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**Automated Road Transportation Symposium**

# Sharing Rides in Ridehailing Services and Autonomous Vehicles *Insights from TOMNET T4 Survey*

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*School of Sustainable Engineering and the Built Environment*

*2021 TRB Annual Automated Road Transportation Symposium*

*Workshop: Sharing AVs: Policies and Impacts in a Post-COVID World*

*Monday, July 12, 2021*

**ASU** Ira A. Fulton Schools of  
**Engineering**  
Arizona State University

 **TOMNET Transportation Center**  
Teaching Old Models New Tricks

# Background

- True ridesharing currently has a very small mode share

Question:

- Will MaaS and AVs help enhance ridesharing?



# Study Purpose

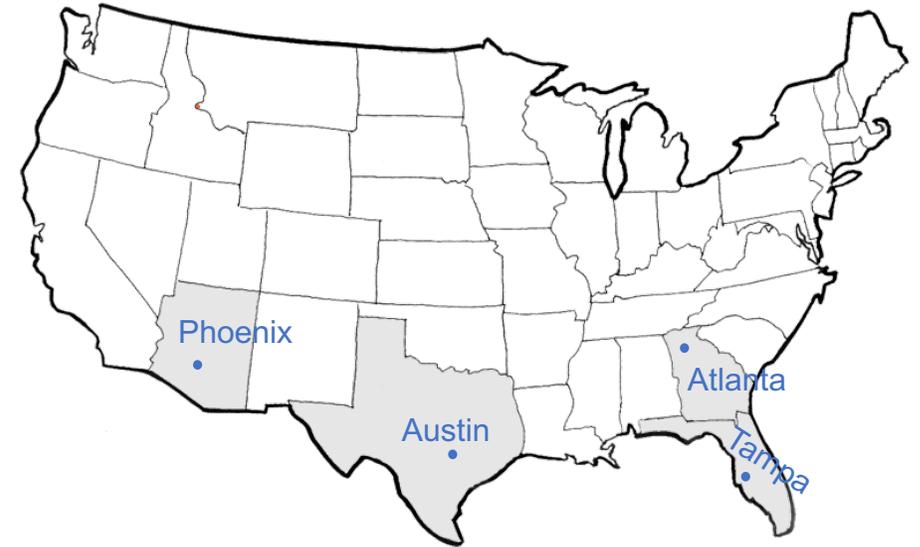
Provide a better understanding of preferences for ridesharing in a future of automated ridehailing

# Survey Team



# TOMNET D-STOP Transformative Technologies in Transportation Survey (T4 Survey)

- Phoenix, Atlanta, Austin, and Tampa metro areas
- Summer and Fall 2019
- Random address-based sample with online instrument
- Comprehensive attitudinal survey on MaaS and AV
- Weighted to better represent Census distributions



	Phoenix, AZ	Atlanta, GA	Austin, TX	Tampa, FL	Total
<b>Sample Size</b>	1,027	944	1,127	260	<b>3,358</b>
<b>%</b>	30.6%	28.1%	33.6%	7.8%	100%

