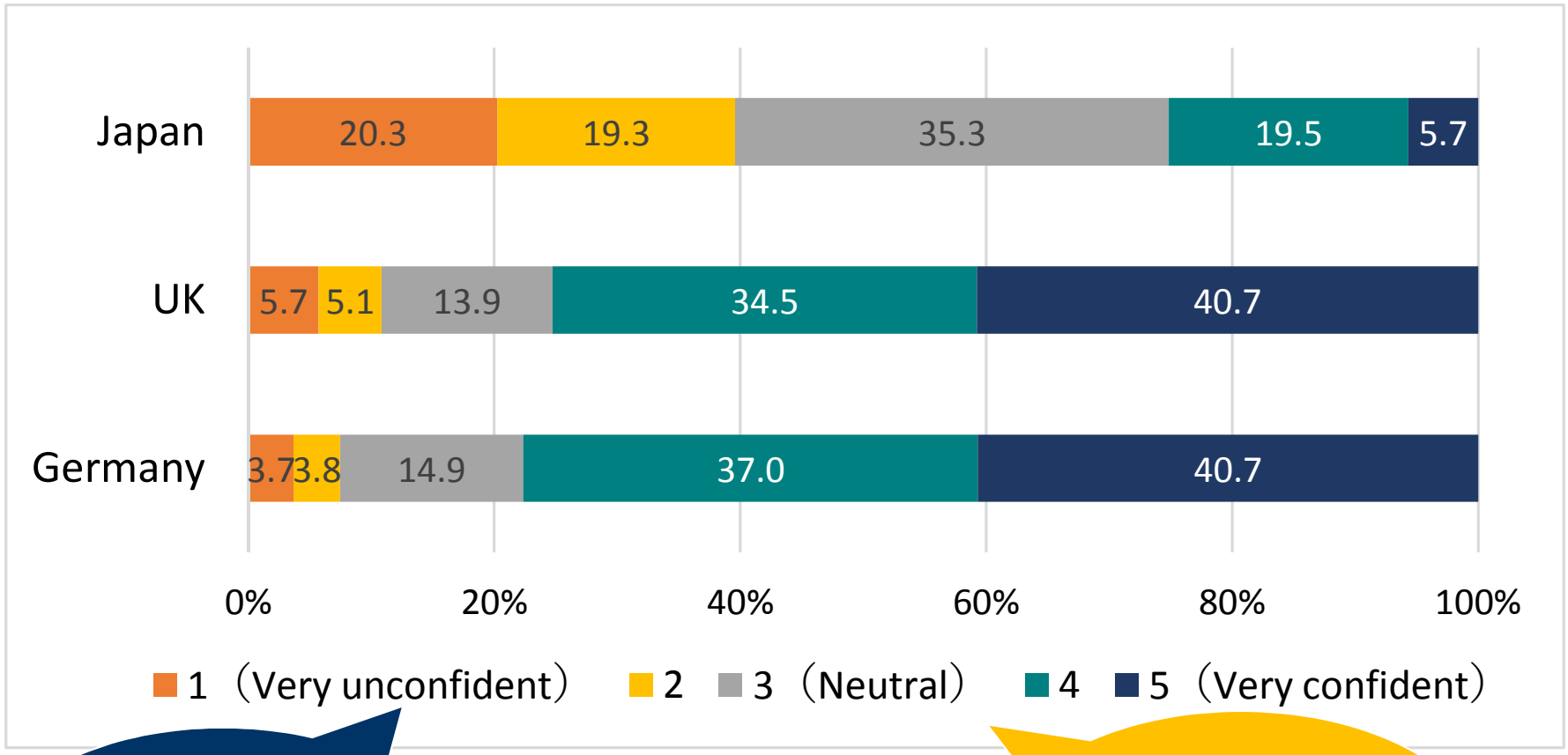

Japan＞UK・Germany

# Societal acceptance of AVs



# Confidence of driving skills

How confident are you in your driving skills?

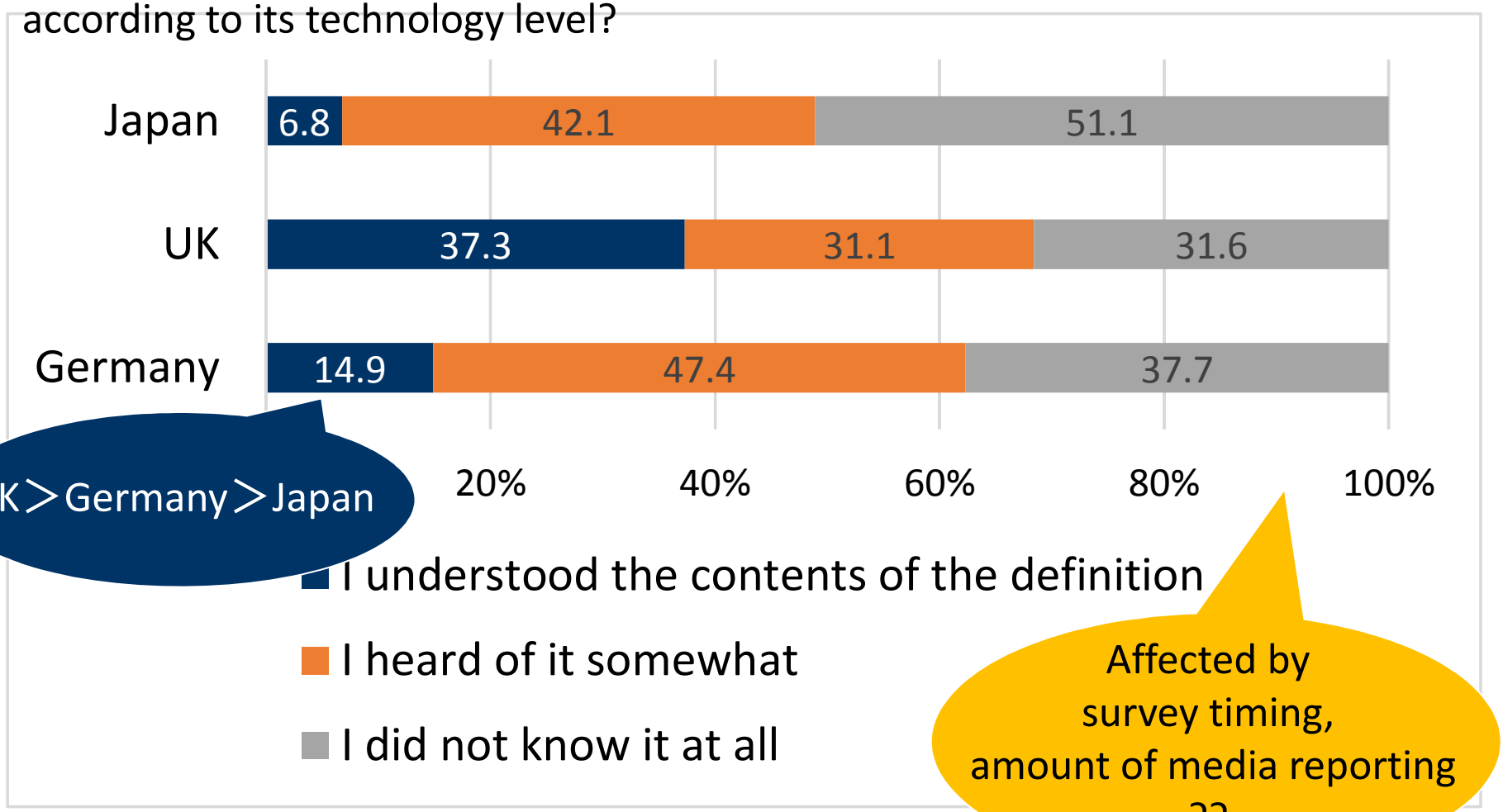



UK & Germany
>>
Japan

In Japan,
“behave modestly”
recognized as virtue?

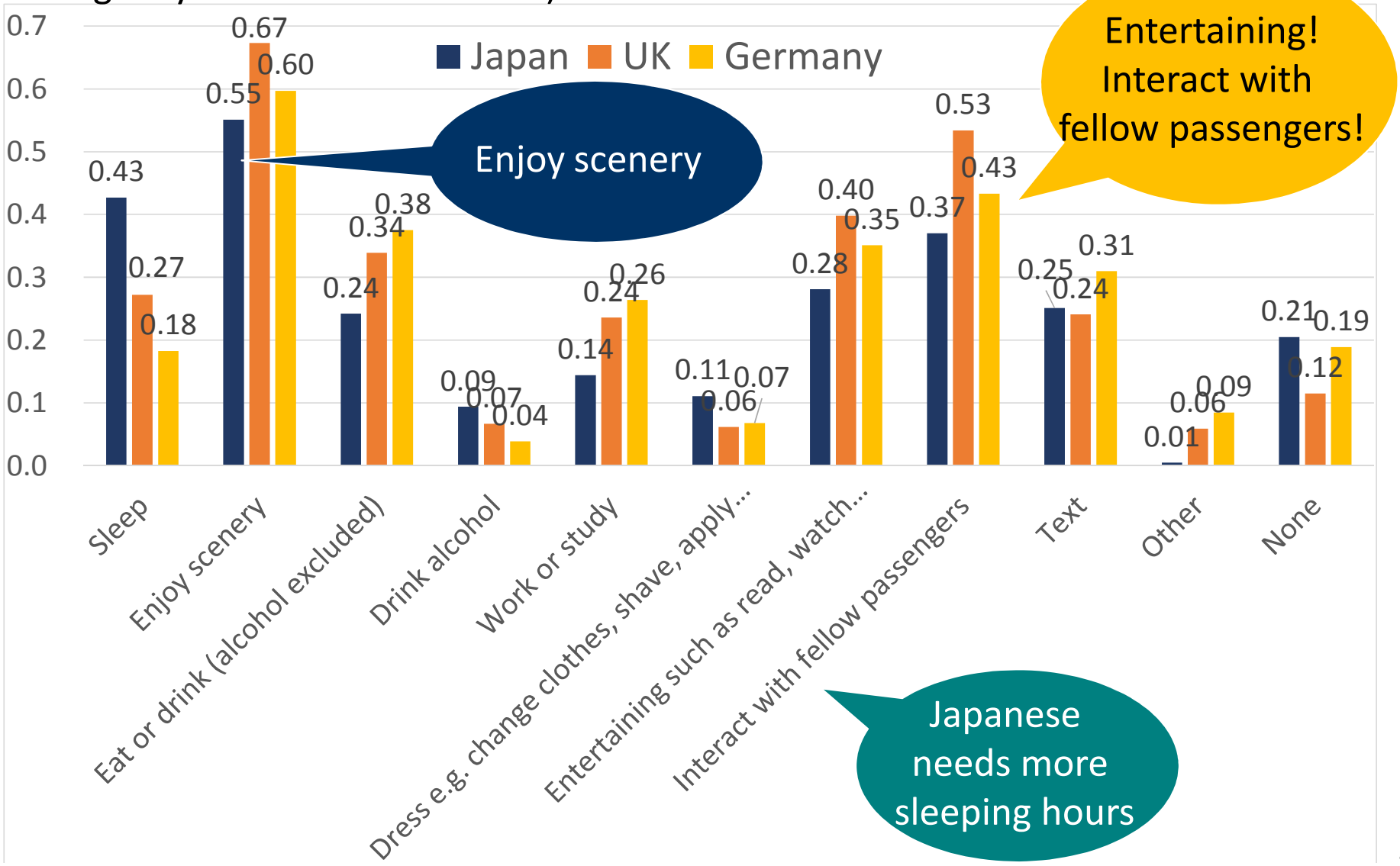
# Knowledge of definition of AVs levels

After explanation of definition of AVs level, question was;
Did you know that autonomous vehicles can be categorised into different levels according to its technology level?

