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Smart Transportation in Small- and Medium-sized Cities in Central California

Project 2221
May 2023

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Introduction

The research on smart transportation in the United States has centered on large metropolitan areas. Have small- and medium-sized cities outside of large metropolitan areas also adopted smart transportation technologies? What technologies have they adopted? Are these smart transportation technologies effective in addressing the transportation problems in small- and medium-sized cities? What are the major barriers preventing small- and medium-sized cities from adopting more smart transportation technologies? This study addresses these research questions.

Study Methods

This study used three methodologies to collect data on the adoption of smart transportation technologies in the cities in Central California. We searched for relevant information on the websites of the municipal governments and metropolitan planning organizations (MPOs) in the study area. We conducted an online survey to collect data on smart transportation from the transportation professionals who worked for municipal governments and MPOs and conducted semi-structured interviews with seven transportation professionals. .

Findings

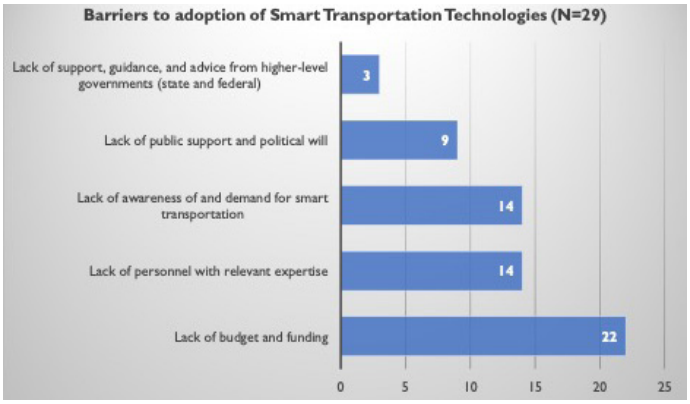
The study revealed several barriers to the adoption of smart transportation technologies in small- and medium-sized cities, including insufficient funding, limited staff capacity, a lack of coordination among small cities within a region, small population sizes, and low-density of development. The interviews suggested that some of these barriers, particularly the funding issue, were more complicated than they first appeared. First, transportation funding sources appeared to be plentiful, but many small- and medium-sized cities lacked the staff capacity to

prepare funding submissions. Second, the cities that received fixed-term smart transportation grants were unsure whether they would have enough money for maintenance and replacement once the grants expired. Third, the cities had difficulty building an integrated smart transportation system because transportation funds were distributed piecemeal and different parts of the system were purchased from different vendors. Most of the smart transportation projects were initiated by municipal government departments. Public participation was limited to gathering feedback and learning about users' experiences following the implementation of smart transportation. Although they were still uncommon, new public, private, and nonprofit partnerships emerged in the study area to provide low-income families with affordable shared mobility.

The major barriers to the adoption of smart transportation technologies in small- and medium-sized cities include insufficient funding, limited staff capacity, a lack of coordination, small populations, and sprawl development.

Policy/Practice Recommendations

Based on our analysis, we offer four major policy recommendations. First, small cities within a region may overcome many of their disadvantages by forming a strong regional alliance directed by local MPOs and guided by a regional smart transportation plan. Second, MPOs and their city members should make long-term plans to create an integrated smart transportation system that is easier to coordinate, maintain, and upgrade. Third, federal and state funding agencies may offer longer-term grants for smart transportation with a consideration of regional equity. Fourth, the federal and state departments of transportation should provide more learning opportunities on smart transportation for transportation officials and professionals in small- and medium-sized cities.



About the Author

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Dr. Dong is a professor in city and regional planning at California State University, Fresno. His research and teaching focus on transportation and land use, real estate and housing, and healthy and smart cities.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2221

MTI is a University Transportation Center sponsored by the U.S. Department of Transportation's Office of the Assistant Secretary for Research and Technology and by Caltrans. The Institute is located within San José State University's Lucas Graduate School of Business.