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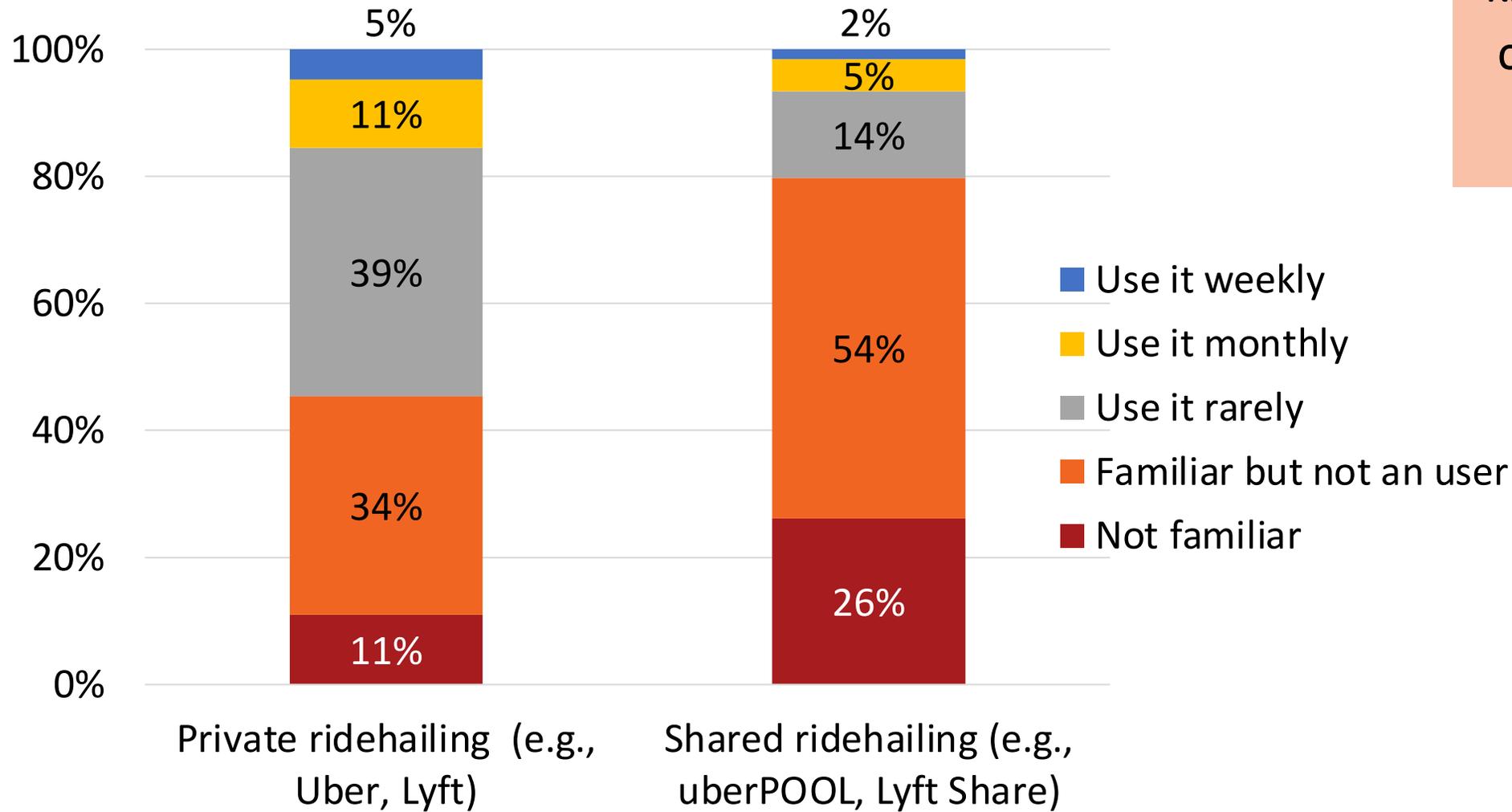
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*Revealed Behavior and Attitudes Towards Shared Ridehailing Services*

# Familiarity with Ridehailing Services



Shared services are less known and less used in comparison to private ridehailing

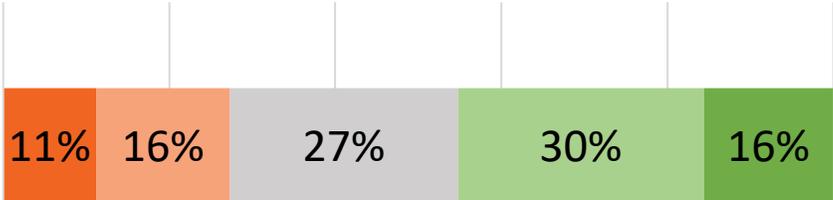


N=3358

# Attitudes towards Shared Ridehailing

■ Strongly disagree 
 ■ Somewhat disagree 
 ■ Neutral 
 ■ Somewhat agree 
 ■ Strongly agree

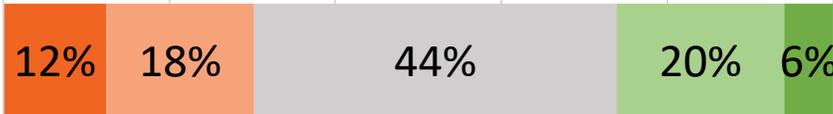
Traveling with a driver I don't know makes me feel uncomfortable. (N=3298)