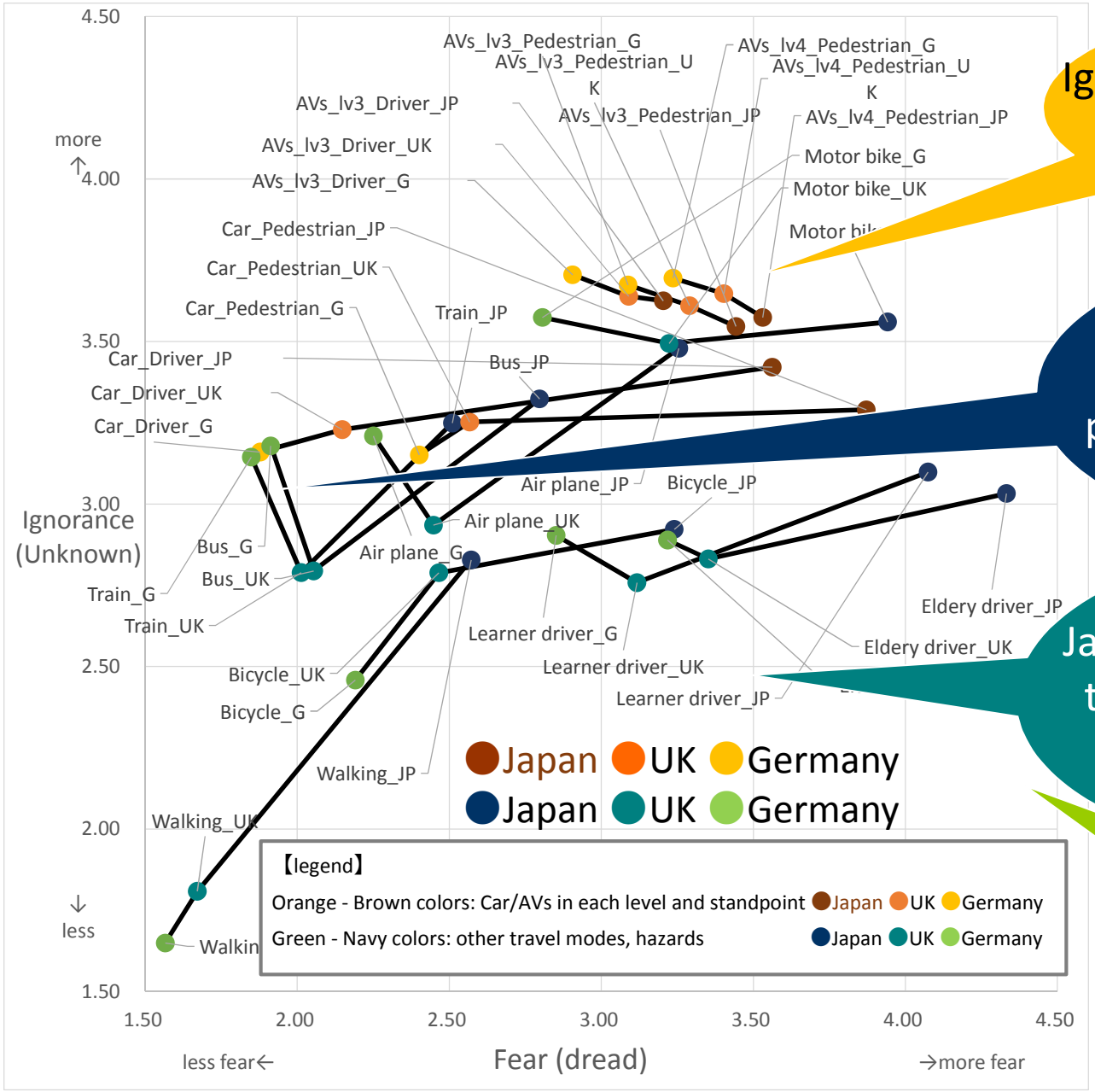


# Activities during traveling by AVs

If you did not need to drive, what would you do whilst travelling in a car? (Please imagine yourself as a car driver)



# Risk perception map concerning traveling




Ignorance of AVs is highest
→no surprise

Train & bus
Risk image of
public transport is similar
Still have difference in country

Japanese have a tendency
to evaluate each hazard
as frighten

In Japan, elder driver
is recognized as danger

# Future work for comparing 3 countries

- The time of conducting WEB questionnaire survey in Japan, the UK and Germany is different by about 14 - 23 months. Meanwhile, progress of AVs technology and implementation of demonstration experiments in various places, etc., we can not deny the possibility that the difference in the survey period influenced people's individual and societal acceptance of AVs and risk perception
- In Japan and East Asia including Europe, the sensitivity to psychological indicators may differ: In the Likert measurement survey, it was pointed out that Japanese select the central options, the Chinese select close to the top box, the Americans are sharp in answering. To avoid these bias, we would like to examine survey research by "MaxDiff method" etc.

# II. Survey of acceptance at roadside areas

# 1)Analysis of changes in receptivity among middle-school students following test-rides

## Purpose

To clarify the effects of lectures and group test rides on the impressions and receptivity of middle-school students toward self-driving cars. In addition, clarifying the effects on students' families.

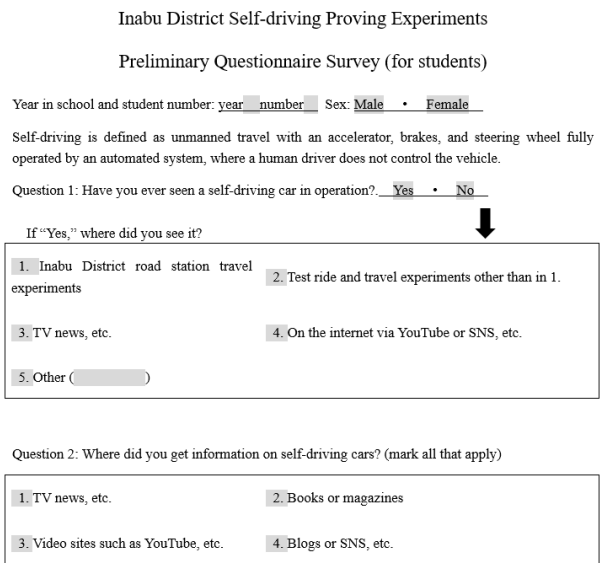
## Survey Overview

Mid-Oct 2019:
Distribute & collect ex-ante questionnaires

31 Oct 2019: Lecture & group test rides
1 Nov: Group test rides for citizens*

After group test ride:
Distribute & collect ex-post questionnaires

| | |
|---|---|
| Survey method | Questionnaire forms were distributed and collected by teachers |
| Survey dates | Oct–Nov 2018 |
| Survey location | Inabu District, Toyota City, Aichi Prefecture |
| Number of respondents | 42 students (entire class) and 38 of their family members |
| Survey contents | Awareness, impressions, and receptivity to self-driving cars.<br>Hopes and fears with respect to self-driving cars.<br>Intention to use self-driving cars.<br>Personal attributes (gender, age). |



Inabu District Self-driving Proving Experiments

Preliminary Questionnaire Survey (for students)

Year in school and student number: year number Sex: Male • Female

Self-driving is defined as unmanned travel with an accelerator, brakes, and steering wheel fully operated by an automated system, where a human driver does not control the vehicle.

Question 1: Have you ever seen a self-driving car in operation? Yes • No

If "Yes," where did you see it?

1. Inabu District road station travel experiments
2. Test ride and travel experiments other than in 1.
3. TV news, etc.
4. On the internet via YouTube or SNS, etc.
5. Other ( )

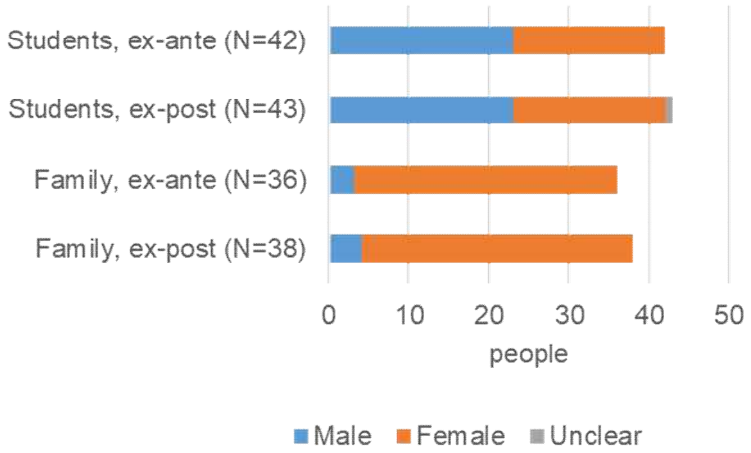
Question 2: Where did you get information on self-driving cars? (mark all that apply)

1. TV news, etc.
2. Books or magazines
3. Video sites such as YouTube, etc.
4. Blogs or SNS, etc.

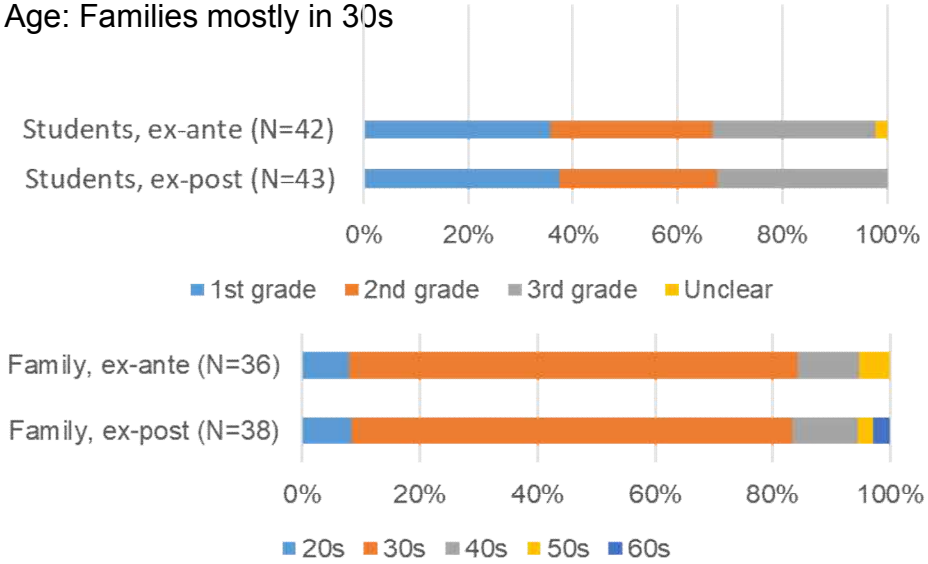
*Lecture and group test ride conducted by Nagoya University Center of Innovation (COI)

# Personal attributes of survey subjects

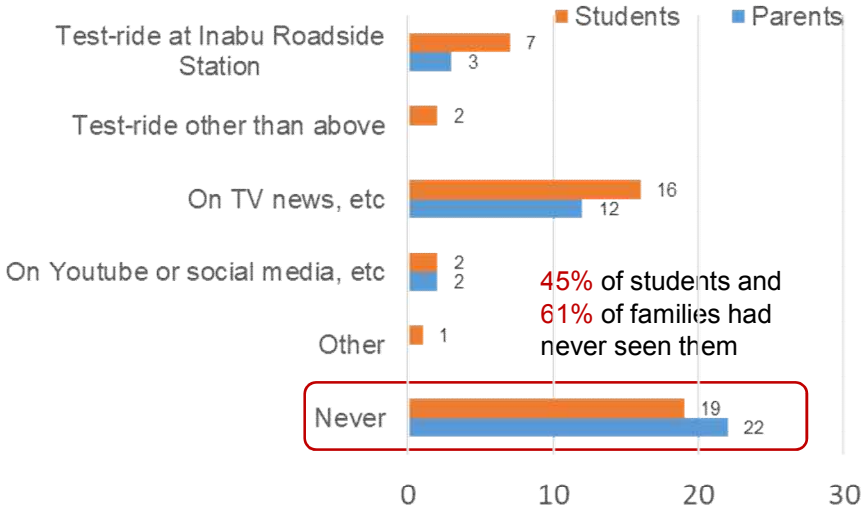
Gender: Most family responses were by parents



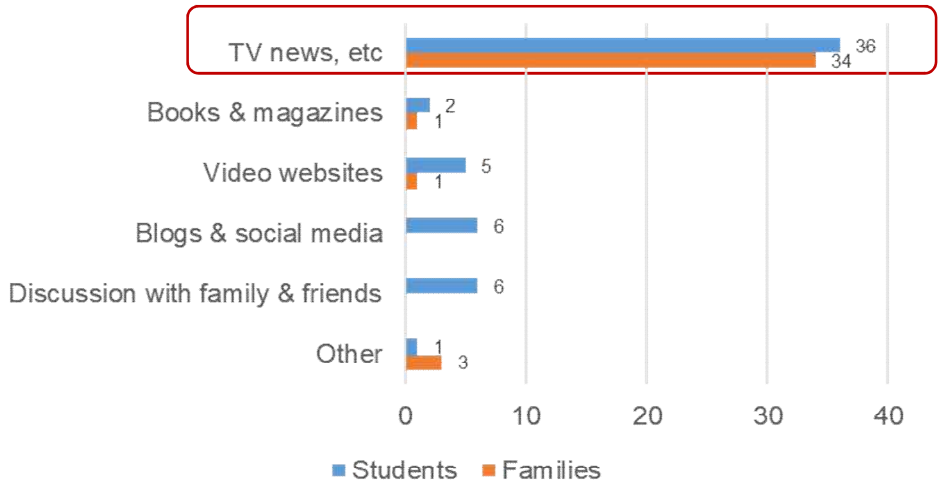

Age: Families mostly in 30s




Experience seeing self-driving cars (ex-ante)




Sources of information about self-driving cars (ex-ante)

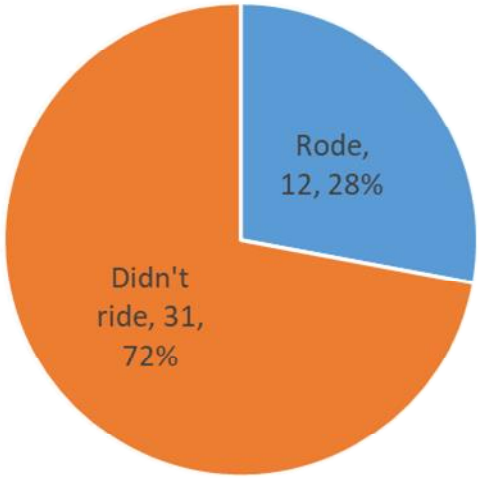



Test-rides of self-driving Prius were conducted in December 2017 in Inabu District, making this an area with high awareness of self-driving cars.

