FUJITSU

Osakikamijima, Hiroshima Prefecture

Creating a new mode of transport for the inhabitants of remote islands

The population decrease in regional areas of Japan is accelerating, due partly to longer life expectancy, leading to low birthrates, and the growing concentration of younger people into urban areas. In regional areas, some public transport routes have been discontinued due to unprofitability and a lack of personnel, raising concerns about a deterioration in the quality of life in those areas. In response to these important social issues, Fujitsu has proposed a new transportation and distribution service that combines an on-demand mobility service with self-driving technology. In Osakikamijima in Hiroshima, Fujitsu conducted a proof of concept to test whether the service could provide daily transport for residents, and also a means of mobility for tourists visiting the island.

Challenge

Osakikamijima has a decreasing population and is facing the risk of losing its public transport network. A growing number of its residents have difficulty driving their own cars due to ageing. A new means of transport is needed to replace the existing public transport network and to support daily lives.

Solution

- Pick-up and drop-off service, using self-driving vehicles, combining on-demand traffic and self-driving technology, also enabling users to make reservations by phone or online.
- Delivery service using self-driving vehicles arranged by the providers of home delivery items, based on orders placed by residents.

Outcomes

- In light of the experience gained from the initial pilot activities, Fujitsu is now expanding the demonstration, introducing more applications and partners in order to realize a Mobility as a Service (MaaS) solution that supports people's lives on remote islands.
- In addition to addressing the transport challenge, Fujitsu will continue its ongoing collaboration with the town to explore how ICT can help solve wider problems facing remote communities.

> "As our population ages and the birthrate falls, maintaining the public transport required to support our residents' daily lives has become a major challenge for us. The island's residents need the new approaches to transport and distribution made possible by advanced ICT."
>
> **Yukinori Takata,** Mayor of Osakikamijima

Driving the future of mobility

Trying to maintain islanders' daily means of transport, despite the challenges faced.

"Although the situation may be the same in all towns on remote islands, devising a way to maintain the daily means of transport is a particular issue in our town. Indeed, 80% of our residents cited 'inconvenient transportation' as the reason for not wanting to continue living here," said Yukinori Takata, Mayor of Osakikamijima. "We currently have buses for public transport, but their existence is under threat, due partly to the ageing of drivers as well as decreasing profitability as a result of our decreasing population. As a result, each individual resident needs a car. However, as the number of senior citizens turning in their driver's licenses has increased as they get too old to drive, we were very aware of the need for a new approach to public transport, for example for daily shopping, receiving outpatient care and so on. Therefore, when Fujitsu proposed a pilot project to address these challenges, it gave all the islanders a feeling of hope," he continued.

Fujitsu has been considering the creation of next-generation transport services to meet specific regional requirements for some time, as part of our program to address wider regional challenges through ICT. As part of these efforts, Fujitsu developed the Fujitsu Future Mobility Accelerator On-demand Mobility Service, which provides the best match between mobility service operators and users. While proposing this service to local governments nationwide, Fujitsu is continuing its research and development of new mobility services that exploit advanced mobility technologies such as self-driving.

When it was considering a pilot project for the service in 2020, the Ministry of Land, Infrastructure, Transport and Tourism invited applications for the Smart Island Promotion Demonstration Survey, a project to implement ICT and other cutting-edge technologies to address the specific challenges facing remote island communities. Fujitsu made proposals to a number of remote islands around leveraging the project, and as a result, it was decided to conduct an experiment in Osakikamijima.

Creating an ecosystem with local government, public transport and a research institution.

In order to implement the pilot project, Fujitsu created an ecosystem with industry, academia and government in the local community. Specifically, it established the Osakikamijima Town Smart Island Promotion Council, consisting of Osakikamijima Town, Sanyo Bus Corporation, National Institute of Technology Hiroshima College and Fujitsu Research Institute.