For shared ridehailing (e.g., uberPOOL, Lyft Share), traveling with unfamiliar passengers makes me uncomfortable. (N=3298)



The lower cost of shared ridehailing (e.g., uberPOOL, Lyft Share) is worth the additional time picking up and dropping off other passengers. (N=3298)



More than 50% are uncomfortable sharing rides with strangers and only about 25% feel the lower cost is worth the additional time



# Ridehailing: Willingness to Share

## Last actual ridehailing trip\* (N=1,219)

- 12% chose to share
- Low income shared at a rate twice that of high income
- Women shared 1.5 times more than men
- Frequent users shared 1.4 times more than infrequent users

*\*Shared ridehailing only for Austin and Atlanta*

*\* Frequent= monthly or higher*





## Private Ridehailing Trips

Most common trip purpose:

*social/recreational*

Most cited alternative mode: *taxi/drive alone*

## Shared Ridehailing Trips

Most common trip purpose: *shopping/errands*

Most cited alternative mode:

*ride the bus/ride with others*



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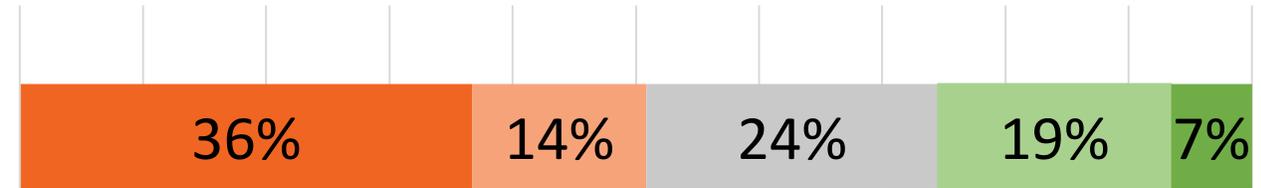
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*Intentions and Attitudes towards  
Shared Ridehailing Services Using  
Autonomous Vehicles*

# Attitudes towards Shared AV Ridehailing

■ Strongly disagree ■ Somewhat disagree ■ Neutral ■ Somewhat agree ■ Strongly agree

I would feel comfortable leasing my personal AV to ridehailing companies so that I can earn money when I am not using it. (N=3358)



I will use AV ridehailing services with other passengers I don't know. (N=3358)