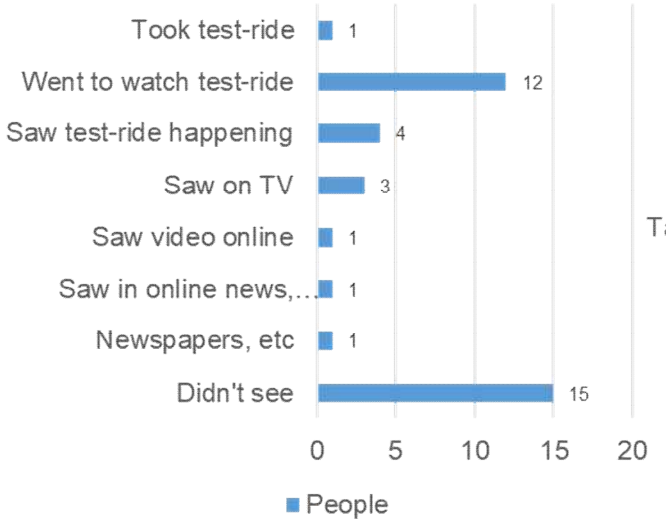
# Test-ride participation and viewing

| | Student test-rides | General-public test-rides |
|---|---|---|
| Date held | 31 Oct 2018 | 1 Nov 2018 |
| Survey location | Inabu District, Toyota City, Aichi Prefecture | |
| Conducted by | Nagoya University COI | |
| Ride length | 1.6 km | |
| Vehicle | Slow self-drive® in golf cart | |

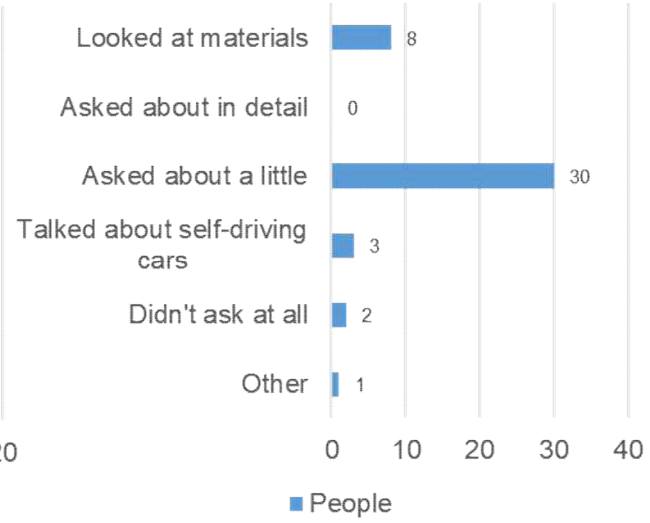
Participation in test-ride on 31 Oct (students)



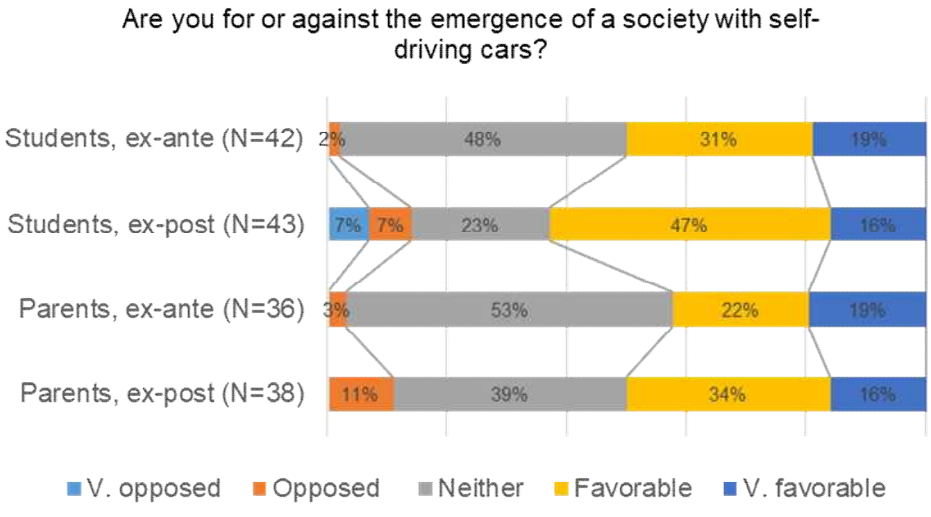

Awareness of test-ride on 1 Nov (families)

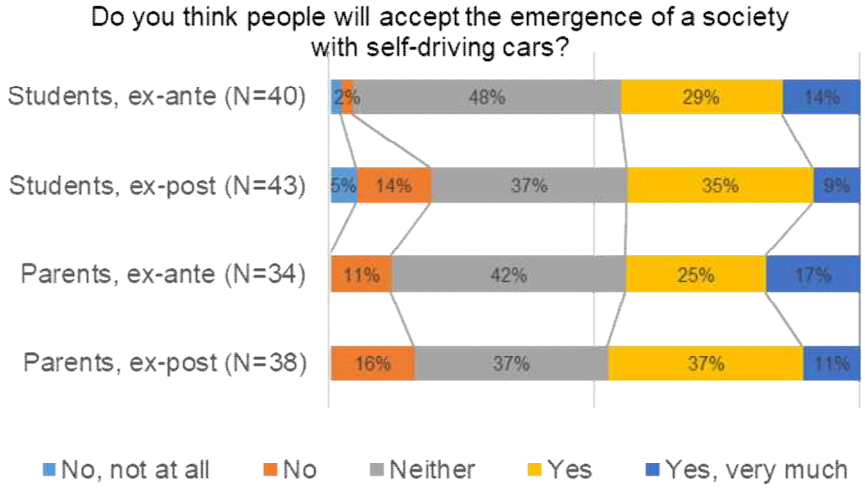



Discussions with children after test-ride (multiple response)

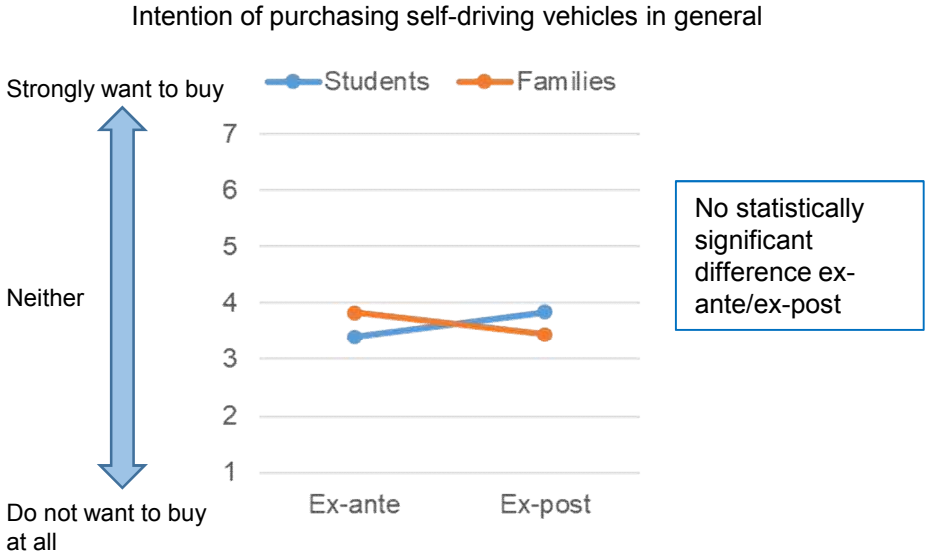


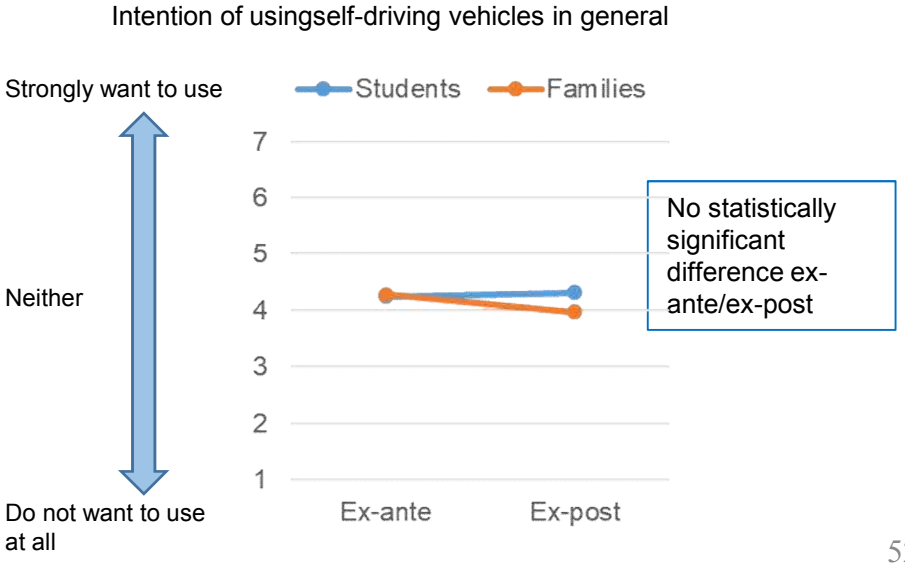
# Changes in receptivity toward self-driving cars



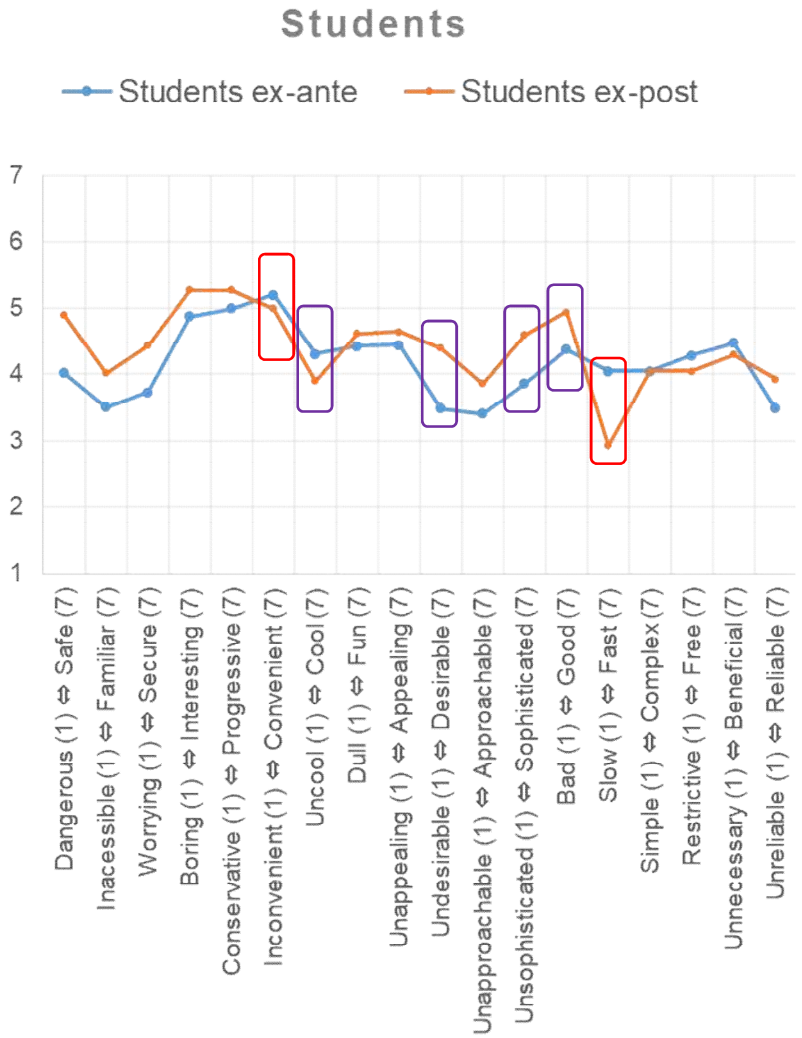



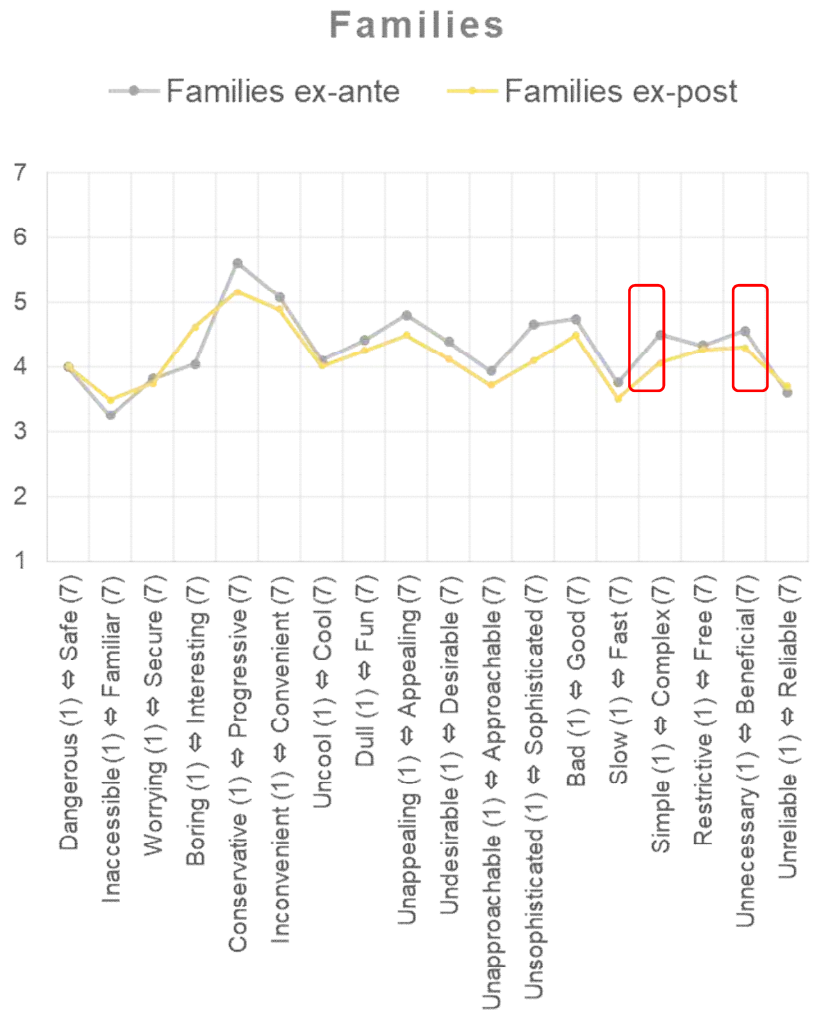

In all cases, both acceptance and opposition increased after the test-rides, but there was a decrease in “Neither” responses.
→ This is because the opportunities to see and discuss self-driving gave people sufficient information to make up their minds.



