Autonomous Vehicles: Potential Travel Behavior Implications

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Full Citation

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

<table>
<thead>
<tr>
<th>Phoenix, AZ</th>
<th>Atlanta, GA</th>
<th>Austin, TX</th>
<th>Tampa, FL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>1,027</td>
<td>944</td>
<td>1,127</td>
<td>260</td>
</tr>
<tr>
<td>%</td>
<td>30.6%</td>
<td>28.1%</td>
<td>33.6%</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Survey Instrument

- Attitudes and Preferences
- Vehicles You Have and Where You Live
- Current Travel Patterns
- Mobility on Demand and Shared Mobility Services
- Autonomous Vehicles
- Background Information
• Likes new trying new and different things
• Makes good use of travel time
• More importance on car’s reliability and quality over its brand

Contemporary Efficient

• Committed to environmentally-friendly lifestyle
• Committed to using less polluting transportation modes
• Believes government should raise gas tax to reduce negative transport impacts on the environment

Pro-Environment

• Prefers living close to transit even with smaller home and higher population density
• Doesn’t mind non-spacious homes if closer to transit and places they go
• Likes having mixed land-use neighborhoods

High Density

• Public transit is reliable for daily needs
• Has alternatives to driving most of the time

Pro-Transit

• Learning to use new tech is frustrating
• Not among the first people to have the latest tech
• Concerned about sharing personal info or location via internet-enabled devices

Anti-tech

• Feels uncomfortable around strangers
• Prefers to do one thing at a time
• Too busy to do many things they like

Solo Unitasker

• Not bothered by the level of congestion
• Satisfied in daily travel routine
• Time spent traveling provides a useful transition to activities

Commuter

• Prefers to be a driver than a passenger, when traveling in a vehicle
• Prefers owning a car

Driver

Attitudinal Classes – Cluster Analysis
N=3,339

<table>
<thead>
<tr>
<th>Description of T4 Survey Respondents</th>
<th>Tech Averse Urbanite (N=743)</th>
<th>Sprawling Techy Multitasker (N=815)</th>
<th>Transit Advocates (N=606)</th>
<th>Tech Friendly Environmentalists (N=332)</th>
<th>Tech Averse Suburbanite (N=843)</th>
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</thead>
<tbody>
<tr>
<td>Contemporary Efficient (Factor 1)</td>
<td>0.02181</td>
<td>0.39825</td>
<td>0.3305</td>
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<td>Pro-Environment (Factor 2)</td>
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<td>0.06976</td>
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<td>High Density (Factor 3)</td>
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<td>0.28631</td>
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<td>Pro-Transit (Factor 4)</td>
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<td>Anti-tech (Factor 5)</td>
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<td>Solo Unitasker (Factor 6)</td>
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<td>Driver (Factor 8)</td>
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</tbody>
</table>
Outline

TRIPS MAKING

MODAL PREFERENCES

COMMUTE AND RESIDENTIAL CHOICE

AUTOMATED RIDESHARE

Trip Making Changes due to AVs

• Imagine a future when you can access an AV (by owning, leasing, or using automated ridehailing services). How likely would you change in each of the following ways?

[Bar chart showing frequency of changes in travel habits due to AVs]
Trip Making Changes due to AVs by Age

Trip Making Changes due to AVs by Attitude
Mode Use Changes

• Suppose you have regular access to an AV (by owning, leasing, or using automated ridehailing services). How would your use of different modes of transportation change in such a future? Please choose one answer in each row.
AV Commute and Residential Location Changes

- Imagine a future when you can access an AV (by owning, leasing, or using automated ridehailing services). How likely would you change in each of the following ways?

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AV Commute and Residential Location Changes by Attitude

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AV Commute and Residential Location Changes by Attitude

Imagine a future when you have regular access to an AV (by owning, leasing, or using automated ridehailing services) and you can do other activities while riding in an AV. How much longer would you be willing to commute in an AV (compared to your current commute)?

Commute Time Changes with AV

- Imagine a future when you have regular access to an AV (by owning, leasing, or using automated ridehailing services) and you can do other activities while riding in an AV. How much longer would you be willing to commute in an AV (compared to your current commute)?
Commute Time Changes with AV by Region

Imagine a future when you have regular access to an AV (by owning, leasing, or using automated ridehailing services) and you can do other activities while riding in an AV. How much longer would you be willing to commute in an AV (compared to your current commute)?

Commute Time Changes by Attitude
Willingness to Use Automated Ridehailing

- Suppose ridehailing companies (e.g., Uber and Lyft) will start using AVs to serve trip requests. Please rate your level of agreement with the following statements.
Thank you!

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