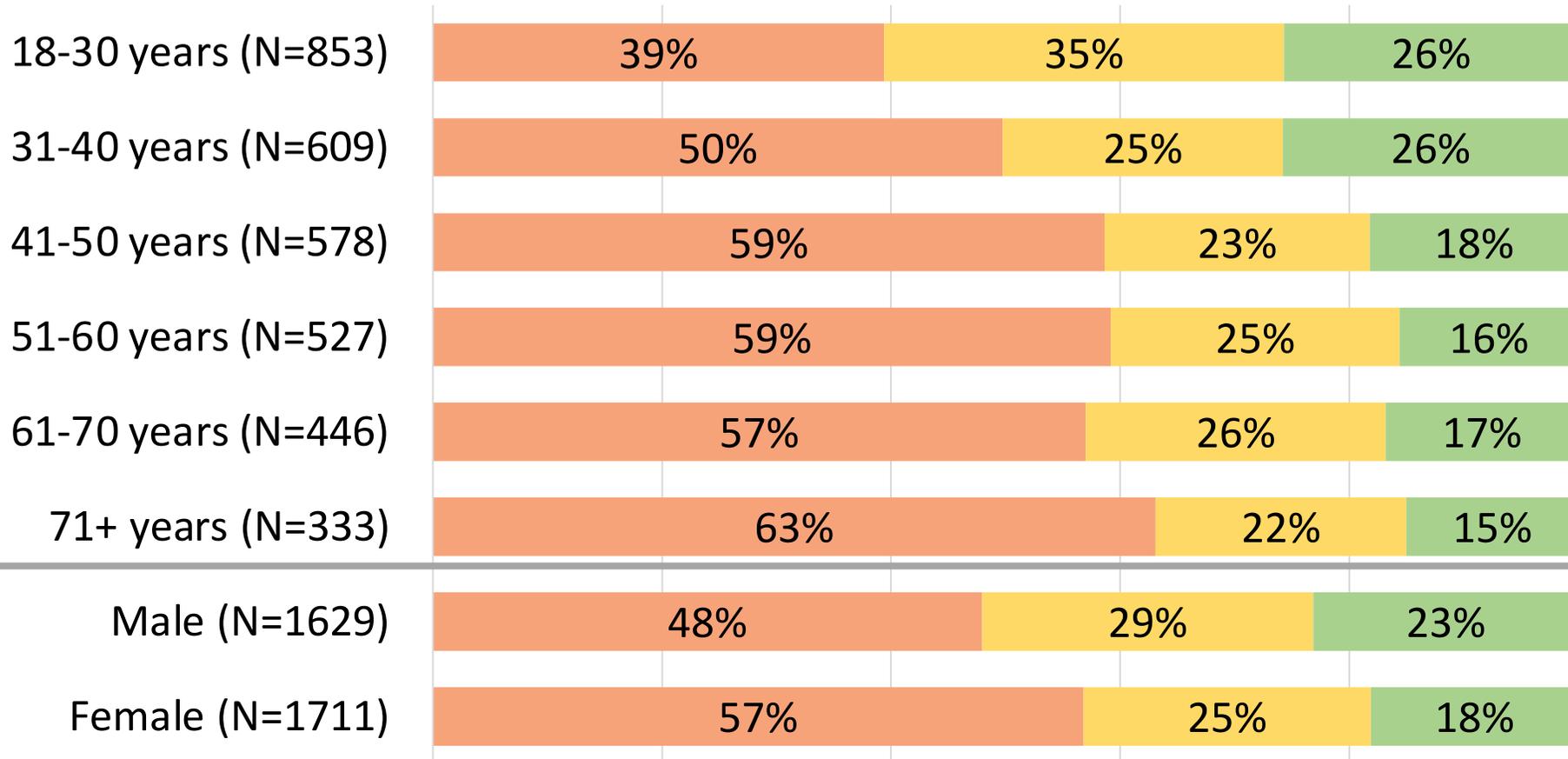
I will use AV ridehailing services alone or with coworkers, friends, or family. (N=3358)