# Changes in impressions of self-driving cars

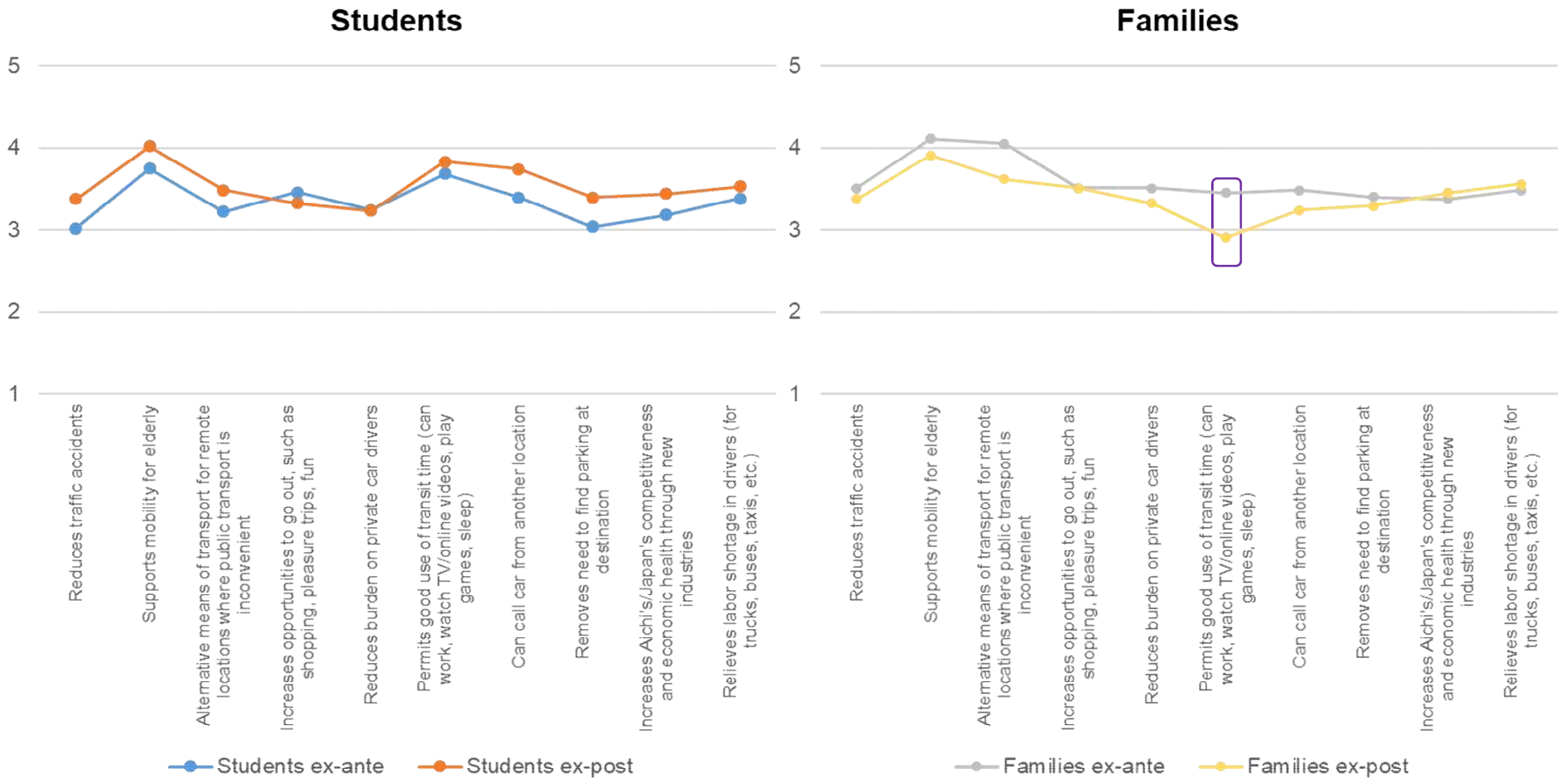



- Students: Perceptions changed to slow but safe, sophisticated, and desirable.
- Families: Impressions changed very little.

Difference test result:
* 10% significance
** 5% significance
*** 1% significance

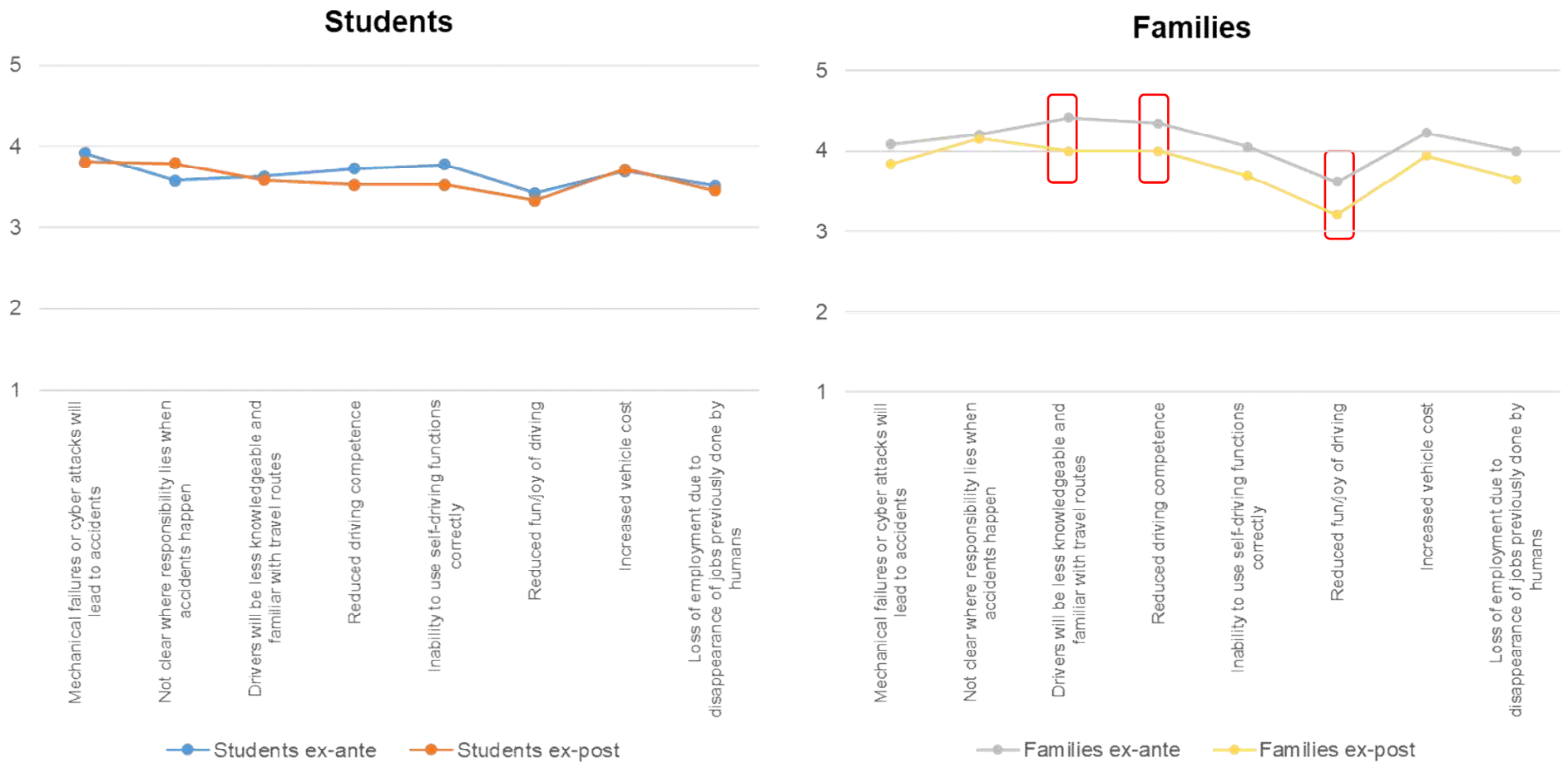
# Changes in hopes/expectations regarding self-driving cars




- Students: Increased hope for reduced traffic accidents.
- Families: Because this was a Level-3 vehicle test ride, expectations for good use of transit time reduced.

Difference test result:
* 10% significance
** 5% significance
*** 1% significance

# Changes in concerns regarding self-driving cars




- Students: Little change in concerns on any subject.
- Families: Because this was a Level-3 vehicle test, concerns about driving declined.

Difference test result:
* 10% significance
** 5% significance
*** 1% significance

# Analysis of changes in acceptance after a test drive event for middle school students: summary

- After the test drive event, there was a tendency for social support as well as opposition to autonomous driving to increase. It appears that respondents who answered “neither” before the test drive event obtained information that allowed them to determine whether they supported or opposed autonomous driving.
- After the class and the test drive event, students’ images of autonomous driving changed; they began to regard self-driving cars as safe, refined, desirable forms of transportation.
- Regarding participants’ intention to purchase and intention to use, no particular changes were observed.

## 2)Analysis of the effect on acceptability of seeing transport by automatic driving

### <Purpose>

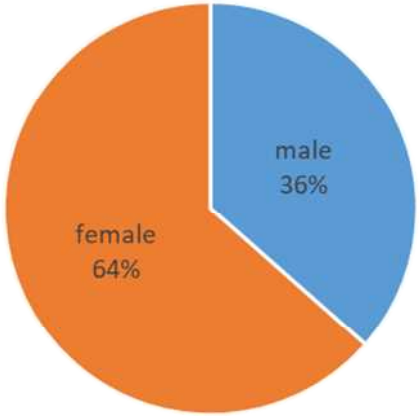
To clarify the influence on the image and the acceptability of automatic driving cars by observing the automatic driving running experiment.

### <Survey Summary>

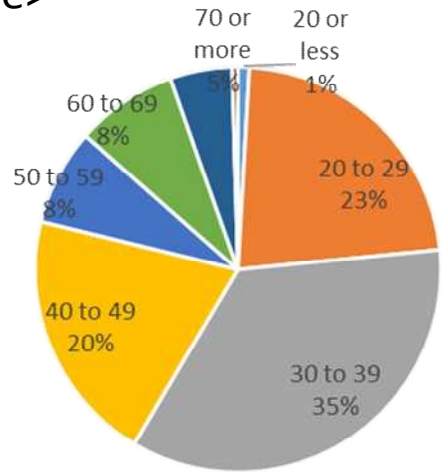
| | |
|---|---|
| **Running experiment dates** | November 14 (Wed) to 21 (Wed) 2018 |
| **Location** | Nonhoi Park, Toyohashi City, Aichi Prefecture |
| **Responsible organization** | Aichi Prefecture, Aisan Technology Co., Ltd. |
| **Test passenger** | Aichi Automatic Driving Promotion Consortium member companies, general public. |
| **Distance driven** | 2.2km |
| **Model** | Estima, Miley |
| **Questionnaire survey date** | November 19 (Mon) to 21 (Wed) 2018 |
| **Participants** | 222 park visitors who were watching the driving of the automatic vehicle |
| **Research methods** | They are asked to reply on the spot and answers collected, some are mailed back |
| **Survey contents** | Information on contact experience regarding automatic driving, expectation and anxiety about automatic driving, image of automatic driving, acceptability of automatic driving etc. |

