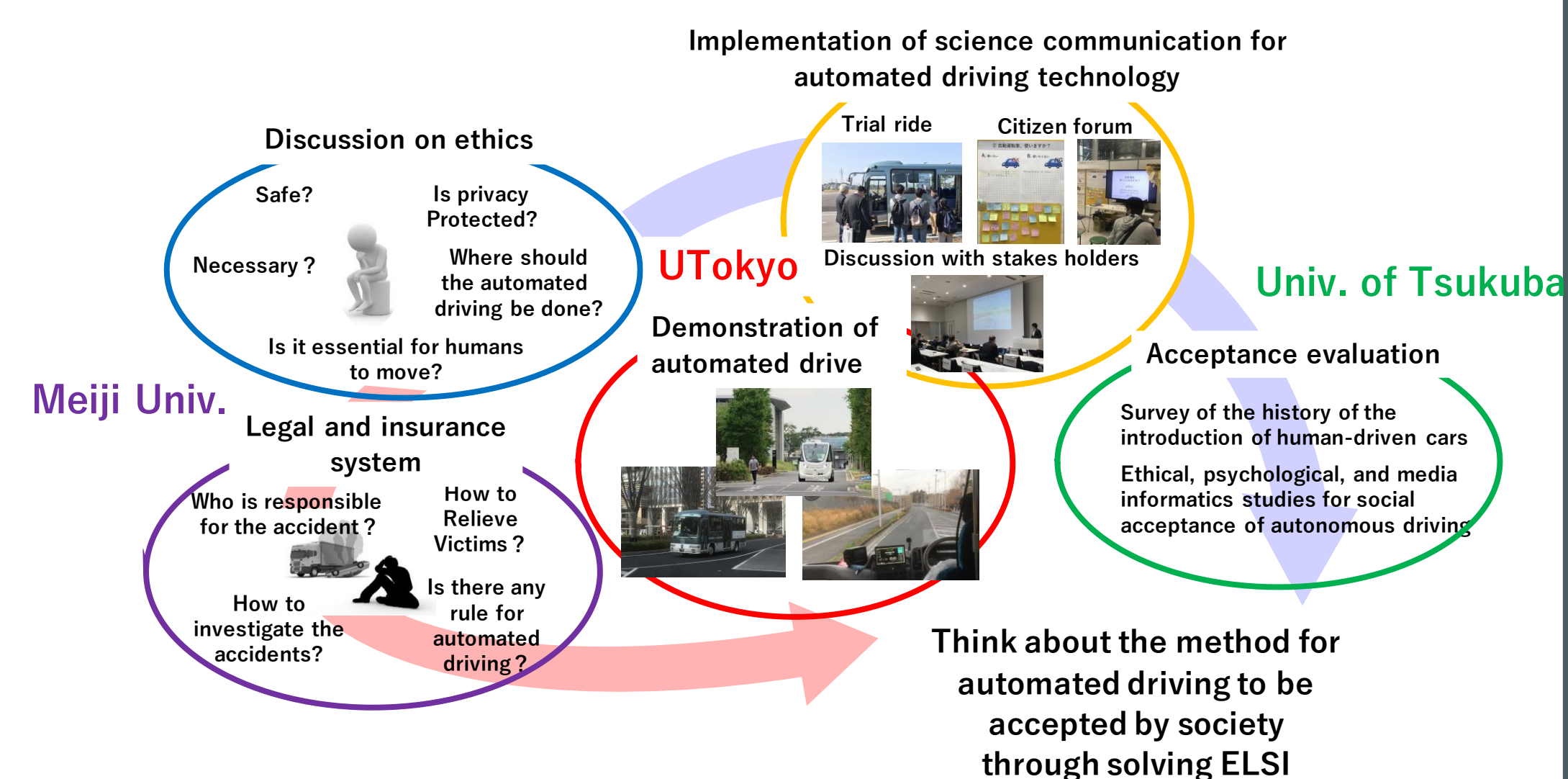


# Building the Method for Social Implementation of Automated Driving Technology Complying with Actual State Based on ELSI