# Age and Gender

*I will use AV ridehailing services with other passengers I do not know.*

Disagree Neutral Agree

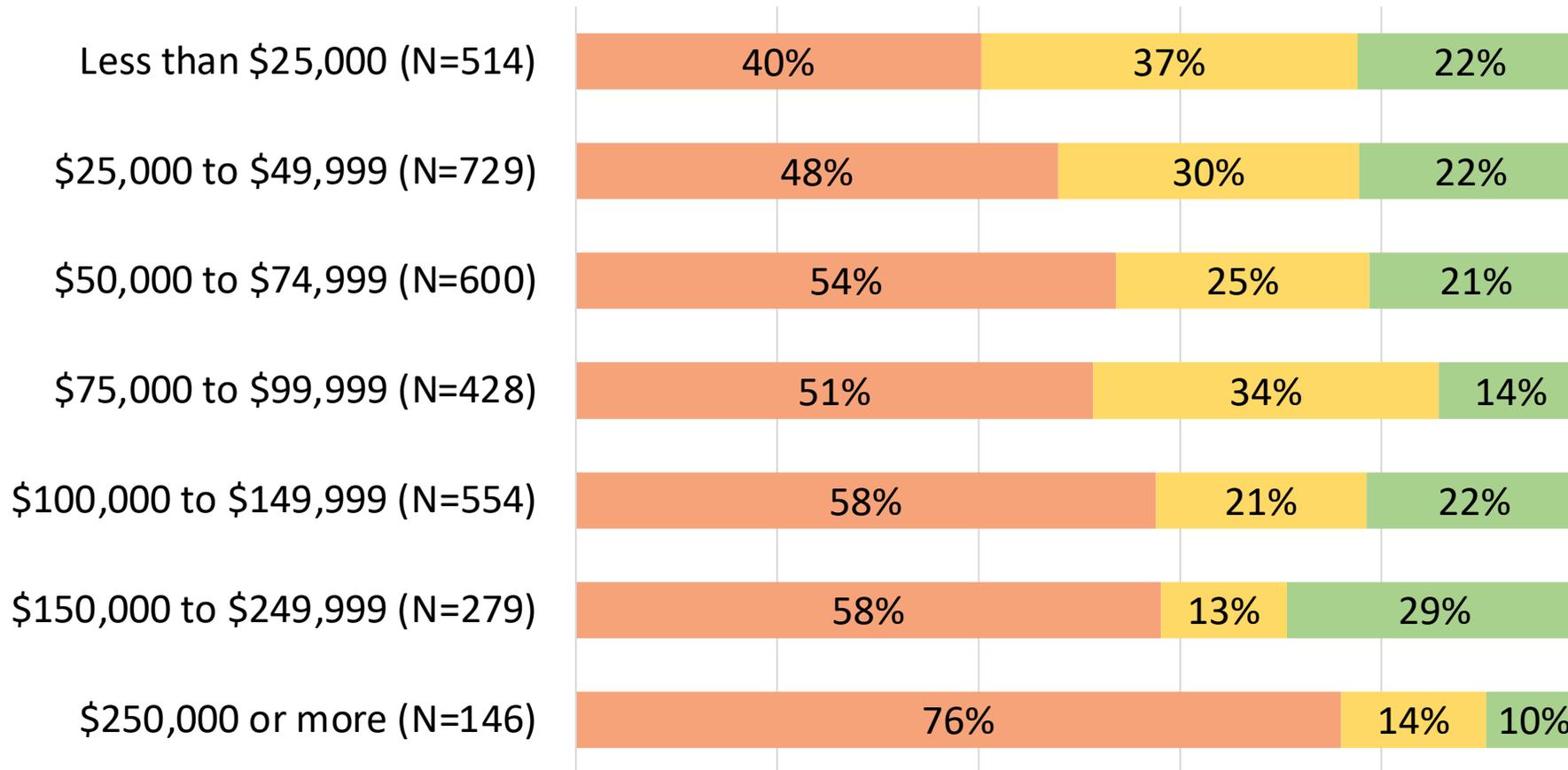


Willingness to share rides in AV decreases with age.

# Income

*I will use AV ridehailing services with other passengers I do not know.*

Disagree Neutral Agree

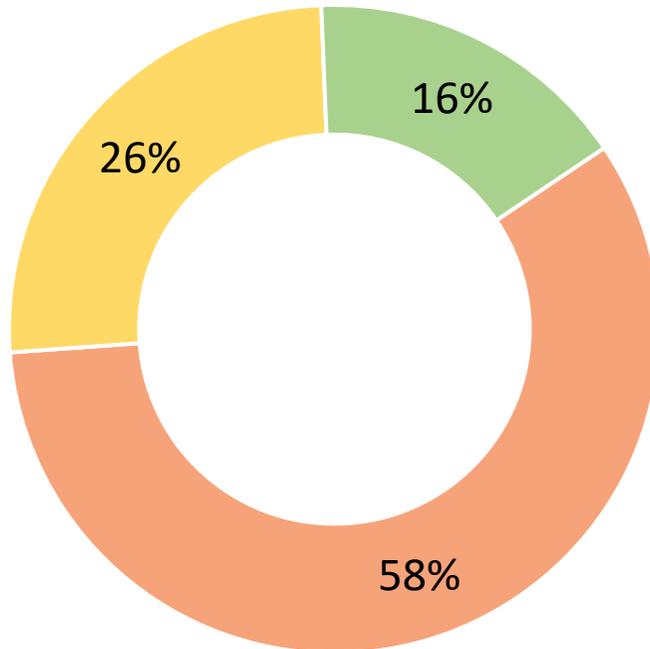


High income groups are the least willing to share AV rides

# Current Shared Ridehailing Usage

Current **shared** ridehailing users are more interested in the AV version of the service when compared to non-users (experience matters!)