# Individual attributes of survey target

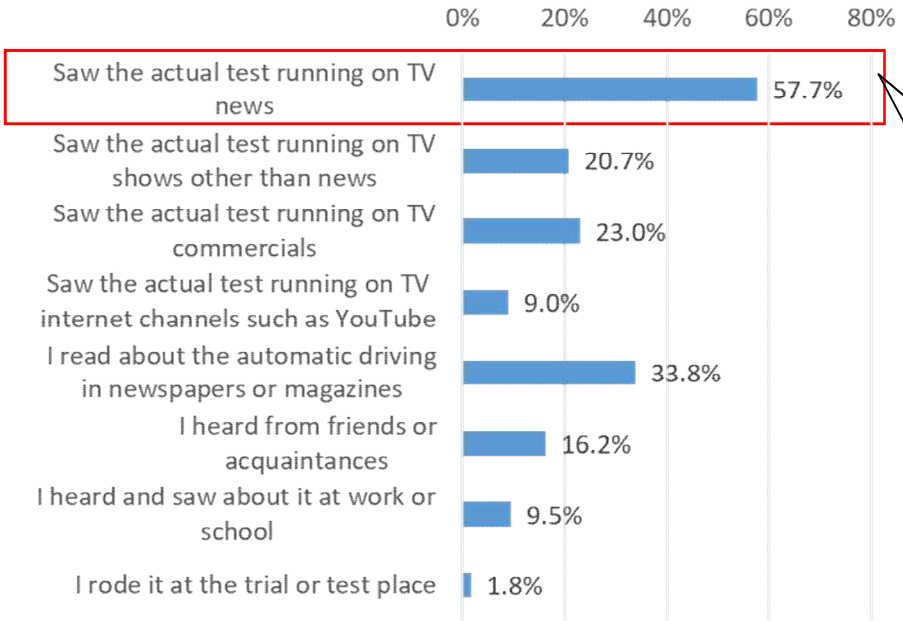
<Gender>




<Age>



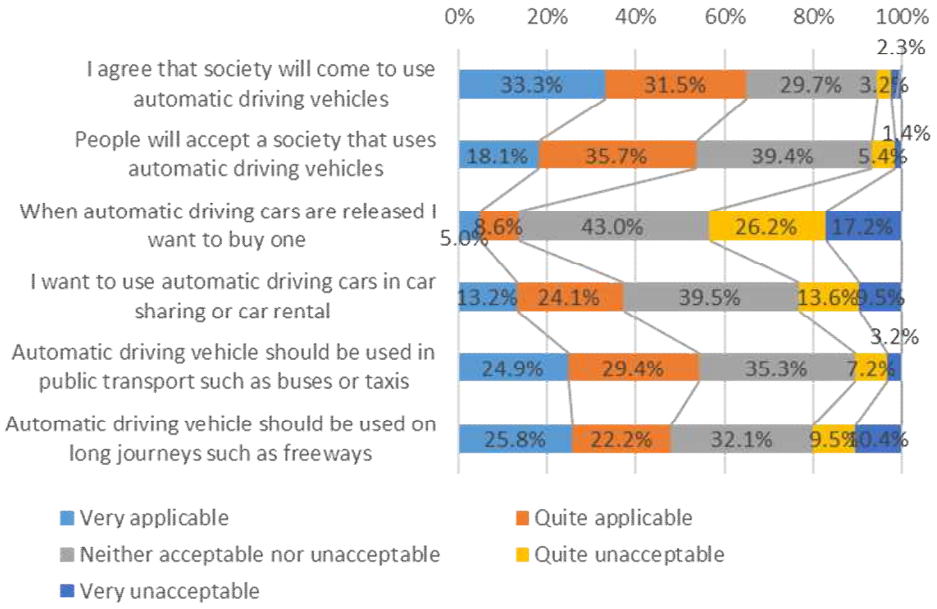

<Source of information obtaining regarding automatic driving vehicle>




In Aichi Prefecture many running tests of automatic driving have been carried out since 2016 and there were many opportunities to be reported in the news

# Acceptability and image of automatic driving car

<Acceptability>

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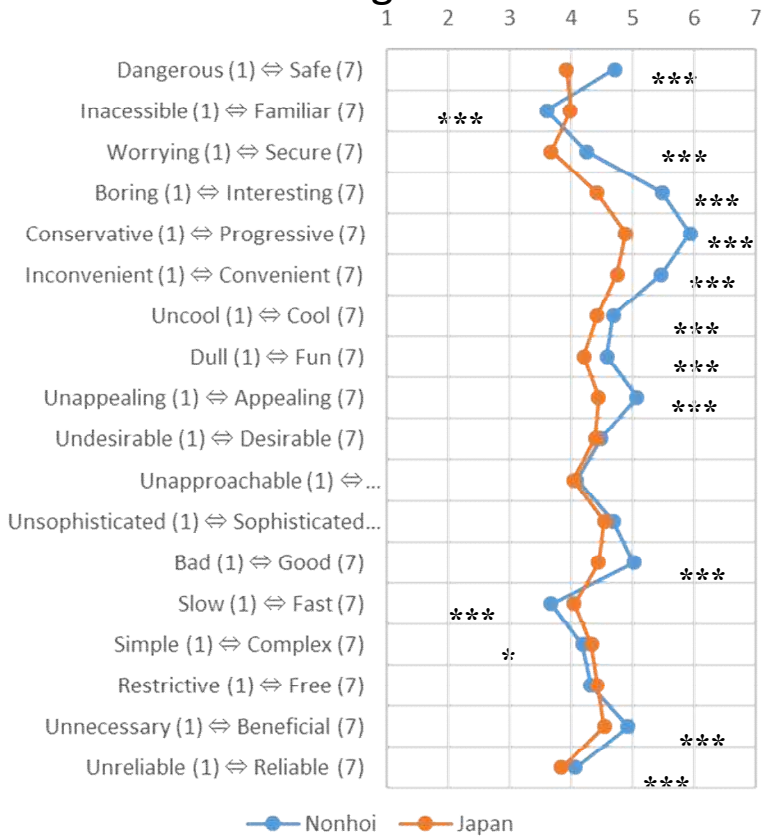



Difference test results: * 10% significance, ** 5% significance, *** 1% significance

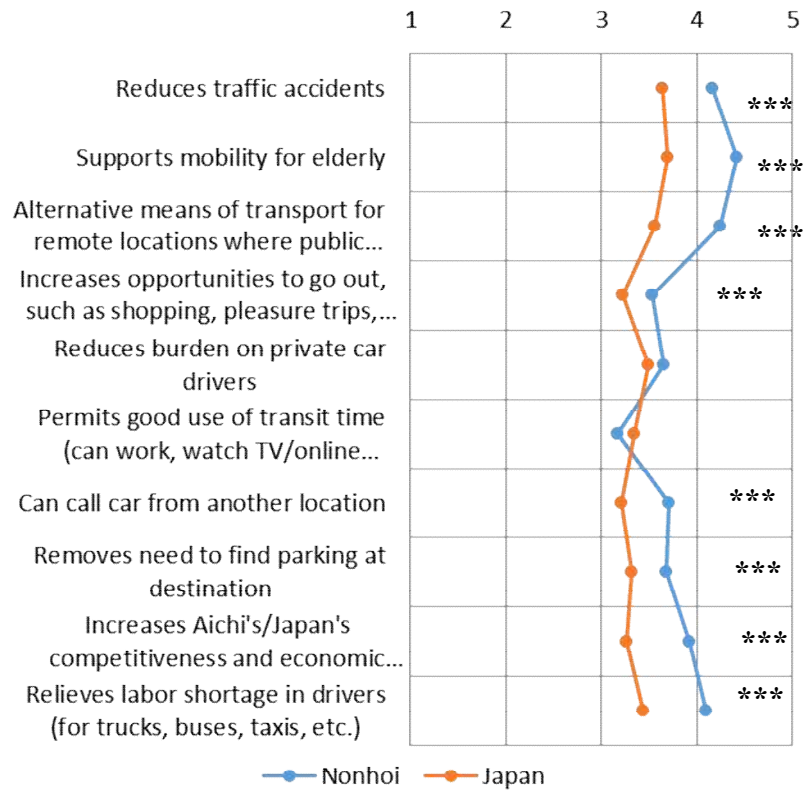
- Regarding the acceptability of automatic driving, compared with online surveys in Japan, there are many people who agree with it, and the purchase intention is very low
- More than half of people agree to use automatic driving buses and taxis as public transportation, which is more than online surveys

- Better impression on most items than the results of online surveys

→ By looking at actual traveling, the image on peace of mind, safety, ands reliability is rising, it feels innovative, and there is a possibility of becoming more interested in automatic driving

# Expectation and concerns of automatic driving car

<Expectations>

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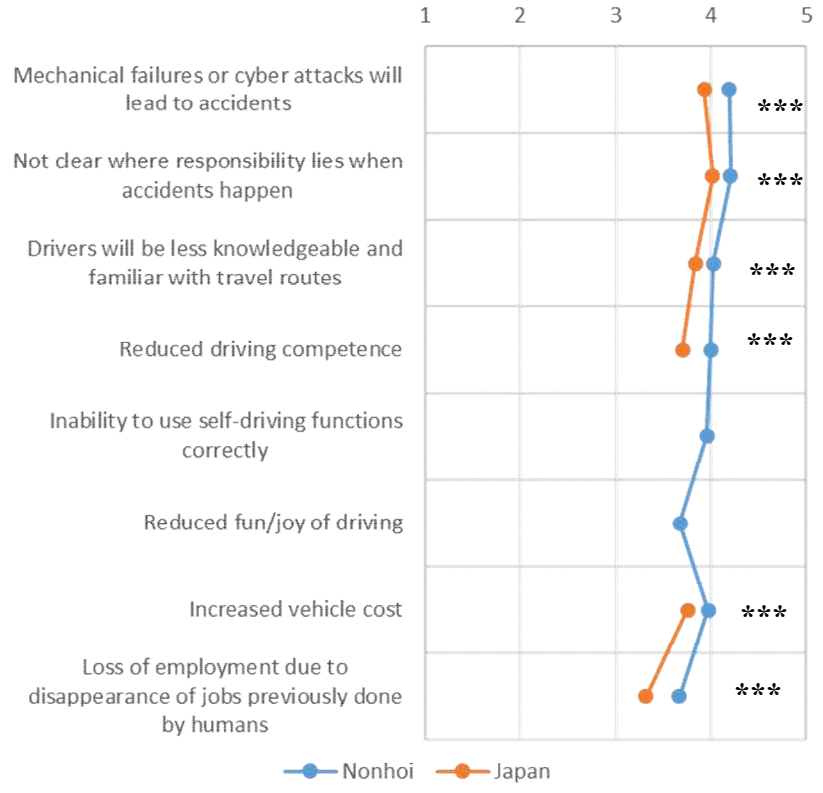



- Besides "Reducing the burden on the driver of the car" and "Effective use of travel time", the degree of expectation is higher than the result of the Internet survey
- Despite running tests at level 4, the low expectations for these items may be because they did not recognize that people are not on the driver's seat

- For each item, the degree of concern is higher in the answers to the survey in Nonhoi Park

→ It seems that automatic driving is going to be realized in the near future, probably because the feeling of uneasiness became stronger

# Analysis of the effect on acceptability of seeing transport by automatic driving: summary

- In order to grasp the influence on the acceptability of seeing the running experiment at the level 4 in the park, we compared with responses obtained by online surveys on acceptability etc.
- Whereas they have high social acceptability compared with online survey respondents, they have low propensity to purchase and own. However, many people agree to their use as public transportation such as buses and taxis, and want to use it for long distance travel such as expressway.
- With regard to the image of automatic driving, it became clear that the items related to safety and reliability are high, and items such as innovativeness are high in comparison with online surveys.
- In the items about concern, the degree of concern was higher for both items than online surveys. This might be because the feeling of uneasiness became stronger as they felt that automatic driving would be realized in the near future.

# 2. Display of driving status in large-scale demonstration tests of automated driving systems

NIPPON KOEI

# 2.1 Implementation of movement management system

In the large-scale dynamic map test and the next generation transport test, the movement management system was daily monitored to support safety and progress management.

## Monitoring of the movement management system

### <Monitoring procedure>

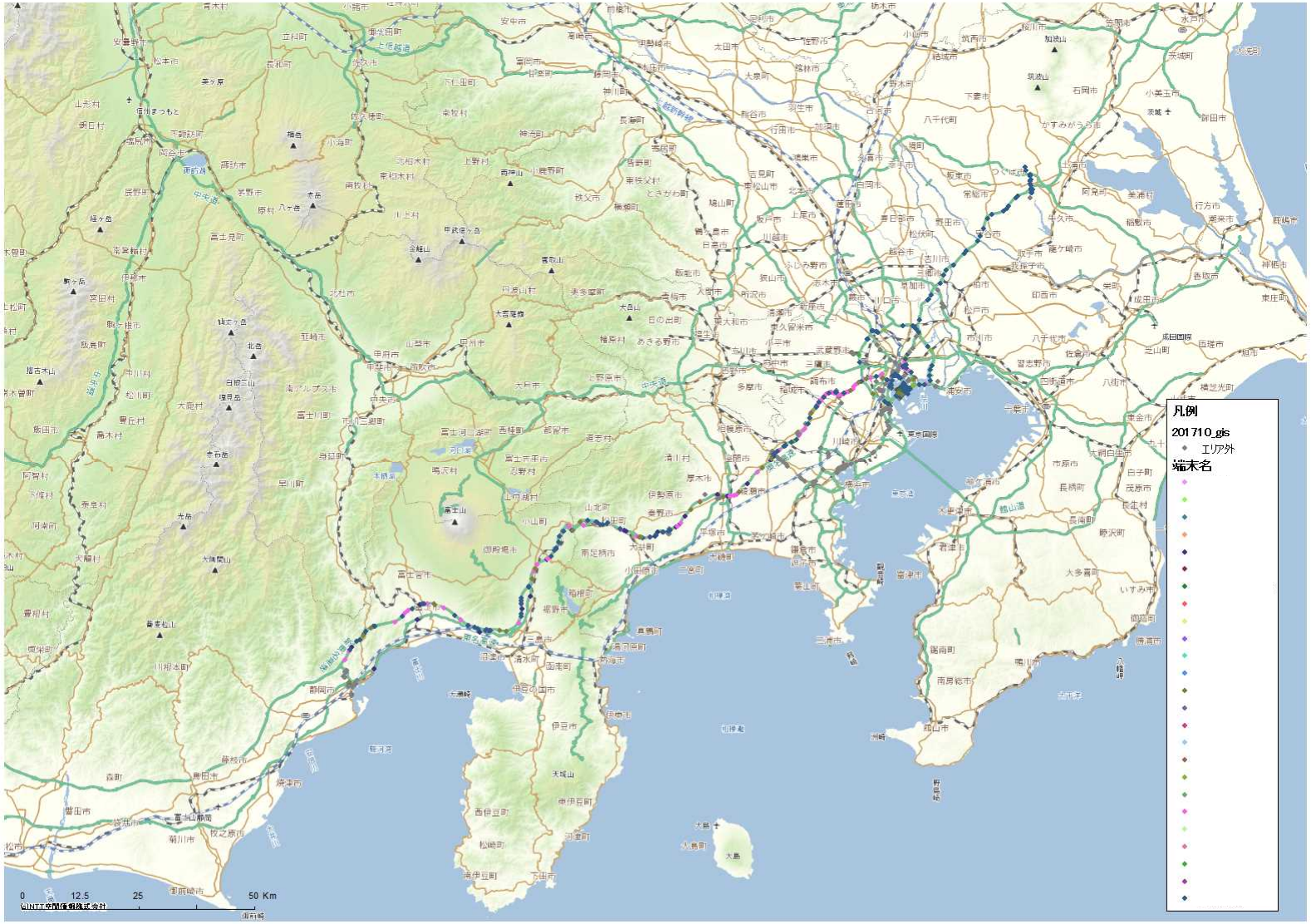
- Period: Oct. 2nd 2017 – Dec. 27th 2018
- Frequency: Twice a day (11 AM and 2 PM)
- Procedure: To monitor vehicle locations on the screen of the administrator site
- Record: To make a screenshot of the administrator site

  To take a record of the cars which are shown on the screen

# 2.1 Implementation of movement management system

## Monitoring of the movement management system

Screenshot of the administrator site of Oct. 2017



# 2.2 Improvement of the methodology to display the driving status

There was no issues on the methodology to display the driving status through the large-scale dynamic map test and the next generation transport test.