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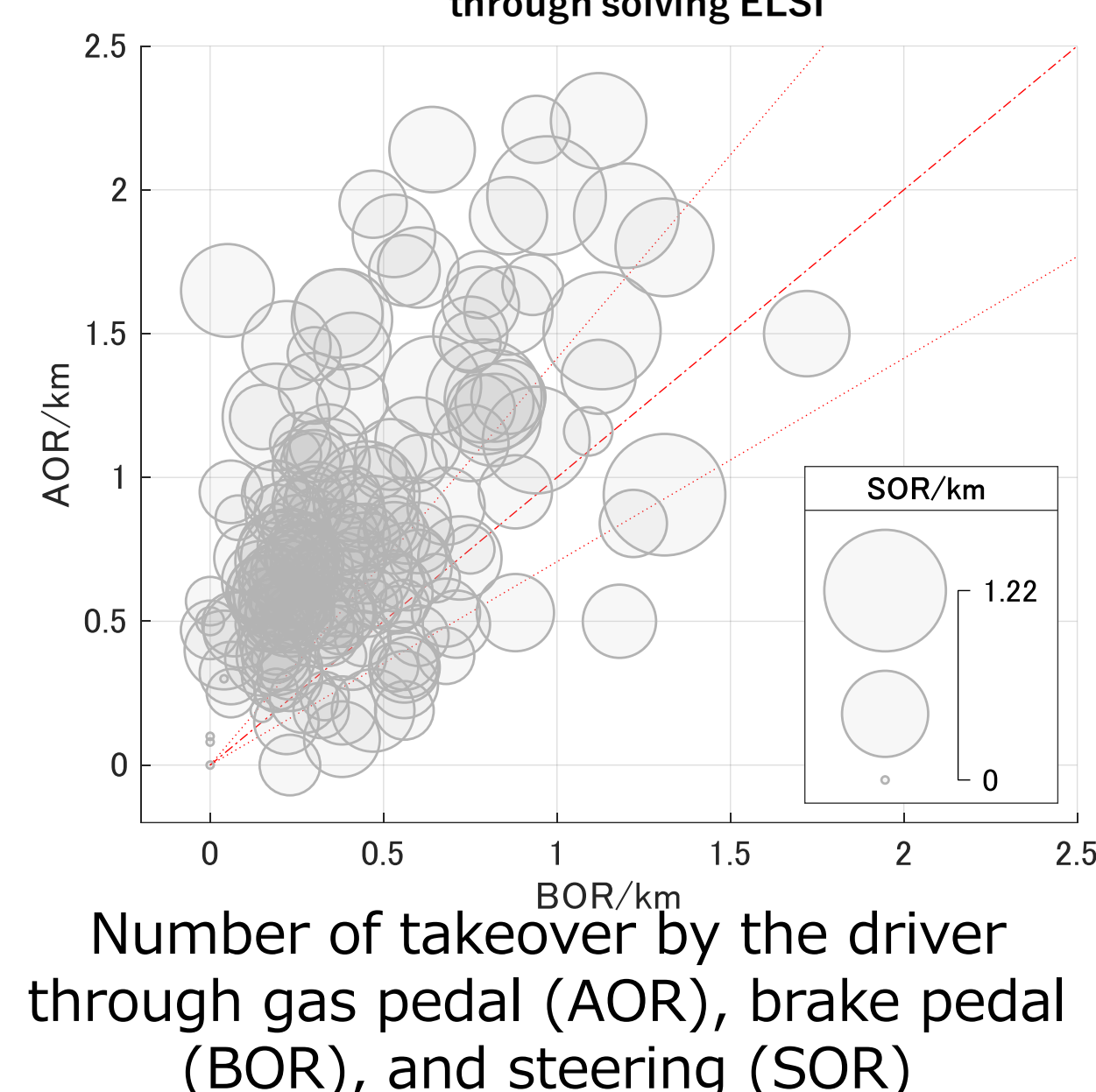
## Introduction

