AUTOMATION AND ACCESSIBILITY FOR UNDERSERVED PEOPLE & COMMUNITIES: SETTING THE STAGE

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SAV Impacts: Opportunities & Challenges

Opportunities

- Multi-modal platforms
- Increase vehicle occupancies; right sizing
- More efficient routing
- Reduce per mile cost (over privately owned vehicles)
- Unlock urban space dedicated to parking
- Downsize number of privately owned household vehicles
- Reduce GHGs & local emissions

Challenges

- Social equity issues
- Increased VMT / induced demand
- Increased congestion
- Modal shifts away from public transit
- Will people pool & give up private ownership?
- Increased urban sprawl/mismatch
- Labor/workforce
- Safety and security
- Data privacy and access

Accessibility

- Accessibility = ease with which persons can reach places/opportunities from a given location; understood as interplay among people, transport systems, and land use (i.e., benefits) and barriers to accessibility (i.e., harms)
- Goes beyond a utilitarian view typically found in transportation planning, linked closely to cost-benefit analysis in determining infrastructure investments (efficiency)
- When transport emphasizes *efficient* movement, it becomes disconnected from wider meaning of streets, neighborhoods, communities; it ignores valuing diverse persons' livelihood, well-being, and health
- Go beyond principle of fairness and include mobility justice

Sheller, 2018

Six Common Equity Challenges

- *Affordability*: "It's too expensive."
- *Predictability*: "Will dynamic or surge pricing make it too expensive?"
- *Availability*: "The services aren't available in my neighborhood."
- *Payability*: "I don't have an acceptable payment method."
- *Accessibility*: "The service isn't accessible for my medical condition."
- *Techno-ability*: "I don't have a smartphone or a data plan."

Shaheen and Cohen, 2018

Equity and Access Considerations for SAVs

- SAVs should be equally accessible and available to everyone. For example, policies are needed to ensure access for:
  - People with disabilities,
  - Un- and under-banked households,
  - Low-income communities,
  - Households without access to smartphones or mobile data, and
  - Others
- Policies should ensure driverless vehicles preserve and enhance access to jobs, healthcare, healthy foods, and other critical services for all users
- Prevent discrimination and bias from machine learning and other systems that impact or guide the operations of driverless vehicles (e.g., reinforcing historic bias and discrimination)
- Carefully consider business models that may exchange free services for personal data
- Impacts on public transit – complement or competition?

How Could Spatial Differences Impact SAV Access and Mobility?

- SAVs may be able to address spatial inequality in areas with limited alternatives to private vehicle ownership
- Strategic placement of SAVs in communities underserved by public transit could reduce inequities by providing additional mobility options that have greater coverage and service availability than existing options
- Not all users have access to a smartphone or debit/credit cards that are commonly required for payment as part of app-based and on-demand mobility services.
- Broadband issues
- Curb access for ADA communities

Public & Private Sectors Collaborating to Enhance Accessibility

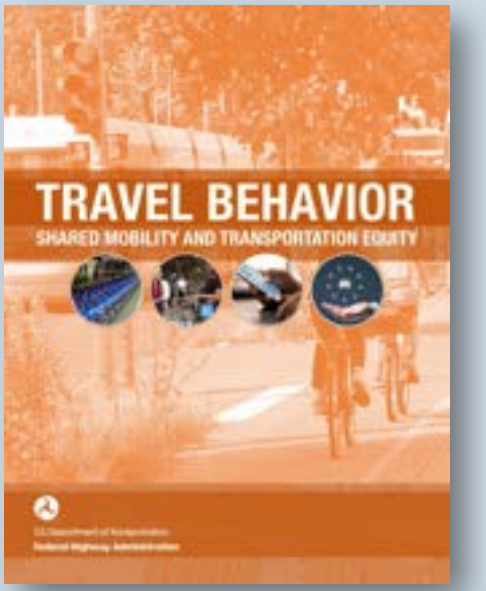
- Provide alternative methods of service access for people without smartphones or credit/debit cards (e.g., digital kiosks; cash payment; partnerships enabling the billing of mobility services on other bills, such as utilities)
- Implement policies and services that target, overcome, and mitigate equity concerns (e.g., ADA access, service accessibility issues, and services that help to cross the digital and income divide).
- For example, New York City has deployed LinkNYC, a network of ADA-compliant digital kiosks that offer free Wi-Fi, free calling in the U.S., maps, navigation, public transit information, and other digital information services. Kiosks reduce need to own a smartphone or maintain a data plan.

Meaningful Access & Equivalent Service for Underserved People

- Encourage mobility applications that improve access to jobs, healthcare, and education for all members of society
- Ensure equivalent level of service for special populations and users with special needs (e.g., low-income communities, minority neighborhoods, people with disabilities, etc.)
- Equivalent level of service means level of service (e.g., availability, frequency, wait time, journey time) for special populations (e.g., people with disabilities) is equivalent to level of service with non-special needs users (e.g., individuals without disabilities)


STEPS to Transportation Equity Framework

- **Spatial Effects**
- **Temporal**
- **Economic**
- **Physiological**
- **Social**



Shaheen et al., 2017

https://www.fhwa.dot.gov/policy/otps/shared_use_mobility_equity_final.pdf

Other Resources

https://www.nap.edu/catalog/25359/socioeconomic-impacts-of-automated-and-connected-vehicles

https://escholarship.org/uc/item/1k71f2vv

Thank you

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