In the pilot project conducted in December 2020, the effectiveness of two services were confirmed. One of them is a pick-up and drop-off service using self-driving vehicles. When a user makes a reservation online or by phone, a self-driving vehicle arrives at the specified time and location to pick up and drop off the user. Such vehicles provide an effective service between the two ports in the island. Another service is a delivery service using self-driving vehicles. When an operator located in the areas surrounding the two ports receives an order for home delivery items, it makes a reservation for the delivery service online or by phone. A self-driving vehicle picks up the home delivery items and delivers them directly to the user's home.

About the customer

Osakikamijima is located near the center of the Inland Sea of Japan and is the only remote island in Hiroshima prefecture. The island is approximately 43 square kilometers in size with a population of 7,300 people. About 47% of these are aged 65 or above (April 2021), due to the decreasing population and the ageing of its residents. The town has been chosen by the Ministry of Land, Infrastructure, Transport and Tourism to participate in the Smart Island Promotion Demonstration Survey project, exploring how ICT, drone and other new technologies can help in remote island areas. The survey is focused on the unique challenges faced by remote island populations.

Both of these services are realized by combining Fujitsu's On-demand Mobility Service and call center service with the self-driving platform of PerceptIn Japan LLC, with whom Fujitsu collaborates through its venture support program Fujitsu ACCELERATOR. A feature of these services is their low cost, which is realized by using compact, two-seater vehicles.

Fig. 1) Overview of demonstration experiment
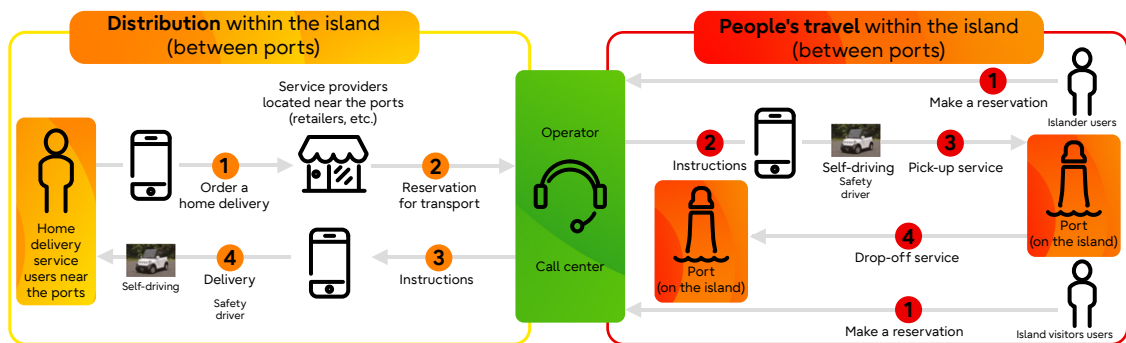
Supporting quality of life for an ageing society with a low birth rate.

The pick-up and drop-off service tested in the pilot was well received by the residents of the island who used it: "It would be wonderful if this were to be commercialized," "I'm amazed that I can travel without sitting behind the wheel," and "I was nervous because it was the first time I had been in a self-driving vehicle, but it was actually not bad." In light of the experiences gained from the pilot, the Osakikamijima Town Smart Island Promotion Council is planning ongoing verification by expanding the area of implementation, and the number of applications and partners.

Mayor Takata talks about his hopes for the realization of the services: "If these services are realized, you can go home safely even if you arrive at the port after the bus service has ended, making your life much more convenient. If we use them as a means of travel for tourists, we can expect them to contribute to the revitalization of the economy as a new selling point for the island." He continued by saying, "To achieve this, there are many challenges aside from the technical aspects that we must overcome, such as acquiring subsidies and developing laws and regulations. We expect that Fujitsu will continue to provide us with comprehensive support by leveraging its information capabilities and ability to create ecosystems."

In order to meet these expectations, Fujitsu aims to realize Mobility as a Service (MaaS), supporting the lives of people living on remote islands through ongoing collaboration, for example with local governments, companies and universities. Fujitsu will focus on realizing ICT solutions that address the many social issues faced by remote islands, from healthcare and welfare through to disaster prevention and the lack of industry.

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