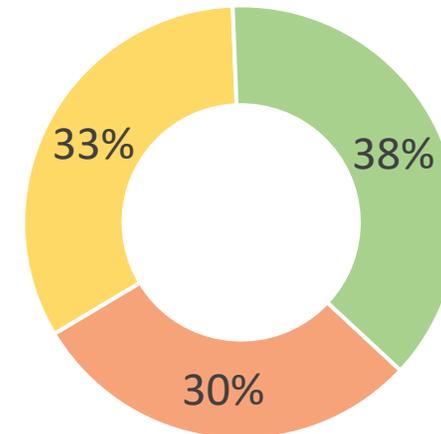
Not an user (N=2668)



*I will use AV ridehailing services with other passengers I do not know.*

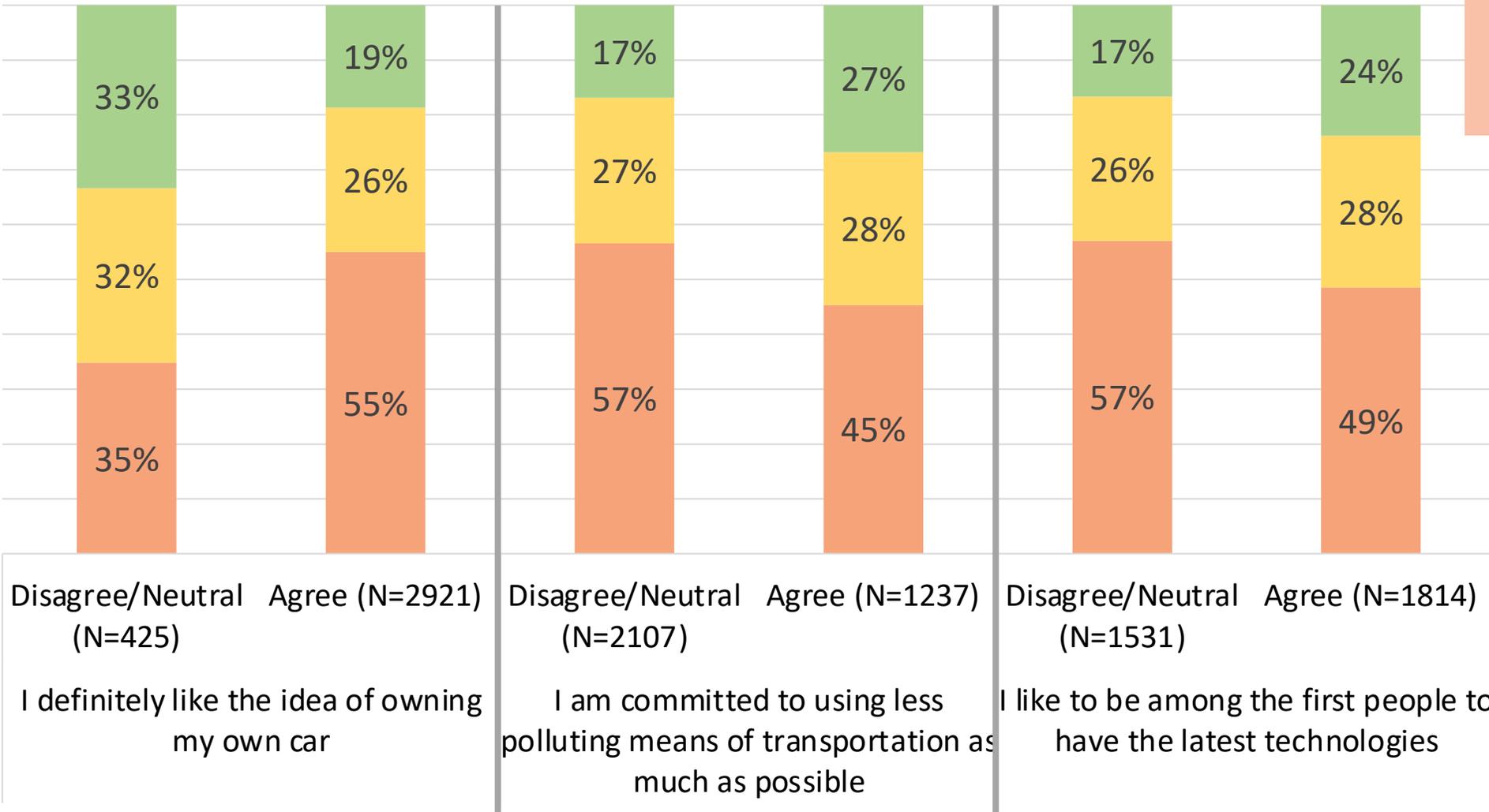
- Disagree
- Neutral
- Agree

User (N=679)