ELSI stands for Ethical, Legal and Social Implications/Issues. There have been efforts in various fields to study and deal with ELSIs that arise with the development of new science and technology. This study examined how automated driving technology should be implemented in society, based on the fundamental question, "Can humans and society accept the mistakes made by machines?". This project was supported by the Research and Development Center for Social Technology (RISTEX) of the Japan Science and Technology Agency (JST) under the "Research and Development Program for Comprehensive Application of Science and Technology to Ethical, Legal, and Social Issues (ELSI)" (RInCA) (FY 2020), and was conducted by the University of Tokyo, Meiji University, and the University of Tsukuba. The project was conducted by the University of Tokyo, Meiji University, and University of Tsukuba.



## Social implementation of the technology

A bus with an automatic driving function (Level 2 operation) has been running from Kashiwanoha Campus Station to Kashiwa Campus three to four times daily on weekdays since November 2019 with the Kashiwa ITS Promotion Council as the implementing body. Using a drive recorder, images and operation data during driver intervention have been recorded to analyze scenes in which intervention frequently occurs. Intervention by gas pedal (AOR) was the most common, considering the impact on surrounding traffic.



## Dialogue with Society

Interactive science and technology communication to help citizens understand the current status of automated driving technology was carried out.

(1) Hold a citizens' forum for Kashiwa citizens.

On March 13 and 20, 2021, a test-drive event for 15 Kashiwa citizens and a workshop for the participants of the test-drive event were held.

On October 30, 2022, a test-ride of an automated bus for 15 junior high and high school students living and attending school in Kashiwa, as well as a lecture and workshop was held.

On August 24, 29, September 5, September 19, and September 28, 2023, the Urban Design Center Kashiwanoha (UDCK), which works with residents on urban development in Kashiwanoha, led test rides for citizens as a model case for continuing test rides of automated driving.

(2) Development of an ELSI discussion point extraction method based on philosophical dialogue, and organizing and stratifying discussion points

In addition to accident liability issues and information security, we developed a dialogue method based on philosophical dialogue with the aim of identifying issues that were overlooked by experts or were given a low priority. Workshops were held in collaboration with the National Museum of Emerging Science and Innovation on March 28, June 7, September 4, and November 9, 2021. On June 25, August 7, and September 25, 2022, workshops for the visually impaired, high school students, and local residents (Takachiho Town, Miyazaki Prefecture) were held.

(3) Release of a workshop management support tool to explore the possibilities and suitability of automated driving technology

The results obtained in (1) and (2) and the dialogue method were compiled into a manual and published online as a workshop management support tool in January 2024.

## Ethical Issue Study

The following study groups were held to examine automated driving technology and ethics related to mobility and mobility.

1. Study Group on Ethics of Automated Driving (September 2021),

Philosophy and ethics researchers involved in the ethics of automated driving technology and robotics/AI ethics in Japan were invited to participate.

2. The Sociology of Mobility Study Group (9 times from 2022 to 2023, held jointly with the RInCA R&D project "Implementation and systematization of RRI assessment model on emerging science and technology" (PI: Ryuma Shibeha (Osaka University))).

In order to gain perspectives on how changes in automobile transportation and mobility can be more broadly linked to changes in urban and social life, the "Sociology of Mobility Study Group," which takes up the sociology of transportation and mobility, where such discussions have been accumulated, was held by inviting outside researchers.

## Legal issue Study

Research on information ethics of automated driving and accident dispute resolution based on objective evidence was conducted mainly at Meiji University.



## Related Materials

RInCA Web page:

<https://www.jst.go.jp/ristex/rinca/projects/jpmjrrx20j4.html>

## Social Issue Study

University of Tsukuba examined how manual vehicles had been accepted by society, and considered what was needed for a soft landing of automated vehicles in society.

Automated Driving ELSI Web page:

<https://x.gd/VecWh>

