EQUITY OF INNOVATIVE AND EMERGING TRANSPORTATION SERVICES

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PRESENTATION OVERVIEW

• Setting the Stage
  • Mobility on Demand (MOD) and Mobility as a Service (MaaS)
  • Role of Public-Private Partnerships
  • State of the Industry

• Social Equity: Opportunities and Challenges

• What’s Next?
  • Emerging Technologies
  • Potential Recovery Outlooks
  • Unanswered Questions

• Additional Resources
Mobility on Demand
A concept based on principle transportation is a commodity where modes have economic values that are distinguishable in terms of cost, journey time, wait time, number of connections, convenience, and other attributes.

It enables consumers to access mobility, goods, and services on-demand by dispatching or using shared mobility, delivery services, and public transportation through an integrated and connected multimodal network.

Mobility as a Service
An integrated mobility concept emerging where travelers can access transportation modes over a single digital interface.
MAAS DEVELOPMENTS IN EUROPE

• Approximately two dozen MaaS apps around the world with various features; most in Europe (e.g., Moovit, Transit App, Citymapper, etc.)

• Many offer:
  • Real-time information
  • Multimodal trip planning
  • Booking and ticketing

• Ability to purchase shared mobility services, bundled packages, and one fare for multimodal journeys is still limited to a handful of providers (e.g., Whim and Ubigo)
MOBILITY

Passengers & Goods

ON DEMAND

Commodification
COMMON MOD PARTNERSHIPS

Engage & Implement:
- Identify Gaps
- Select MOD Model
- Decide Subsidy Limits
- Set Goals & Data Needs
- Choose Partners
- Market Pilot
- Collect Data
- Adjust Pilot
- Plan

- First-and-Last Mile
- Low Density
- Off-Peak
- Paratransit
- Others …
MOD PUBLIC-PRIVATE PARTNERSHIPS IN THE U.S.
STATE OF THE INDUSTRY

- Reduced schedules, routes, operating hours; social distancing, free transit/suspended fares
- Agencies confronted with difficult choice of reducing capacity or increasing crowding and rebuilding traveler trust
- Telecommuting is having a particularly adverse impact on the fiscal performance of rail transit
STATE OF THE INDUSTRY

• Growth in food/goods delivery driving new curbspace policies
• Suspended pooled ride options due to COVID-19 transmission concerns
• Dramatic declines in TNC use; some increase in micromobility use
• COVID may be contributing to longer micromobility trips, enabling new use cases
• Opportunities for long-term investments in active transportation infrastructure
SOCIAL EQUITY

• MOD and SAVs may enhance accessibility for underserved communities, but they may also create or contribute to inequities

• Studies have found that the users of shared mobility tend to be younger, wealthier, and less diverse than the general population (on average)

• Physical and digital accessibility are key for MOD or SAVs

• Public sector can play an important role in ensuring equitable access through regulation and legislation

STEPS Equity Framework

Spatial barriers create physical gaps in the transportation network, such as limited service availability in a particular area, excessively long distances between destinations, and lack of public transit within walking distance.

Temporal barriers create gaps in the transportation network during particular travel times, such as the inability to complete trips during off-peak hours or late nights due to lack of services (e.g., long public transportation headways).

Economic barriers include financial challenges, such as high direct costs (e.g., fares, tolls, vehicle ownership), indirect costs (e.g., smartphone ownership), and structural barriers (e.g., banking access) that may preclude users from using MOD.

Physiological barriers include physical and cognitive limitations that make using standard transportation modes or digital platforms difficult or impossible for certain individuals (e.g., people with disabilities, older adults).

Social barriers include social, cultural, safety, and language challenges that may inhibit a potential rider’s comfort with using transportation modes and services (e.g., poorly targeted marketing, lack of multi-language information, neighborhood crime).
SOCIAL EQUITY

• Common Challenges:
  • Accessibility: “It’s not ADA accessible”
  • Affordability: “It’s too expensive”
  • Predictability: “Will surge pricing make it too expensive?”
  • Availability: “The services aren’t available in my neighborhood”
  • Payability: “I don’t have an acceptable payment method”

• Digital poverty

• Bias may also be built into algorithms and artificial intelligence employed in MOD and SAV services
Vehicle Automation - Key Question(s)

- Should all AVs be accessible?
- How do you provide assistance to people with disabilities?
  - Should assistance be at the origin, en-route, and destination?
  - Does it need to be human? Or could AI and robotics augment or replace?
- How do you define equivalent level of service?
- How should access for digitally impoverished/unbanked users be addressed?
SOCIAL EQUITY

