

Building a Smart Mobility Platform / Practical Mobility Redesign

Purpose of Research and Development

This R&D aims to realize "a society without mobility divide where everyone, goods, and services can move freely, independently, safely, comfortably, and in an environmentally, stranger, and community-friendly manner" as the ideal state of urban space and mobility services.

The mission of this project is to build a platform (smart mobility platform) that enables safe, environmentally friendly, fair and seamless mobility.

1. Understanding the actual conditions of local mobility resources

In the first year of the project, we worked on a framework and technological verification to understand the actual conditions of local mobility resources, using the case study of Kozoji New Town in Kasugai City, Aichi Prefecture, where traffic problems are becoming more and more apparent.

-Development of a method for identifying mobility resources in a model area

The project developed a systematic method to grasp the overall picture of the mobility services in the model area by considering them as "people (passengers)", "goods (cargo)", and "services".

The six resource components to be identified are: "quantity of human resources," "understanding of garages and bases," "quantity of vehicles," "systems," "energy supply," and "financial resources.

The survey was conducted in model areas to confirm the existence of a variety of mobility resources, including corporate and hospital transportation, mobile vans, and shared transportation undergoing social experiments, in addition to existing transportation systems, and to design the survey methodology, selection of survey sites, etc.

We conducted a survey of license plate reading status using AI image recognition on a trial basis, and confirmed that it is possible to grasp a variety of mobility resources in addition to existing traffic, and proposed a next-generation mobility resource survey method for full-scale surveys.

2. Research on barriers to smart mobility services

We selected companies and organizations that are making advanced efforts to address legal and customary issues that are barriers to the social implementation of smart mobility services, and compiled a list of issues and countermeasures based on interviews with these companies and organizations. In the first year, interviews were conducted mainly with domestic businesses to identify issues from their perspective. The following is an example of the challenges.

-Research on legal and customary barriers

<General transportation policy>

The framework of the regional public transportation conference was not utilized well as a place for communication.

<Demand transportation service>

The survey revealed the following issues: • The cost structure does not ensure sustainability for stable operation, the system does not allow flexible operation changes due to complicated procedures, and in the

case of operation under Article 21 of the Road Transport Law (demonstration experiment), the period is set (limited to one year). The following is a brief summary of the issues

<Compensated Transportation Service in Blank Areas>

In the field, it became clear that discussions tended to focus on the concept of physical transportation blank spaces, rather than convenience (or inconvenience) for users.

<Co-creation projects (e.g., mobile vending)>

The study revealed that regulations concerning road use permits and structural modifications of vehicles for mobile vending operations are a hindrance to flexible and efficient operations.

3. Tips Research (Domestic)

The research list of mobilization tips was compiled, and interviews were conducted with domestic operators from the following 10 perspectives to systematically organize the points to be addressed in the demonstration experiment and full-scale implementation phases.

<Perspectives of Total Mobilization Tips>

(1) Sustainable organization building, (2) Sustainable human resource development, (3) Shared vision, consensus building, (4) Redesign, co-creation, MaaS, (5) Data ecosystem, (6) Behavior change, social acceptance, (7) Data utilization, (8) New mobility value creation, (9) Systems, rules, customs, (10) Business Models

Examples of mobilized tips that contribute to regional development

<Sustainable human resource development>

The new demand transportation service is a way of working that is limited to a certain area and time zone, and many drivers applied for the service.

<Data Ecosystem>

The key to realizing an ecosystem is for businesses to be able to envision that digitization will undoubtedly lead to increased productivity, and that the openness of the data ecosystem will bring returns to them in turn.

<Data Utilization>

In addition to the management of personal information and the handling of business information, it is important to provide financial support and an environment for the maintenance, extraction, and processing of data.

<Systems, rules, and customs>

Consideration needs to be given to how mobile vending can become less of an obstruction to traffic so that road use permits can be obtained.

<Systems, rules, and customs>

Local hubs (e.g., in conjunction with food and beverage sales) can be implemented as long as permission is obtained from the public health department, including permission under the Food Sanitation Law and permission to sell goods, etc. However, visible cooperation from the government side is important.

