Methods of Measurement and Reporting of Emerging Modes of Travel

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- Motivation

- Overview of Emerging Transportation Modes

- Ridehailing and Ridesharing

- Micromobility

- Telemobility

- Connected and Autonomous Vehicles

- Conclusions

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- Understand demographics and behavior of emerging modes users to better plan transportation and land use

- Challenge: comprehensive data sources on emerging modes are lacking

- Objective: Catalog existing data and make recommendations about potential sources and methods
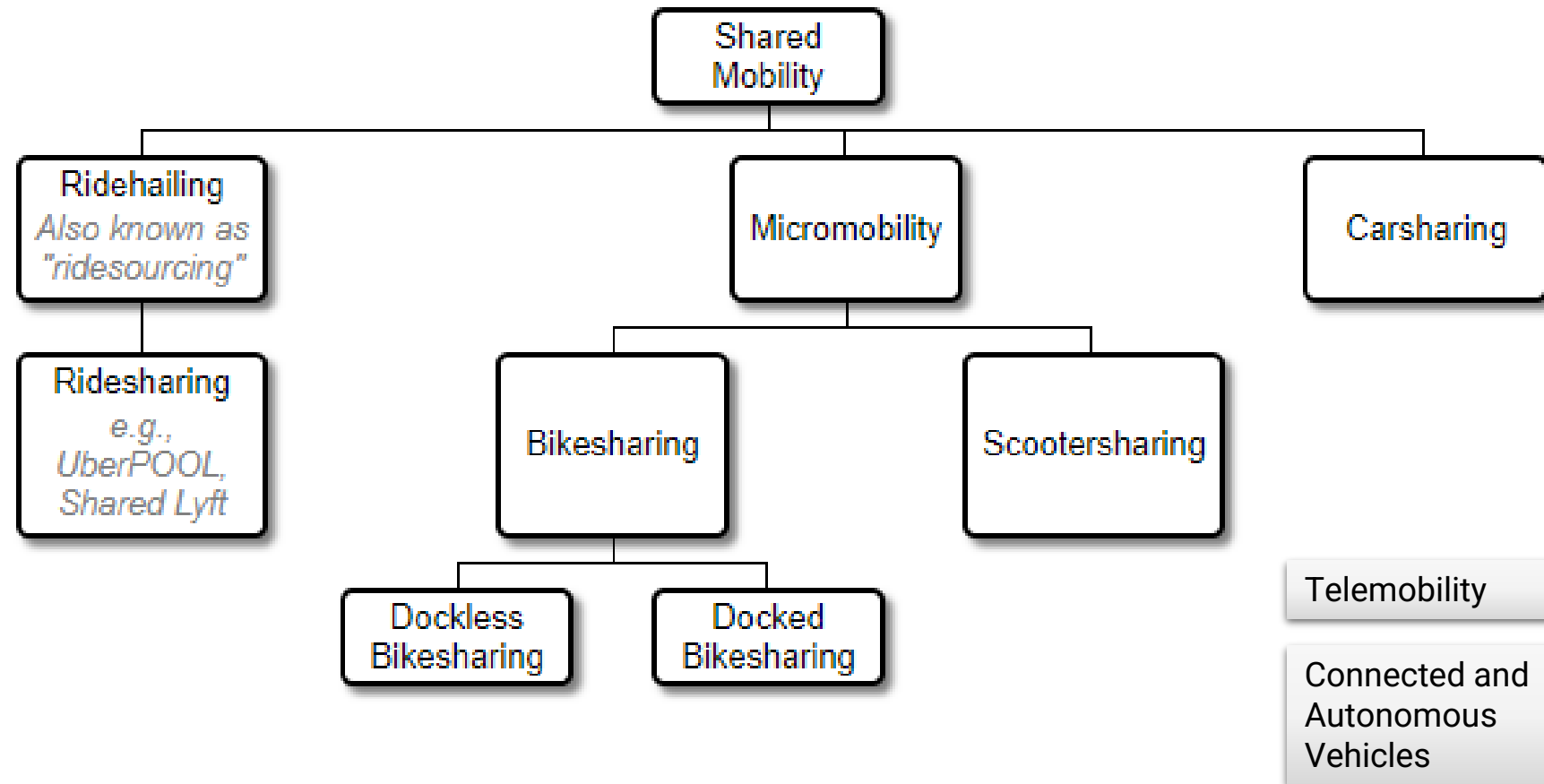
- In 2017, transportation network company (TNC) and taxi trips made up 0.5% of all person-trips nationally

- TNC users are mostly located in large, densely populated metropolitan areas and are predominantly affluent, well-educated, and young

- They also tend to use more transit and non-motorized modes and have lower vehicle ownership

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Data sources:

- NHTS (trip purposes, demographics)

- BLS (monthly transportation expenditure)

- LEHD QWI (worker demographics and wages)

- Surveys

- Self-published TNC data

- Aggregated TNC data (SharedStreets)

- Data collected from public TNC APIs

- Local/state government data

- Cell phone probe data

- Shared bicycles, electric scooters, and electric pedal-assisted bicycles are used mainly for short trips of 1 to 1.5 miles

- Surveys provide some insight about usage and demographics for specific systems. One reported that up to 45 percent of users would have used a ridehailing vehicle if a scooter was not available. Others found that scootershare users are more likely to be young and male.