A participant of the next generation transport test made request on the function of the movement management system.

The request was as follows;

- To refer vehicle locations through the system

  - It is possible for administrators to refer vehicle locations and all vehicles' status is shown on the screen. This year the request was rejected in order to unify conditions with other field operational tests.

- To shorten the interval to record location data

  - It is specified that the interval to record location data was 10 mins. according to the contract of movement management system. Also it is possible to select shorter interval time up to 1 min.

# 3. Study of methods for improving social acceptability by communicating information such as automated driving system/large-scale field operational testing events and public relations materials, etc.

Nagoya University
NIKKEN SEKKEI Research Institute

# 3.1 Efficiency survey and evaluation of social acceptance improvement measures

# Internet rumor survey

## [Purpose of survey]

- In order to understand the general population's reactions related to autonomous driving, a survey of internet rumors was conducted using SNS (Twitter and blogs) opinion data
- Specifically, the following 6 types of surveys were conducted:

1. Analysis of rumors during the subject period
2. Analysis of influence of media reports
3. Analysis of impact of negative events, etc.
4. Analysis of consciousness regarding mobility services
5. Analysis of rumors related to demonstration experiments and test ride experiences
6. Analysis of rumors in 2 foreign countries

## [Survey method]

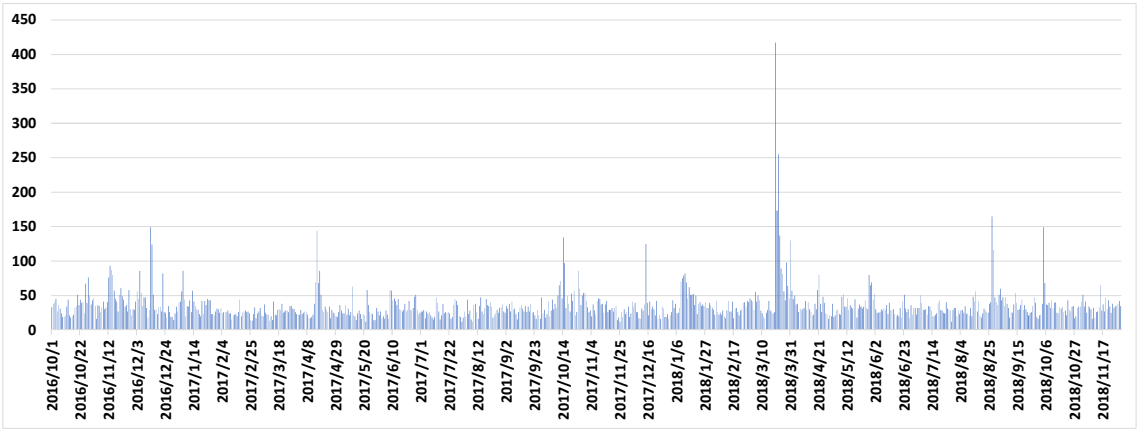
- Twitter and blog data obtained from the period of October 1, 2016 to November 30, 2018 using the search terms "autonomous driving", "autonomous travel", “driverless driving", and " driverless travel" (hereinafter referred to as "terms related to autonomous driving") were used as the subject data. However, for only "(3) Analysis of impact of negative events, etc.", since data from around the time of fatal incidents related to autonomous driving were used, some data prior to the above periods were also utilized for analysis.
- For Twitter, 10% of data were eliminated as having a low relationship with autonomous driving.

# Internet rumor survey (1): Analysis of rumors during the subject period

## [Chronological analysis]

### Twitter

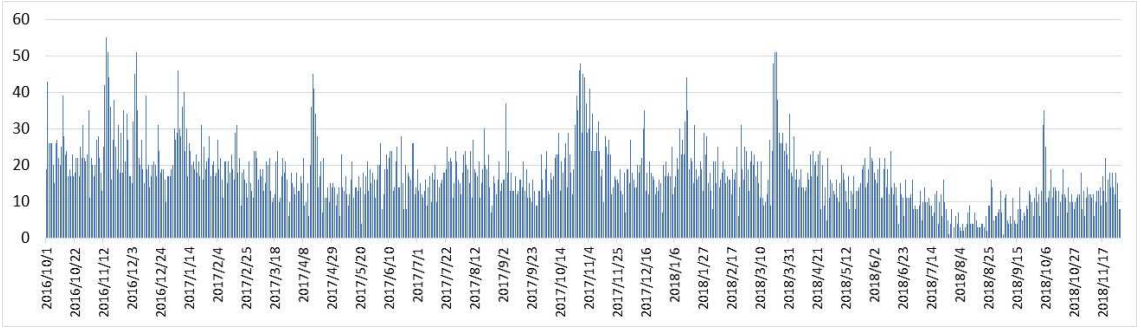
- The number of related posts was highest on the day of the fatal Uber accident, with more than 1,100 posts including those from around the date of the incident.
- For second-place and lower content, many of the posts were related to social experiments or development trends and business collaborations of domestic and overseas automobile manufacturers.




Daily quantities of Twitter rumor data

### Blog

- Compared to Twitter, the results showed that many of the posts were related to positive content
- Even for the fatal Uber accident, although much of the content ranked highly, it did not lead to particularly numerous results.
- Posts in response to autonomous driving by elderly or motor shows tended to be more numerous compared to Twitter.

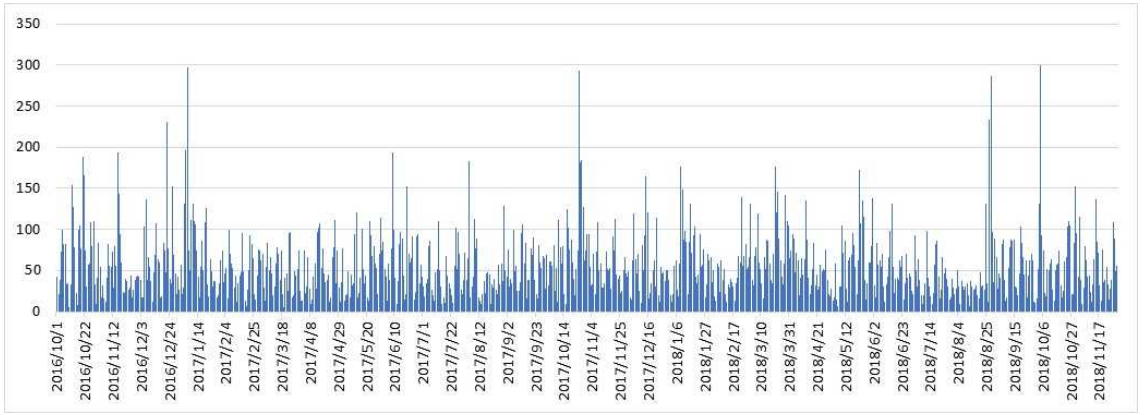



Daily quantities of blog rumor data

# Internet rumor survey (1): Analysis of rumors during the subject period

**Web news**

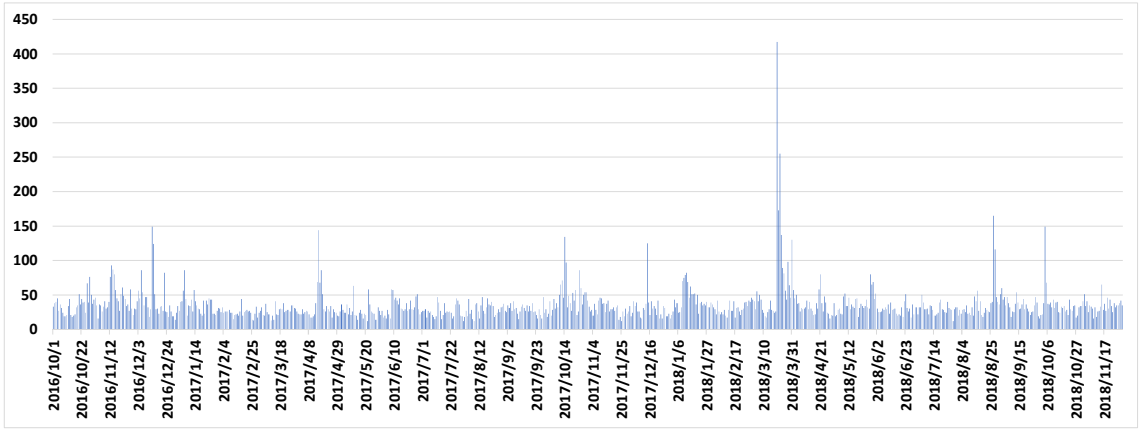
- It became clear that the information provided by web news as a media was mostly based on positive events.
- Other than the 12th-ranked fatal Uber accident, articles were written from a positive or neutral standpoint.




Daily quantities of web news items

**Comparison of web news and Twitter rumor data**

- For around the time of the Uber accident which had the most reactions on Twitter, the number of published web news articles was not very great, and it became clear that the influence of negative events, particularly the impact of the fatal accident directly caused by autonomous driving, was greater than the number of articles.




Daily quantities of Twitter rumor data

# Internet rumor survey (2): Analysis of influence of media reports

- The trends of viewer opinions on content related to autonomous driving provided in television programs broadcast between October 1, 2016 and November 30, 2018 were analyzed and societal acceptance was studied.

## [Chronological analysis of number of broadcasts and broadcast time periods of programs related to autonomous driving]

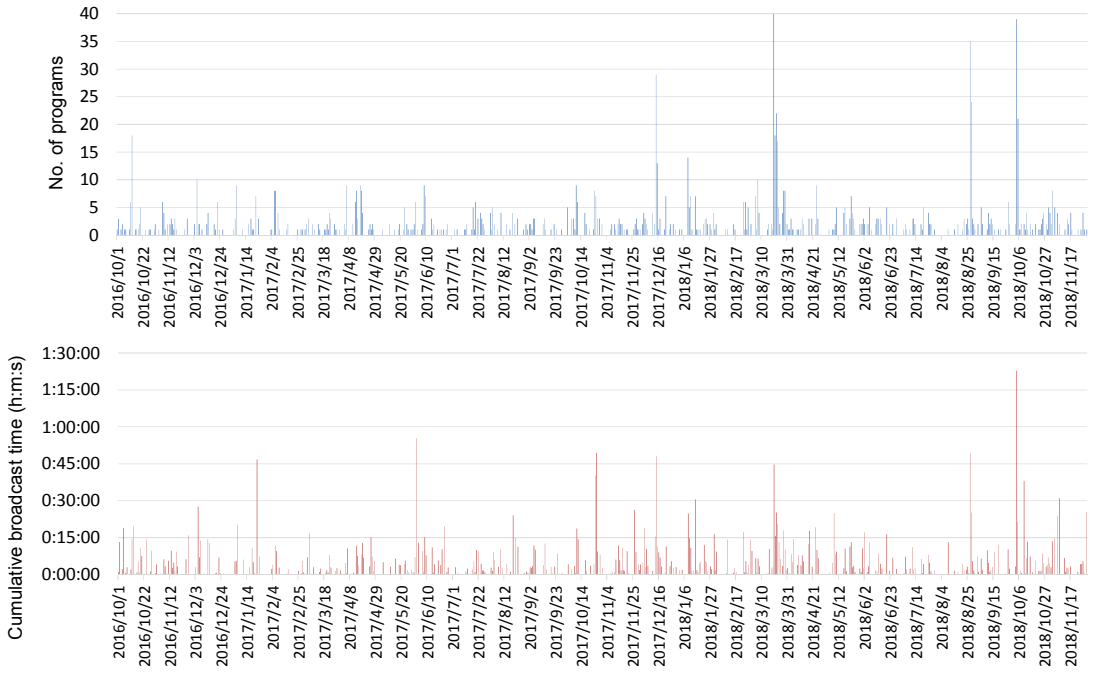
- For both daily broadcast numbers and daily cumulative broadcast time, no tendency toward longer broadcast times as the present day approached was seen, and the daily fluctuations due to topic impact were extreme.