Potential Policies and Strategies

- Minimum accessibility requirements (apps, vehicles, and pick-up and drop-off locations)
- Centralized dispatch
- Public kiosks
- Cash payment
- Accessibility fees to fund paratransit
- Personalized assistance/mobility concierge
- Others
LABOR IMPACTS

• MOD contributing to employment growth within some parts of transportation sector, disrupting other jobs, and in some cases creating downward wage pressure

• Impacts of automation on labor are similarly uncertain

• Workforce development programs may be able to aid in transitioning existing drivers into other roles and/or industries
WHAT’S NEXT?
ADVANCED AIR MOBILITY

• Passenger mobility, goods delivery, emergency response, and other use cases using a variety of manned and unmanned aircraft

• Several studies estimate profitability for passenger mobility and goods delivery in the late 2020s and early 2030s

• Equity Issues:
  • ADA access
  • Affordability
  • Impacts on disadvantaged communities
  • Workforce and economic development
POTENTIAL OUTCOMES FOR SHARING AND AUTOMATION IN DIFFERENT BUILT ENVIRONMENTS

Adapted from: Deloitte
LONG-RANGE VIEW ON AVs AND AAM

Built environment could change in three ways:

• Density of urban centers could increase
• Suburban and exurban areas may also expand
• A reduction in parking is likely
ROLE OF THE BUILT ENVIRONMENT AND INDICATORS TO WATCH

Existing and New Home Sales
• National Association of Realtors (NAR) Sept 2020 - Existing home sales rose 2.4%
• New Home Sales – YoY Increase of 43%

Housing Affordability
• Increasing affordability due to low interest rates

Telework Ready Counties
• NAR’s telework ready counties tend to be suburban and exurban

Growth of E-Commerce and Changing Consumption Patterns
• Q2 retail sales decline of 3.9%; E-commerce accounted for 16.1% of total sales
• Potential shifts in spending to durable goods and home improvement
POTENTIAL FOR REGIONAL MIGRATION DUE TO COVID AND TELEWORK

Figure 10 - Rent Change from March to September in 2019 & 2020

Source: https://www.apartmentlist.com/research/national-rent-data

Source: USDOT
IMPACTS OF TELEWORK

Source: USDOT
POTENTIAL RECOVERY SCENARIOS BY MODE (ESTIMATES)

Source: USDOT
SCENARIO OF CHANGE IN DEMAND RELATIVE TO 2019 (%)

Table 2 - Travel Recovery Scenarios, Comparison with 2019

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Source: USDOT
UNANSWERED QUESTIONS

Consumer Behavior
• How will health and economic crises impact consumer confidence, household income, travel behavior, and consumption patterns?
• Will households “de-urbanize” and move away from cities?
• Will consumers resume brick-and-mortar retail and travel after health crisis?
• What happens if a vaccine is ineffective or people refuse to take it?

Public Transportation
• How can public transit & shared mobility help all travelers, particularly vulnerable populations?
• What happens if public transit doesn’t recover? What impacts will this have on transit’s most vulnerable users?
• How do public transit agencies rebuild trust and confidence?
• What measures are needed to keep public transit fiscally solvent?
• What are appropriate social distancing, cleaning, and PPE measures during the COVID recovery?
ADDITIONAL RESOURCES:
U.S. DEPARTMENT OF TRANSPORTATION (USDOT)

PRIMER ON SHARED MOBILITY

PRIMER ON SMARTPHONE APPS

SHARED MOBILITY AND EQUITY

MOBILITY ON DEMAND PLANNING AND IMPLEMENTATION
https://rosap.ntl.bts.gov/view/dot/50553
ADDITIONAL RESOURCES: USDOT, AMERICAN PLANNING ASSOCIATION, AND NATIONAL ACADEMIES PRESS

MOBILITY ON DEMAND OPERATIONAL CONCEPT
https://rosap.ntl.bts.gov/view/dot/34258

PLANNING FOR SHARED MOBILITY
https://www.planning.org/publications/report/9107556/

BETWEEN PUBLIC AND PRIVATE MOBILITY: EXAMINING RISE OF TECHNOLOGY-ENABLED TRANSPORTATION SERVICES
https://www.nap.edu/catalog/21875/

MILLENNIALS AND MOBILITY: UNDERSTANDING MILLENNIAL MINDSET AND NEW OPPORTUNITIES FOR PUBLIC TRANSIT PROVIDERS
http://www.trb.org/Publications/Blurbs/169527.aspx
THANK YOU

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