Format

Development of a travel behavior model to evaluate end-user oriented public transport service

Project Leader
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Faculty Members Involved in This Project
None

1. Objective
This project is aimed at:
examination of (a) new public transport services and fares in a rural city which is trying to remove all barriers to the use of public transport systems, and (b) approaches such as Mobility as a Service (MaaS). This project focuses on developing suggestions for end-user oriented public transport services and fares in regions or cities needing to promote public transport utilization, and implementing those suggestions. The study topics related to this project include: development of travel behavior modeling for proposed public transport services; development of an AI model for prediction of the risk of trip frequency decline, based on 10 years' historical smart card data; and evaluation of the social equity of proposed public transport services. Use of the knowledge resulting from this project, and ways of social implementation of end-user oriented public transport service will be discussed.

2. Project Outline
To that end, the project will consist of the following phases:
(a) Development of a model of travel behavior for description and analysis of new public transport services and their frequency;
(b) Development of methodology for estimation of passenger elasticity for proposed public transport services and fares;
(c) Development of methodology for evaluation of social and spatial equity of suggested public transport service and fares; and
(d) Proposal of end-user oriented public transport services tailored to the conditions of the target region / city.

3. Expected Performance
In this project, the successful candidate would be expected to:
(a) Work independently to set hypotheses, develop a model, and evaluate road network management; and
(b) Provide supervision of public transport management.

4. Required Skills and Knowledge
The successful candidate for this project will have the following knowledge and skills:
(a) Knowledge of transport and infrastructure planning, and public transport management including the use of MaaS and statistics; and
(b) Skill in programming in languages including Python, R, and SPSS.

References

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2) An Minh Ngoc, Hiroaki Nishiuchi: Impact of High-Speed Rail on Social Equity−Insights from a Stated Preference Survey in Vietnam, *Sustainability*, Vol. 14, No. 2, 606, 2022.

3) Hiroaki Nishiuchi, Yasuyuki Kobayashi, Tomoyuki Todoroki and Tomoya Kawasaki: Impact Analysis of Reductions in Tram Services in Rural Areas in Japan using Smart Card Data, *Public Transport*, Vol.10, No.2, pp.291-309, 2018.

4) Hiroaki Nishiuchi, James King, Tomoyuki Todoroki : Spatial-Temporal Daily Frequent Trip Pattern of Public Transport Passengers Using Smart Card Data, *International Journal of Intelligent Transportation Systems Research*, Vol.11, No. 1, pp.1-10, 2013

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