**Ranking of daily broadcast numbers**

- Other than the top-ranked Uber traffic accident, topics about business collaborations and demonstration experiments were numerous.

**Ranking of daily cumulative broadcast time**

- Roughly speaking, the topics which ranked highly in daily broadcast numbers had more cumulative time.




Chronological arrangement of number of programs and cumulative broadcast time (daily)

# Internet rumor survey (2): Analysis of influence of media reports

* Reference: List of analyzed programs

| Viewpoint | Program name | Network | Date | Program type | Headline or main keywords |
|---|---|---|---|---|---|
| **News: Negative** | A. News Check 11 | NHK | Tues., Mar. 20, 2018 | Politics, International | Politics, Business: Fatal pedestrian accident of "autonomous driving vehicle" of Uber Technologies in Arizona, US |
| | B. News Station | EX | Tues., Apr. 3, 2018 | Politics, International | Approval of driverless autonomous driving tests on public roads in California, US |
| **News: Positive** | C. News Check 11 | NHK | Thurs., Dec. 14, 2017 | Business | Society: Driverless autonomous driving vehicle tests on public roads in Kota-cho, Aichi and Koto-ku, Tokyo |
| | D. News Station | EX | Thurs., Oct. 4, 2018 | Business | Establishment of new company for autonomous driving by Toyota Motors and Softbank |
| **Special programs: Overseas trends** | E. Closeup Gendai + | NHK | Tues., May 8, 2018 | Business | Infiltration of China's ″Autonomous Driving City" major project |
| | F. NHK Special "Autonomous driving revolution" | NHK | Sat., Sept. 17, 2016 | Economy, Technology | Introduction of efforts towards practical applications of autonomous driving in Japan, Germany, US, etc. |
| | G. Gaia no Yoake | | Tues., Sept. 20, 2016 | Economy, Business | Anticipation? Anxiety? First in Japan! Autonomous driving vehicle capabilities make parking or lane change automatic. Invasion of overseas manufacturers: Using cutting-edge technology in depopulated villages; Surprising business activities. |

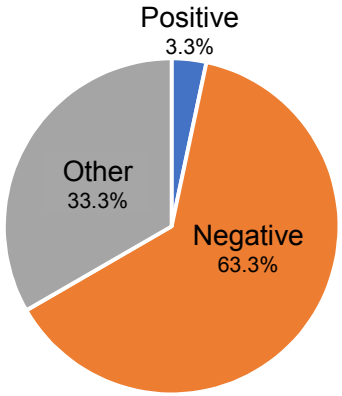
Note: EX: Asahi TV; TX: Tokyo TV

# Internet rumor survey (2): Analysis of influence of media reports

## Negative news

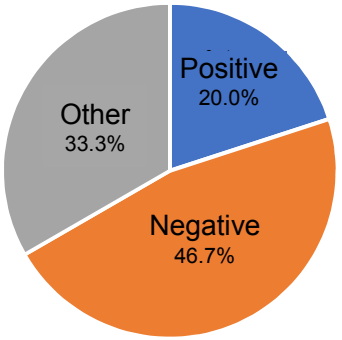
**A. March 20, 2018 NHK "News Check 11": Politics, Business: Fatal pedestrian accident of "autonomous driving vehicle" of Uber Technologies in Arizona, US**

- Almost no positive opinions were included, and program was filled with mostly negative opinions regarding the accident.




**B. April 3, 2018 TV Asahi "News Station": Approval of driverless autonomous driving tests on public roads in California, US**

- Although there were few positive opinions and there were many negative opinions regarding accidents, the ratio of positive opinions was somewhat higher than for the Uber accident.
- In addition to negative events such as accidents, provision of information on positive events such as the public road test approval (with tests continuing despite the accident) shows the possibilities.

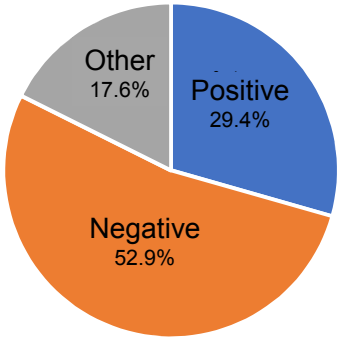


# Internet rumor survey (2): Analysis of influence of media reports

## Positive news

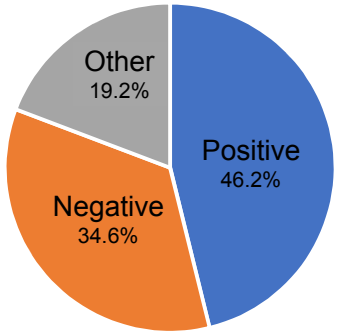
**C. December 14, 2017 NHK "News Check 11": Society: Driverless autonomous driving vehicle tests on public roads in Kota-cho, Aichi and Koto-ku, Tokyo**

- There were more negative opinions than positive opinions. As positive opinions, there were many opinions describing the merits of autonomous driving (ease of expressway driving, release from license restrictions, reduced traffic jams, etc.).
- As negative opinions, there were many opinions describing technological limitations (still too early for realization, etc.) or the issue of responsibility in case of an accident.




**D. October 4, 2018 TV Asahi "News Station": Establishment of new company for autonomous driving by Toyota Motors and Softbank**

- There were many positive opinions. There were of course positive opinions regarding autonomous driving, and opinions talking about the future after realization of an autonomous driving society were also remarkable.
- On the other hand, as negative opinions, there were many opinions expressing doubts about whether or not an autonomous driving society could be realized, and there were also opinions against it for reasons not backed up by evidence, such as high monetary charges, increased numbers of cars, etc. 。
- As is typical of news on collaborations between companies, there were also opinions linking autonomous driving with the images of the companies.

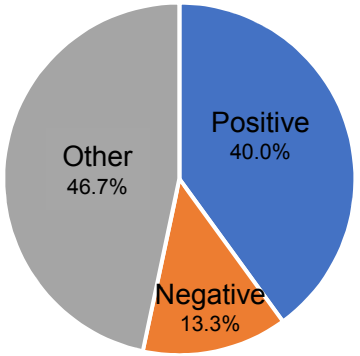


# Internet rumor survey (2): Analysis of influence of media reports

## Special programs

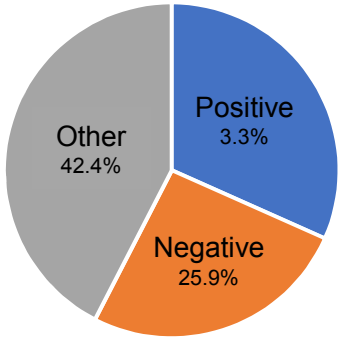
### E. May 8, 2018 NHK "Closeup Gendai +": Infiltration of China's 'Autonomous Driving City' major project

- Although generalization is difficult because the number of opinions was low, there were more positive opinions. Many opinions were from the viewpoint of "Losing to foreign countries". There were also opinions linked to the impression of China as a country.




### F. September 17, 2016 NHK "NHK Special: 'Autonomous driving revolution'": Introduction of efforts by Japanese and overseas companies towards practical applications of autonomous driving

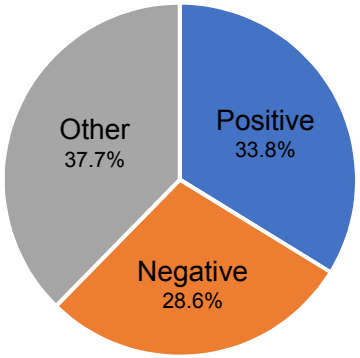
- Positive opinions were somewhat numerous.
- As positive opinions, there were expectations for the future, expectations and admiration for technology development and expansion by manufacturers, society's need for autonomous driving (assistance for elderly, public transportation), etc. As negative opinions, there are mixtures of opinions from various aspects, particularly distrustful and rejection reactions toward machinery (as well as voices regarding the danger of human degeneration), risk of accidents under weather conditions or special circumstances, assignment of responsibility in case of accidents, etc. There were also people with negative opinions due to subjective feelings such as "fear" and "hate".
- There were also opinions that question who autonomous driving is for, placing greater emphasis on its utility to society, which suggests that positive opinions may increase.



# Internet rumor survey (2): Analysis of influence of media reports

**G. September 20, 2016 TV Asahi "Gaia no Yoake": Introduction of autonomous driving trends and efforts**

- Positive opinions were somewhat numerous. As positive opinions, many expressed praise for the technological prowess and efforts of Japanese and overseas companies, the merit of being able to do other things while moving, and subjective opinions liking the program contents.
- As negative opinions, there were comments about the bad effects on existing industries or fields (automotive subcontractors, drivers, etc.), legal system deficiencies, risks of accidents due to weather changes or natural disasters, etc.
- There is a trend toward diversification of both positive and negative opinions, and it is better to provide multi-faceted information on autonomous driving efforts instead of only one-sided negative information.

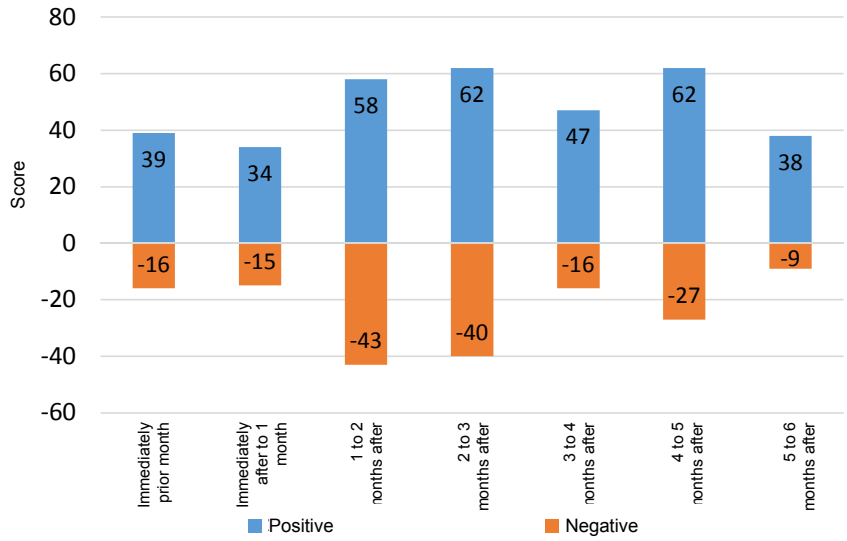


# Internet rumor survey (3): Analysis of impact of negative events, etc.

- We analyzed Twitter postings around the occurrence date of an autonomous driving accident to determine how long and how strong the influence persisted in public opinion when a negative event occurs.
- Specifically, as an example of a negative event, we performed a monthly reputation analysis using Twitter data for 1 month before and 6 months after an event, using the two cases of the May 7, 2016 fatal accident involving a Tesla autonomous driving vehicle and the March 18, 2018 fatal accident involving a Uber autonomous driving vehicle.

**May 7, 2016 fatal accident involving a Tesla autonomous driving vehicle**

- Negative posts increased drastically from 1 month after to 2 months after the accident, but settled down after that.
- For the 7-month period including before and after the accident, the positive post score always exceeded the negative post score.
- Even during the period when negative posts increased, positive posts also increased, indicating that an accident doesn't necessarily trigger only negative posts.

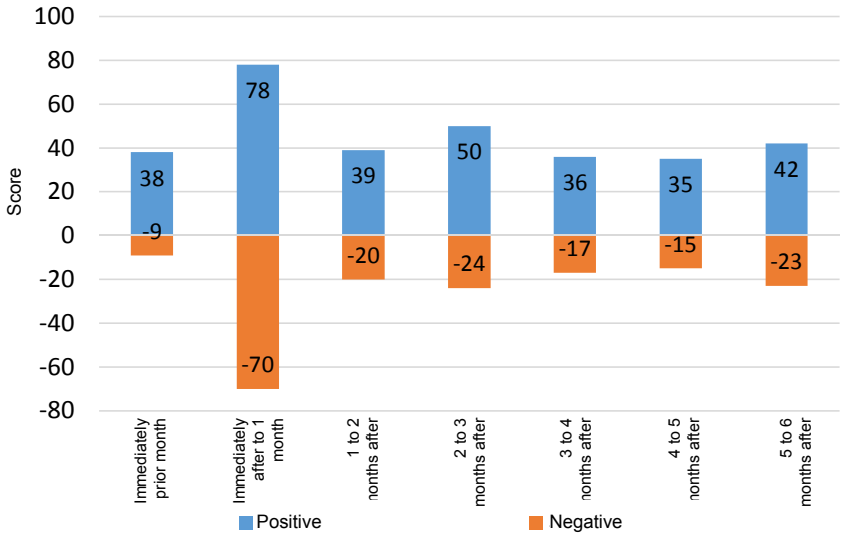



Monthly reputation analysis before/after fatal accident involving a Tesla autonomous driving vehicle (score)

# Internet rumor survey (3): Analysis of impact of negative events, etc.

**March 18, 2018 fatal accident involving a Uber autonomous driving vehicle**

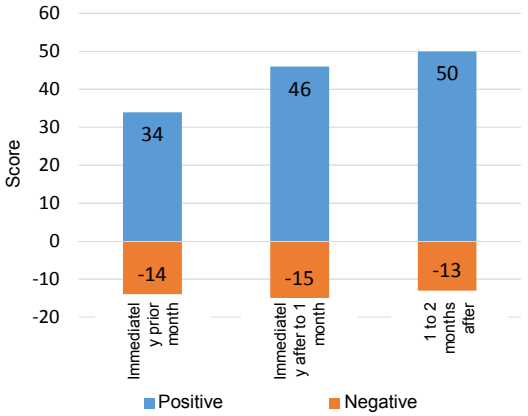
- It became clear that immediately before the accident the positive post score greatly exceeded the negative post score, but from immediately after the accident to 1 month later, the negative post score was at approximately the same level as the positive post score.
- However, from 2 months after the accident and later, negative opinions decreased and tended to settle down, but even 6 months after the accident, they did not return to the level of prior to the accident.




