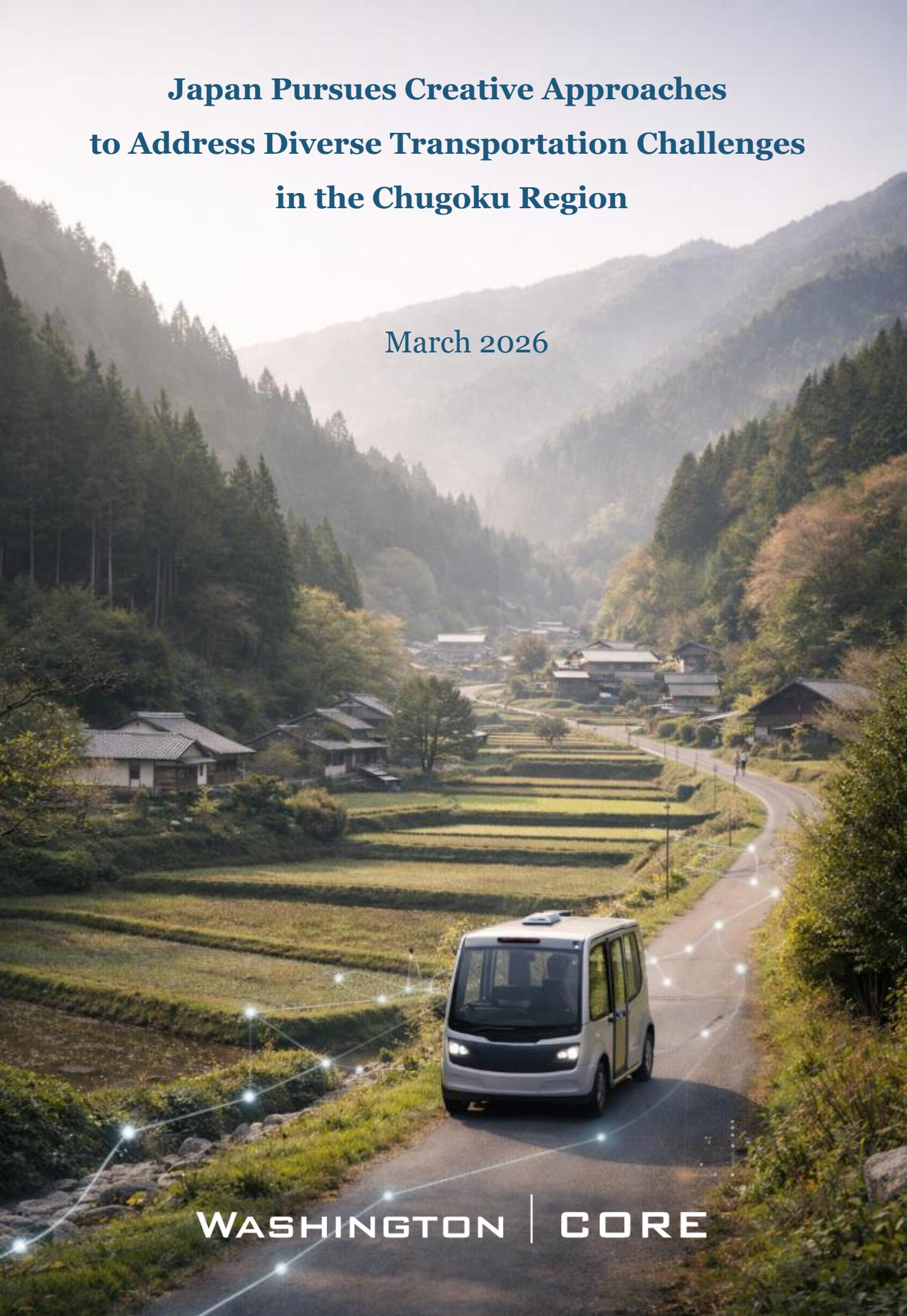


Japan Pursues Creative Approaches to Address Diverse Transportation Challenges in the Chugoku Region

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Japan is facing declining birth rates and a rapidly aging population. This has a pronounced impact in remote residential areas. Small dispersed towns, particularly in hilly and mountainous regions, have older residents who have difficulty accessing essential services. When residents lack a reliable means of transportation, they face increased social isolation which can trigger a negative chain reaction of reduced physical activity and declining health.

Traditionally, Japanese transportation systems have been designed and evaluated with the primary goal of maximizing economic efficiency and convenience. In recent years, however, such systems have proven insufficient, demonstrating the need for new approaches to designing and evaluating transportation. Innovative local initiatives emerging from the Chūgoku region's mountainous areas and Hiroshima City offer new approaches to transportation.

For this article, Washington CORE spoke with Professor Akimasa Fujiwara of Hiroshima University about how Japanese transportation services can contribute to people's health and well-being.