Existing Data Sources:

- GBFS

- MDS

Potential Data Sources:

- NABSA

- NHTS

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- Pre-Covid – less than 5% of Americans worked from home primarily (ACS)

- People who worked from home every day of the work week increased from 8 to 35 percent between February and May 2020, while the share of respondents with a daily physical commute fell from 75 to 51 percent over that same period (Federal Reserve Bank of Dallas).

- Survey data from the May through December period of 2020 compared to the same period of 2019 found that the percent of employed people working from home on days that they worked increased from 22 percent in 2019 to 42 percent in 2020 (2020 American Time Use Survey)

Data Sources:

- ACS

- NHTS

- Surveys

- Between 2011 and 2017, 22 states passed laws related to CAV use. Many of these laws have enabled local governments to establish their own rules and programs for CAV pilots.

- According to the U.S. DOT's Interactive Connected Vehicle Deployment Map, in 2021, there were 77 operational CV deployment locations spread across 27 states. In addition, a further 102 planned CV deployments spread across 30 states.

- Some experts are predicting CAV data generation levels as high as 30 terabytes per vehicle per day for higher-level autonomous vehicles.

- These emerging data streams could provide transportation agencies with real-time data to support planning and improve traffic operations.
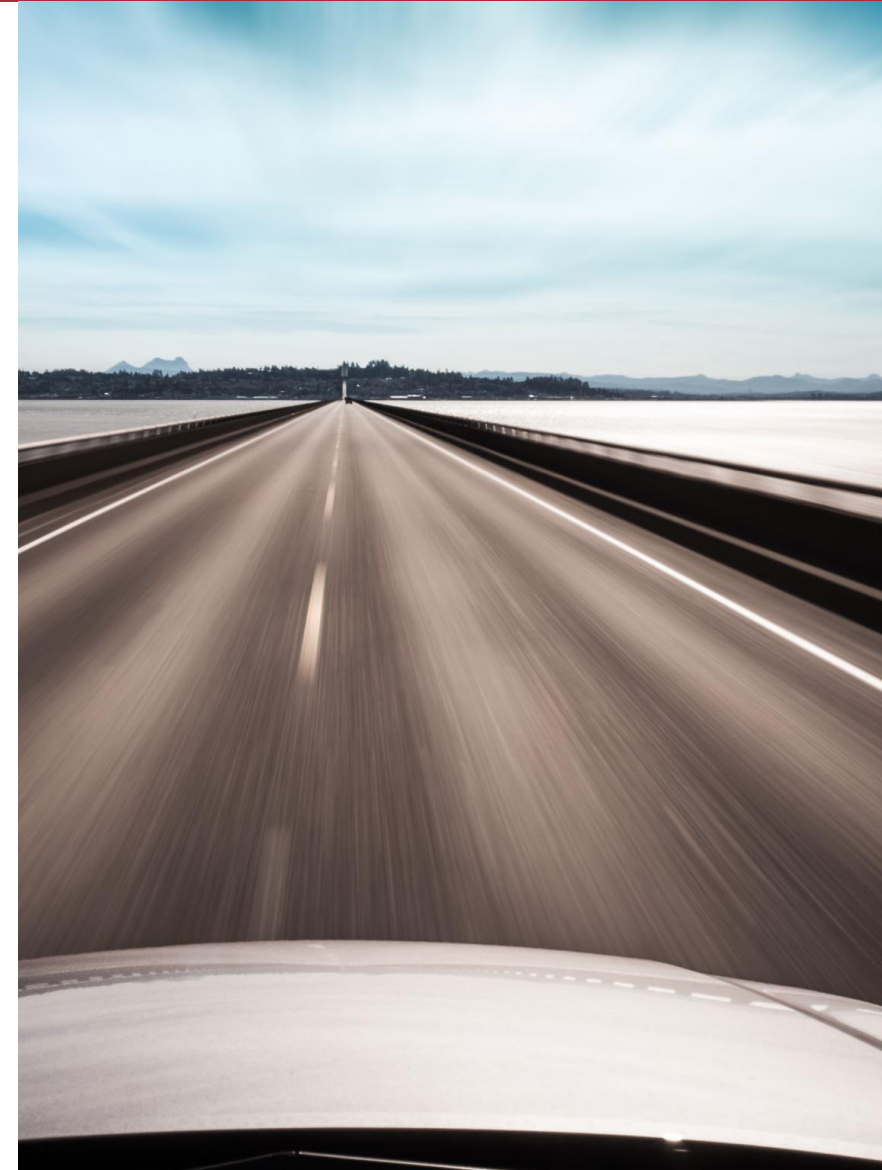
- Usage data on emerging modes reveals equity gaps. In particular, ride-hailing is more common among young, educated, and affluent individuals.

- Consistent, nationwide datasets on emerging modes are lacking, although GBFS and MDS provide a good starting point for micromobility data.

- Collecting data across emerging modes requires new data collection methods and analysis techniques (particularly in the case of CAV data).

- The benefits of collecting data on emerging modes are significant, including having access to detailed and realtime information on mobility patterns.

Thank you!

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