Monthly reputation analysis before/after fatal accident involving a Uber autonomous driving vehicle (score)

*** Reference: October 4, 2018 announcement of collaboration between Softbank and Toyota on next-generation mobility service business**

- Compared to immediately before the business collaboration announcement, the positive post scores 1 month and 2 months immediately after the announcement were higher, and even for the ratio between positive posts and negative posts, there was a clear increasing trend.



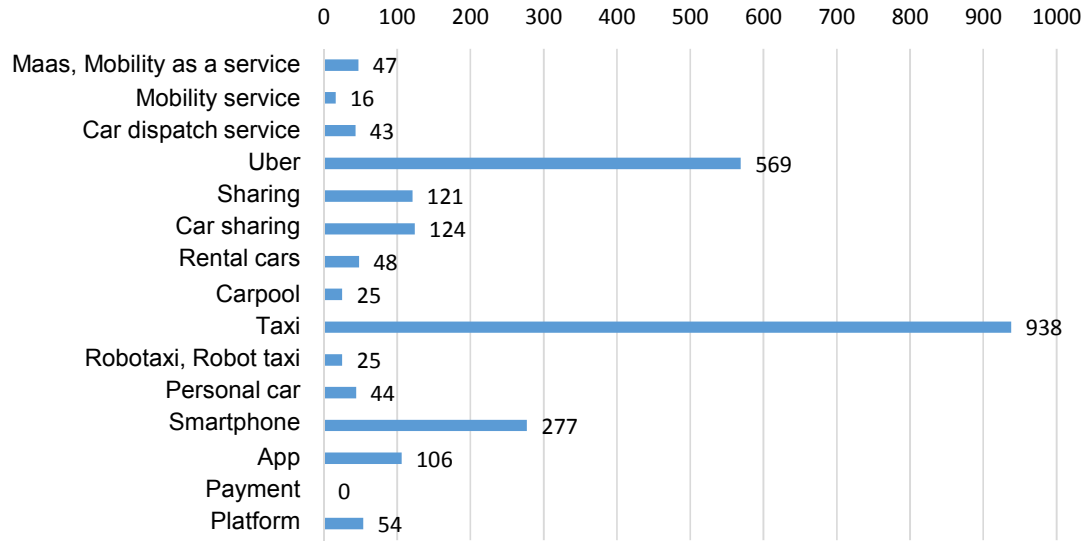

Monthly reputation analysis before/after announcement of collaboration between Softbank and Toyota on next-generation mobility service business (score)

# Internet rumor survey (4): Analysis of consciousness regarding mobility services

- In order to grasp public consciousness regarding mobility services in rumors related to autonomous driving, rumors containing keywords related to mobility service were extracted from Twitter and blog rumor data, and the ratios for each keyword to overall data were calculated.
- Specifically, the number of data containing the keywords in the graph below were collected for the period from October 1, 2016 to November 30, 2018.

**[Example: Twitter keyword extraction results]**

- Overall, the main content are postings which are conscious of car dispatch services (typified by Uber) and car sharing. But the ratios to overall data are low, with “Taxi” occupying approximately 3% and “Uber” approximately 2%.



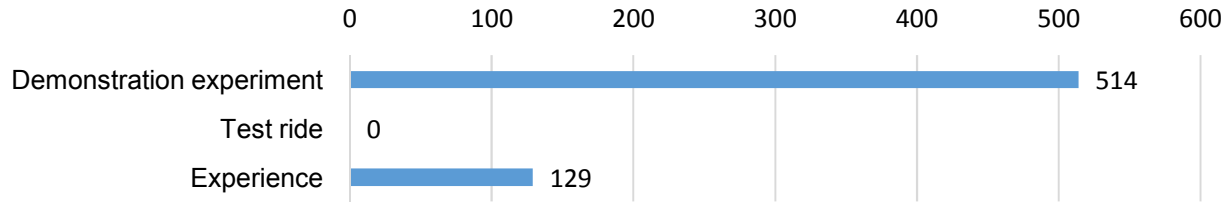

Number of Twitter rumor data including keywords related to mobility service

# Internet rumor survey (5): Analysis of rumors related to demonstration experiments and test ride experiences

- In order to grasp public consciousness regarding demonstration experiments and test ride experiences in rumors related to autonomous driving, rumors containing keywords related to demonstration experiments and test ride experiences were extracted from Twitter and blog rumor data, and the ratios for each keyword to overall data were calculated.
- Specifically, the number of data containing the keywords in the graph below were collected for the period from October 1, 2016 to November 30, 2018.

**[Example: Twitter keyword extraction results]**

- The results for posts related to consciousness of demonstration experiments and test ride experiences were 514 posts for "Demonstration experiment", 129 posts for "Experience", and 0 posts for "Test ride". The ratios to overall data are low, with "Demonstration experiment" occupying approximately 2% and "Experience" less than 1%.
- In addition, even among the subject posts, cases of posts about test ride experiences were extremely few, with most posts providing information about demonstration experiments in Japan and overseas, so that it is difficult to say that information about experiences directly or indirectly related to autonomous driving are being shared via Twitter.



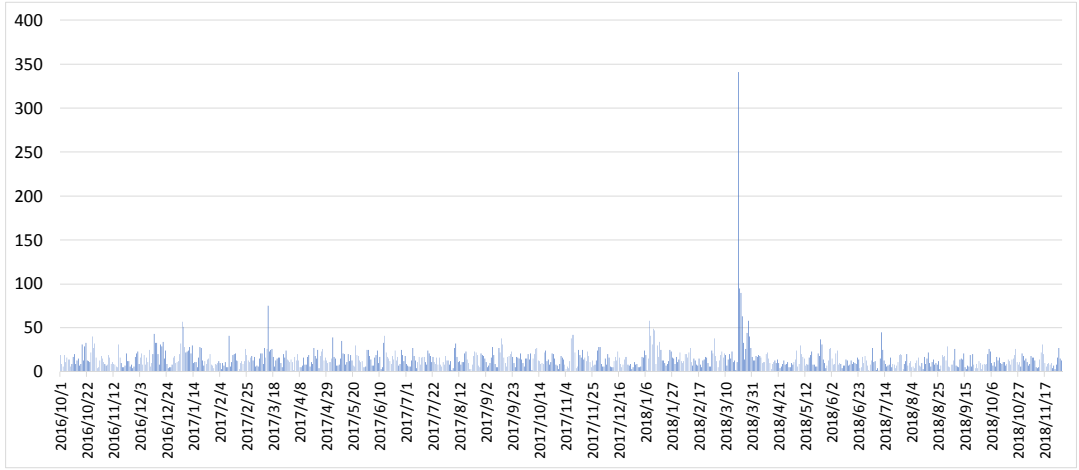

Number of Twitter rumor data including keywords related to demonstration experiment and test ride experience

# Internet rumor survey (6): Analysis of Twitter rumors in 2 foreign countries

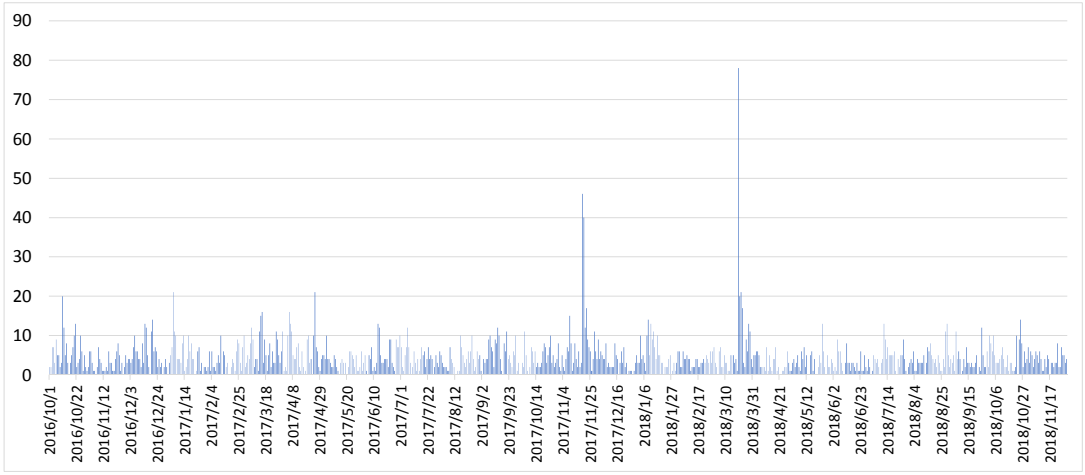
• Trends related to autonomous driving, etc. were grasped from Twitter data (10% random extraction) in US and UK during the period from October 1, 2016 to November 30, 2018.

## [Example: Chronological analysis]

- The results for collating daily post numbers for Twitter data from US and UK are shown in the figure at right.
- Overall, the number of posts are greater for US, where there is a lot of activity regarding demonstration experiments and system studies. Common to both countries, which is the same as Japan, is that the number of posts regarding the fatal accident involving a Uber autonomous driving vehicle was remarkably high.
- Also, in UK, for government investment plans, there were many posts on November 19, 2017 regarding the possibility of driverless cars operating on UK roads within 4 years.
- For both countries, trends toward increasing numbers of posts over time were not seen.




Daily number of Twitter rumor data (US)




Daily number of Twitter rumor data (UK)

# Internet rumor survey

- Currently, although it is difficult to say that interest is increasing as positive events and overseas and domestic trends progress, for the most recent 2 years, there is an overall trend toward more positive posts than negative posts. However, we found that when an incident with a major negative impact such as the fatal Uber accident occurs, it takes at least 6 months after the incident or societal acceptance to return to the level it was at prior to the incident.
- In addition, it was confirmed that there is a tendency for media such as news, television programs, etc. to provide mainly positive information except when a fatal accident occurs, but that the receivers of information are more easily swayed by accidents with major negative impacts.
- Despite that, it was seen that after the occurrence of a fatal accident, societal acceptance does not remain low and appears to gradually recover. This suggests that even if a fatal accident occurs, the possibility of relatively rapid recovery afterwards depends on the provided information.
- Providing accurate information on advantages/disadvantages from various viewpoints instead of fragmentary news on events will increase the understanding of citizens and may cultivate societal acceptance in more desirable directions.

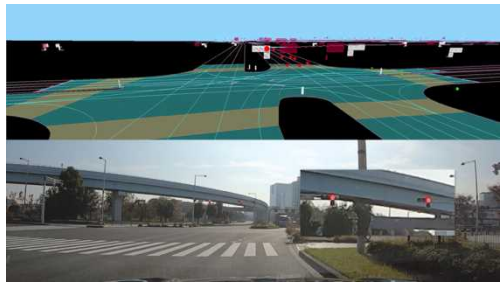
# 4. Study of social acceptability through the implementation of automated driving system/large-scale field operational testing

NIPPON KOEI

## Shooting of large-scale field operational test in 2018

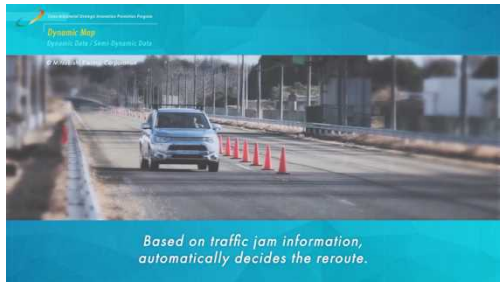
As the record of the large-scale field operational test in 2018, the condition of the test was recorded with video in cooperate with the participants of the test.
<Contents>
1) Pedestrian safety / V2P demonstration
2) Next generation transport / Pedestrian support vol. 1
3) Next generation transport / Pedestrian support vol. 2
4) HMI demonstration: issue A
5) Pedestrian safety / V2P demonstration on public roads
6) Dynamic map
7) Next generation transport / PTPS
8) Next generation transport / Bus stop






## Promotion video for SIP-adus Workshop 2018

The video content was edited for SIP-adus Workshop 2018, which was held from Nov. 13th to No. 15th in 2018.
The vide title was “FOTs NOW!” and the records of large-scale field operational test were contained. The video was edited to show the progress of the efforts to 5 issues of SIP-adus.
<Content>
1) Dynamic Map
2) HMI
3) Information Security
4) Pedestrian Safety
5) Next Generation Transport





# Movie for the SIP Adus SHOWCASE

The movie was edited in which 5-year activities in SIP-adus program were contained. The movie would be used as a promotion content in both the SIP-adus SHOWCASE on Feb. 6th and 7th 2019 and the SIP-adus WEB site later on.
The movie contained motion graphics, 3DCG and animation.
<Contents>
A) The future image beyond 2050 that is after autonomous driving system is realized.
B) Animation, 3DCG and the records of the filed tests
C) Interview to Key persons of SIP-adus

The movies for 5 zones of the SIP Adus SHOWCASE were also edited.
<Contents>
A) Zone1: 3D dynamic map
B) Zone2: Connection between pedestrian and vehicles
C) Zone3: Next generation transport for human
D) Zone4: Trustful autonomous vehicles
E) Zone5: First step for the future society