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Potential Implications of Automated Vehicle Technologies on Travel Behavior

Current Situation

Automated (self-driving) vehicle (AV) technologies hold the promise to transform the ways we live and travel. AV technologies are still evolving; what is available today is only a fraction of what is promised of fully automated vehicles. Although there is a general consensus that the era of driverless cars is coming and probably at an accelerated speed as the technologies mature and the regulations pan out, it is still hard to imagine how it will change individual lives and the society as a whole based on today's realities. Before these cars make their way into American households, it is challenging to fully understand the potential impacts of these technologies. This study is designed to provide new insights into choice of travel mode in the upcoming age of shared mobility and automated vehicles.

AV technologies and shared mobility services may forever change how we live and travel.

Research Objectives

Florida International University researchers designed and implemented a nationwide stated preference (SP) survey to understand the impacts of emerging services and vehicle technologies on mode choice behavior.

Project Activities

Through an online survey conducted in April and May 2017, researchers collected responses from 1,394 individuals, covering ten major metropolitan areas across the country as well as the state of Florida. The survey targeted US 2010 Census representative samples in terms of age, gender, household income, education, and ethnicity, with over-sampling for age group 16 to 34. The survey questions ranged from personal and household characteristics, to personal attitudes toward shared mobility and AV technologies, to SP scenarios on mode choice.

Based on the survey responses, the study provided a comprehensive scan on current mode choice patterns and the factors and preferences that contributed to mobility decisions. The researchers used SP choice experiment to gauge how travelers evaluate the trade-offs between emerging modes (ride-sourcing, AVs) and conventional modes (private vehicles and public transit). In this context, AVs were incorporated into shared mobility options by reducing operation cost of ridesourcing services and time spent in parking and access/egress. Multinomial logit models were developed to provide additional insight in contributing factors to travelers' mode choice behavior.

Project Benefits

Better understanding of the likelihood and extent of behavioral changes in light of emerging mobility options will better prepare the agency to incorporate emerging mobility service and vehicle technologies considerations into the planning process, and lead to more efficient and effective policy and investment decisions.

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