Shifting Gears for the Automated Vehicles

Findings from Focus Groups in the Greater Toronto and Hamilton Area

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Introduction

Automated vehicles (AVs) are expected to change urban mobility and affect the outlook to meet many core transportation policy objectives. For planning and policymaking domains to effectively managed automated vehicles, a better understanding of how consumers may use this technology is necessary.

This study uses a focus group approach to learn about residents' perceptions of AVs by residents of the Greater Toronto and Hamilton Area – the largest urban economy in Canada.

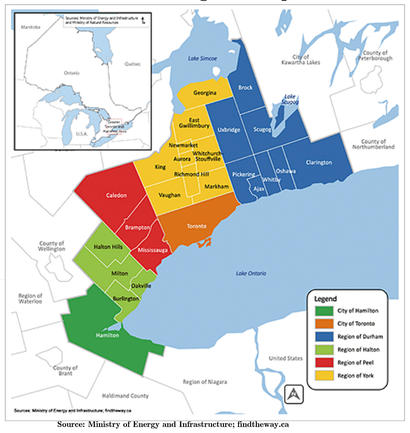
Core Research Questions

How are transportation system users likely to use AVs? If so, how?

What benefits or impacts do consumers expect from AVs based on both privately-owned and on-demand, for-hire AV ownership models?

What role do residents expect public policy to play in managing AVs?

GTHA Regional Map



Source: Ministry of Energy and Infrastructure; findtheway.ca

Data Sources

This study employs focus groups to learn about consumers' interests and key dimensions of consideration regarding automated vehicles – both as prospective users and non-users. Five focus groups of three to nine (29 in total) were implemented between May 2017 and January 2018.

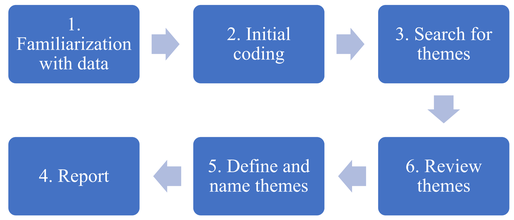
The five focus groups consisted of the following: general public; seniors (>55 years of age); individuals with accessibility needs; active transit users; and a suburban group.

All focus group participants consisted of individuals residing in the Greater Toronto and Hamilton Area (GTHA).

Research Design

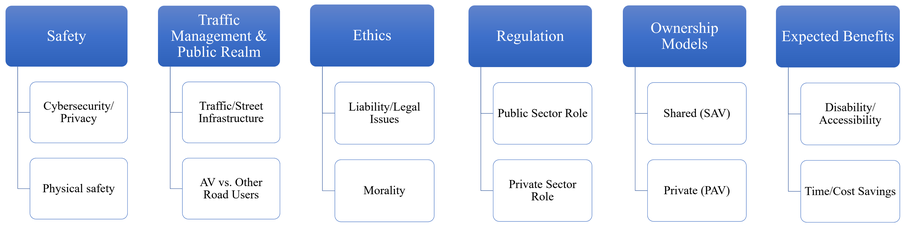
Focus groups adopted semi-structured formats and covered topics on general interest, usage, and policy implications of AVs. Question themes related to public familiarity with and attitudes towards AVs, views on shared or privately owned AVs, links between AVs and other road users, and the role of the public sector.

Focus group transcripts were classified into broad categories (i.e. concerns, benefits, regulation) and six distinct themes were formulated and revised to ensure coherence and to verify support for the subthemes. The framework for this study follows six steps:



Findings

Six themes were identified by analyzing the focus group transcripts, with two sub-themes for each of the six primary themes:



Safety

Safety considerations relating to physical safety in or near the vehicle in addition to cybersecurity, hacking and privacy. Participants disagreed on whether AVs would be safer: some expected first-hand experiences and/or public education to dissipate initial fears, while others remained firm in the concern over safety even once AVs are more common.

"It will take time to adapt. I'm worried I might grab the wheel in the event of something happening. It's tough to unlearn."

Traffic Management & Public Realm

Participants highlighted potential changes in the built environment (e.g. standardized design for transportation infrastructure), and potential impacts on traffic flow and congestion. Overall, participants expected the built environment to change to accommodate AVs and expected the public sector to support necessary alterations.

"Would there be an advantage or would I still be stuck in traffic? In 20 or 50 years maybe if everybody is using a driverless car it becomes more worth it but if it's just me in mixed traffic, I'm not sure."

Ethics

Participants identified ethical issues related to morality and liability, including the possibility of AVs making split-second decisions. They shared concerns about liability and legal issues (e.g. licensing and insurance regulations).

"Does the car take the greater good and I experience the collision? Do you want the greater good? Or the best for me? It's one of those ethical conundrums that the car is deciding."

Regulation

Participants expected public policy to shape how AVs are implemented and used, and that the public sector and government should learn about and disseminate information to the public.

"I came in this room with all kind of questions and I still have lots of questions. The industry is not helping the public understand the technology. I'm not sure that the industry is educating people like me on what this might be like."

Ownership Models

Participants indicated significant interest in using on-demand, for-hire AVs similar to taxes, Uber, and Lyft. Suburban participants preferred privately owning an AV, but viewed for-hire AVs as a potentially viable alternative to low-ridership transit services.

"When I think about these driverless cars constantly picking people up or driving around well-used routes, that makes sense to me. You're not storing a vehicle back home."

Expected Benefits

Participants expected individual and social benefits from AVs, including better safety, cost savings, and increased productivity and convenience (e.g. the ability to work, sleep, and eat while traveling). Many anticipated travel behavior changes, as AVs could allow frequent travel to farther destinations.

- Most expect AVs to expand mobility for target populations (mobility constraints and seniors)
- Participants with mobility constraints expressed concerns regarding navigating the built environment to access an AV, communicating with an AV, or navigating the built environment upon exiting an AV.

Conclusion

Focus group participants were interested in learning more about AVs but remained reluctant to commit to prospective travel habit changes.

While the significant benefits of AVs were expected for individuals with mobility constraints, participants highlighted challenges relating to the technicalities of getting individuals in and out of AVs and to their final destinations.

It is important for planners to engage in consultations internally (in the public sector) and externally (with stakeholders and the community) to foster information gathering, dissemination, and knowledge mobilization.

Acknowledgements

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