TAKUZO: A Shared Ride System using AI Technology Broadens Local Horizons

An on-demand ride service called "TAKUZO" has been launched in depopulated parts of Shimane prefecture. Unlike conventional ride-hailing services that prioritize the shortest distance and travel time to a destination, TAKUZO is a more flexible service that works to meet the needs of more than one passenger at a time in a given area. This may result in adjusted pick-up times or routes to address customer requirements.

For example, one passenger might agree to arrive at a medical appointment a little earlier than scheduled, while another might agree to a slight delay in their shopping trip. By consenting to modest adjustments, passengers collectively make it possible to satisfy everyone's travel needs.

TAKUZO's flexible system is based on an AI-powered, reservation-based shared taxi developed by Vital Lead, a company with extensive experience in public transportation. The system adjusts multiple reservations in real time, occasionally asking passengers to accept small changes to their departure or arrival times.

For same day booking requests, TAKUZO groups passengers heading in similar directions and calculates the most efficient shared route according to priority level; the optimized route is then transmitted directly to the driver's tablet.

Conventional on-demand transportation services have largely been designed for urban and suburban areas, aiming to maximize efficiency by reducing travel time and operating costs. In mountainous and sparsely populated regions, however, such models are not viable. Instead, TAKUZO emphasizes social optimization, based on users agreeing to time adjustments and building a mutual consensus.

Many reservation-based shared taxis in Japan's mountainous regions rely on public subsidies. Still, creating a model that is financially sustainable for transportation operators reduces the financial burden on local governments. And as Professor Fujiwara notes, "the fact that many users choose TAKUZO even though the fare is slightly higher than the bus shows that there is real demand."

TAKUZO is more convenient than public transportation but also offers opportunities for social connection not available in a traditional taxi if one was even available. Passengers can chat with one another during the ride, run into people they haven't seen in a while, or use the service to attend community activities. Professor Fujiwara notes the TAKUZO model has the benefit of energizing older adults.

In more remote areas, transportation options are limited, making older residents particularly vulnerable to social isolation. The TAKUZO shared taxi concept promotes conversation during rides, unexpected reunions with acquaintances, and facilitates travel to hot spring visits, festivals, community markets, craft workshops, and other local activities. Increased access in turn helps keep seniors socially engaged and active.

Users in the Ida district of Ōda City, Shimane prefecture, placing a reservation for a TAKUZO taxi.



Source: Promotional video for the AI-powered on-demand ride dispatch system, TAKUZO¹

“Ginzan Cart”: Moving Slowly, Enjoying Nature and Conversation

The “Ginzan Cart” is a unique mode of transportation operating in the Iwami Ginzan area of Shimane Prefecture, home to an Edo-period silver mine now designated as a World Heritage site. Visitors ride in small electric vehicles—recycled golf carts that can seat six passengers. These compact vehicles are highly maneuverable and travel at roughly the same speed as pedestrians and cyclists, so they can navigate narrow residential roads and alleyways with ease. Because they move at a leisurely pace, passengers have the opportunity to enjoy their surroundings.

Here, in addition to reaching their destination; passengers experience local sights, sounds and smells

Professor Fujiwara describes the Ginzan Cart as an example of “Green Slow Mobility,” a concept promoted by Japan’s Ministry of Land, Transport and Tourism. Unlike conventional transportation systems built on the assumption of high-speed travel, Green Slow Mobility represents a fundamentally different approach to movement. It is characterized by the following features: **green** (environmental performance)—electric vehicles that produce low CO₂ emissions and support low-carbon and decarbonized mobility; **slow**—traveling at under 20 km per hour, making it safe and allowing passengers to enjoy the scenery; **small**—compact vehicles capable of navigating narrow roads and areas inaccessible to community buses; and **open**—open designs ensure exposure to one’s surroundings and make getting on and off easy. Advocates emphasize that Green Slow Mobility can not only support sightseeing and visiting in tourist destinations but also everyday transportation needs, such as shopping or hospital visits people are no longer able to drive. The Green Slow Mobility concept can contribute to local revitalization and community sustainability.

during their journey. In this case, slow open-air travel allows passengers to absorb the environment. Professor Fujiwara explains that the relaxed pace increases the trip’s value—an inversion of the conventional notion that transportation should always aim to minimize travel time.

Ginzan Cart²



Ginzan Cart brochure³

石見銀山大森町
ぎんざんカート
Iwamiginzan Silver Mine Omori-Cho
Ginzan Cart

運行中

運行ルート

石見銀山世界遺産センター
石見銀山世界遺産センター 駐車場
料 400円 (無料)

龍源寺間歩
往路着地
復路発地

ぎんざんカート停車場所

- 大森代官所跡 (レンタサイクル河村前)
- 熊谷家住宅前
- 可並み交流センター前
- 銀山口自治会館前
- 大森
- 石見銀山公園
- 下河原吹屋跡
- 清水寺前駐車場
- 新切間歩
- 高橋家住宅 (龍源寺間歩)
- 龍源寺間歩入口

石見交通バス停

- 石見銀山世界遺産センター
- 上佐摩
- 大森
- 新町
- 大森代官所跡

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ルート上の好きなところで乗降できます。手を挙げてご利用ください。