# Attitudes

Preferences towards owning a vehicle relates inversely to willingness to share rides



*I will use AV ridehailing services with other passengers I do not know.*

- Agree
- Neutral
- Disagree

- More than half of respondents do not want to share rides in an AV ridehailing future.
- Willingness to share varies across demographic groups: decreases with age; women less willing to share.
- Attitudes play an important role in shaping willingness to share: **technology savviness** and **environmental orientation** are associated with **higher** willingness to share
- Current **shared** ride-hailing users are more likely to share in an AV future; **first-hand experience matters!**

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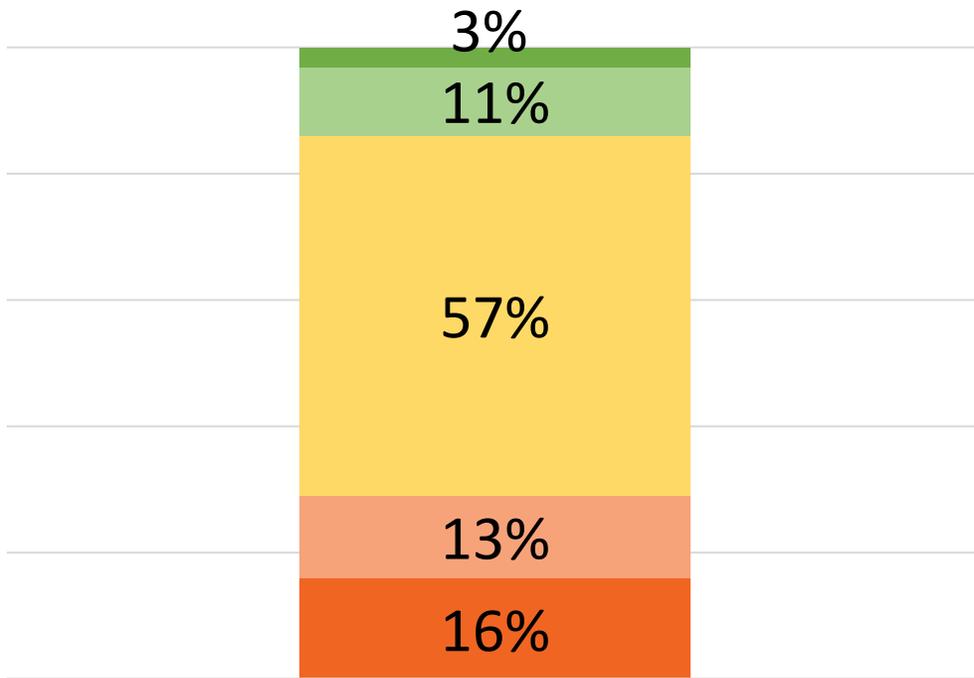
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A photograph of wooden blocks arranged to spell out the words 'NEW' and 'NORMAL' in two rows. The top row contains blocks for 'N', 'E', and 'W'. The bottom row contains blocks for 'N', 'O', 'R', 'M', 'A', and 'L'. The blocks are light-colored wood with black letters. The background is a light, textured surface with a soft shadow beneath the blocks.

**NEW  
NORMAL**

**Ridehailing in a Post-COVID World**

# Ridehailing Usage: Post-Pandemic vs Pre-Pandemic



Ridehailing users before the pandemic (N=3263)

- Much more than before
- Somewhat more than before
- About the same
- Somewhat less than before
- Much less than before



Source: covidfuture.org

- Possible new ridehailing usage driven by transit users who were avoiding crowded vehicles.
- Possible decrease in ridehailing due to physical distancing concerns.
- Projected decrease is greater than projected increase.
- Attitudes towards sharing were influenced during the pandemic; the extent to which this shift will linger post-COVID-19 is still unknown.

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# Thank you!

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**More information:**

<https://tomnet-utc.engineering.asu.edu/t4-survey/>

*Presentation pictures from the internet*

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