4. Tips Research (Overseas)

Through literature review and field research (France, Germany, and the U.S.) of advanced cases in overseas cities that are working on the redesign of mobility that incorporates new technologies and contributes to regional development, the following findings were obtained as tips regarding mobility resources, movement of people, and movement of goods.

-Existence of planning guidelines for re-designing regional transportation

The United States has been leading the way in practicing massive investment in the transportation sector, with climate crisis, safety, and equity as key government policy goals in Europe and the U.S., respectively. In Europe, the United States, where safety and equity are important government policy goals, the nation continues to lead the way in making huge investments in transportation. Regional transportation redesign has moved from the experimental to the practical stage. In Europe and the U.S., smart mobility has moved from the R&D phase to the social implementation phase, with urban areas investing hundreds of billions to tens of billions of dollars per year per city. Many cities are actively deploying new technologies in the urban transportation sector to achieve a pre-pandemic recovery in mobility demand. Many cities are actively deploying new technologies in the field of urban transportation. The creation of new urban and mobility values through slow urban development has begun in many European countries and is producing positive results.

5. Research on regional mobility diagnostic guidelines

In order to develop a diagnostic method that captures the actual conditions of people's mobility in a region, including new mobility services, we conducted a literature and web review on the status of urban transportation planning in Europe and the United States and the actual conditions of the use of indicators in planning, and found the followings.

-Evolution of urban transportation planning technology

In Europe and the U.S., indicator (data)-based transportation planning and practice have been developed as a framework for transportation policy for more than a decade, and are steadily taking root in practice. The policy objectives at the national and city community level are clearly stated, and the transportation policy of a city area functions under these objectives.

-Importance of Indicators in Urban Transport Planning

In the EU, 19 indicators are presented as the Sustainable Urban Mobility Index, and harmonization is being promoted by clarifying the definitions of the indicators to enable inter-city comparisons. In the U.S., although targets are presented at the national level, urban areas are instructed to set their own targets, but by presenting "planning elements" in the law, the basic indicators are designed not to be omitted.

-Urban management with indicators linked to the emergence of new mobility services

Data acquired in connection with new mobility services, although not easily handled by the government, is recognized as important as an indicator of urban transportation performance, and efforts to establish data governance are being promoted as a pressing issue. The data governance system is a pressing issue in the field of urban transportation. In Europe and the U.S., indicators are set from the perspective of the

citizens who enjoy transportation services and the health of cities, and measures are developed based on these indicators.

6. Practice of Tactical Mobility Re-Design

In the first year of the project, we conducted demonstration experiments in Kurayoshi City, Tottori Prefecture, and Higashi Izu Town, Shizuoka Prefecture, as use case areas, to understand the effects and issues, and to clarify the challenges that the local communities face in implementing the system. In addition, we investigated the status of specific coordination in breaking through various issues, and identified specific bottlenecks and the key points in breaking through them. In addition, we analyzed use case analysis, stakeholder interviews, and municipal survey results to identify the bottlenecks in understanding and addressing institutional and implementation issues.

Regarding public awareness and momentum building, the use cases revealed the process and the importance of continuing community-led initiatives, which will lead to the implementation of experiments and other measures as the understanding of traffic managers improves.

-Effects and Issues of Establishing Zone 20

Through the questionnaire survey conducted in the use case area, it became clear that the local residents generally understood the significance of the recommended travel speed of 20km/h on the route.

On the other hand, it was found that there are issues in developing indicators and methods for understanding the effects of this recommendation.

-Effects and Challenges of Introducing Low-Speed Mobility Services

The effectiveness of the coexistence of green, low-speed mobility services with pedestrians and other vehicles was highly recognized by the users of the demonstration in the use case area through questionnaires and other means. On the other hand, the analysis of interviews with the entities implementing the use case and interviews with related parties revealed the issues of vehicle standard categories, driver's license issues, and the limit of profitability due to fares.

-Management: Inspiring Town Development Effects and Challenges

While the demonstration in the use case area revealed the effectiveness of integrating people-first transportation with urban development, it also revealed the issue of lack of social recognition.

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