石見銀山の町並み ゆっくりのんびり 正って観光

Official Tourism Website of Oda City, Shimane Prefecture

Professor Fujiwara discussing the significance of the demonstration



An autonomous bus operates in coordination with a streetcar



Source: Hiroshima University⁴

Hiroshima's Streetcars: Integrating with Autonomous Buses

During its postwar reconstruction, Hiroshima purchased large numbers of streetcars from cities overseas. Even today, Hiroshima Electric Railway (Hiroden) operates a diverse fleet of vintage and distinctive tramcars from both Japan and abroad. The sight of vehicles that once ran in Germany and other cities sharing the same tracks is so unusual that the system is sometimes called a “moving streetcar museum.” Hiroshima has one of Japan’s most extensive and heavily used streetcar networks. Building on this foundation, the city introduced a coordinated vehicle system that integrates streetcars with autonomous buses. In 2019, Hiroshima launched the world’s first pilot project to enable operational coordination between trams and buses. Using traffic signal data, GPS, and three-dimensional mapping, the system allows buses to automatically stop and go in sync with tram operations.

On sections where streetcars and buses run side by side, they share the same stops, enabling passengers to board or alight without needing to distinguish between tram or bus. From an operational standpoint, allowing buses to travel within the tram right-of-way allows them to bypass congestion-prone intersections.

More recently, a pilot operation of driverless buses has begun in northern areas of Hiroshima City, running between the nearest railway station and a hospital. At a time when both bus ridership and the number of drivers is declining, Hiroshima is attempting to prevent the emergence of “transportation deserts” and maintain comprehensive public transit coverage throughout the city.

Transportation Challenges and Perspectives in Mountainous Regions

The greatest challenge facing people living in Japan’s mountainous and rural regions is the limited transportation options available to them. Unlike in urban areas—where paying a higher fare provides access to faster and more comfortable services—residents of mountainous areas face a more fundamental constraint. With widely dispersed homes, many people cannot easily reach a bus stop for call a cab. In other words, there is a persistent “accessibility barrier.” Simply improving service quality along conventional lines does not translate into increased access to transportation.

The transportation context—and the values associated with it—also differ significantly between mountainous regions and cities. Around the world, policies have traditionally focused on reducing travel time and avoiding congestion. Yet for older adults living in rural areas, minimizing travel time may not be the top priority. Conversation and social interaction on a community bus may represent rare and valuable opportunities for connection among residents. In that light, shortening travel time does not necessarily create added value.

Professor Fujiwara also cautions that conventional transportation demand surveys require careful interpretation. Data based on passenger counts or fare revenue reflect only the voices of those who are already use the service. Behind the statistics lie numerous “unmet needs”—people who wish to travel but are unable to do so. Transportation and urban planning must therefore address this latent demand, not just the needs visible in existing usage statistics.

He further points out that Hiroshima City’s public transport-centered urban development, which may at first glance seem unrelated to rural mobility issues, is in fact closely connected to them. Resolving transportation challenges in remote mountainous regions requires more than simply upgrading services. Structural approaches—including encouraging residential concentration in more compact urban centers—are also necessary. In this respect, Hiroshima’s “hub-and-network” urban structure, built around public transportation, offers important lessons. Hiroshima’s streetcars, railways, and buses are more than just a means of transport; they embody the city’s history, culture, and vision for its future.

Distinctive Features of the Japanese Approach

Through these initiatives, Japan seeks to address a situation in which young people tend to be concentrated in cities while older adults remain in rural areas. The aim is to allow people to circulate within and between regions over the course of their lives. In Japan's transportation model, visible emphasis is placed on human relationships and mutual trust, while advanced technologies such as AI and autonomous driving quietly operate behind the scenes to support them. Rather than solely pursuing the maximization of economic efficiency, the Japanese approach is searching for a balance between efficiency and contentment.

Many countries around the world will soon confront shrinking populations. Japan's careful and deliberate efforts offer valuable insights to the world. When remote or aging populations lack access to transportation, they are often forced to stay home, triggering a negative chain reaction: reduced physical activity, increased social isolation, and ultimately a decline in health. Professor Fujiwara concludes that transportation should not be pursued merely as a system for moving people from place to place. Instead, it should be understood as a foundation that connects people to one another, sustains community life, and upholds human dignity particularly when faced with aging or remote populations.

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Akimasa Fujiwara



Professor, Graduate School of Advanced Science and Engineering, Hiroshima University. Born in 1960. Professor Fujiwara received his degrees in engineering from Hiroshima University and began his academic career in 1985.

After serving in research and teaching positions at the University of Tokyo and Hiroshima University, he became Professor in 2002. He served as Vice President of Hiroshima University (2020–2022) and is scheduled to become Professor Emeritus and Specially Appointed Professor in 2026.

His expertise includes transportation planning and urban engineering. He currently serves as President of the Eastern Asia Society for Transportation Studies (EASTS) in addition to holding other public service roles. His honors include the EASTS Yatsushima Best Paper Award.

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