

Shaping the Ethical Future of Autonomous Vehicles in Canada

A call for ethical standards
and responsible development

Audience: Policy Makers and
Technology Developers

By: Seeja Manjari Prasad

CMPT 105W

Nov 13, 2024



Agenda

2

- ▶ Why Canada Needs Ethical AV Standards Now
- ▶ Benefits of AVs for Canadians
- ▶ Unique Canadian Challenges
- ▶ Ethical Risks and Concerns
- ▶ Recommendations for Policy Makers and Developers



Ethical Framework for Autonomous Vehicles in Canada

Autonomous Vehicles (AVs) promise safer, more efficient roads but raise complex ethical questions.

In Canada, public trust and adoption depend on establishing strong ethical standards.

Safety & Accountability

- Ensuring AVs are programmed to prioritize human life and follow legal standards.

Privacy & Data Security

- Protecting the vast amount of data AVs collect on users and pedestrians.

Equity & Accessibility

- Making AV technology accessible to all, including rural communities and individuals with disabilities.



Ontario's 10-Year Pilot Project:

Ontario launched a long-term AV pilot to test and refine AV safety measures.



Quebec's Shuttle Trials:

Self-driving shuttles operating in controlled settings to assess feasibility.



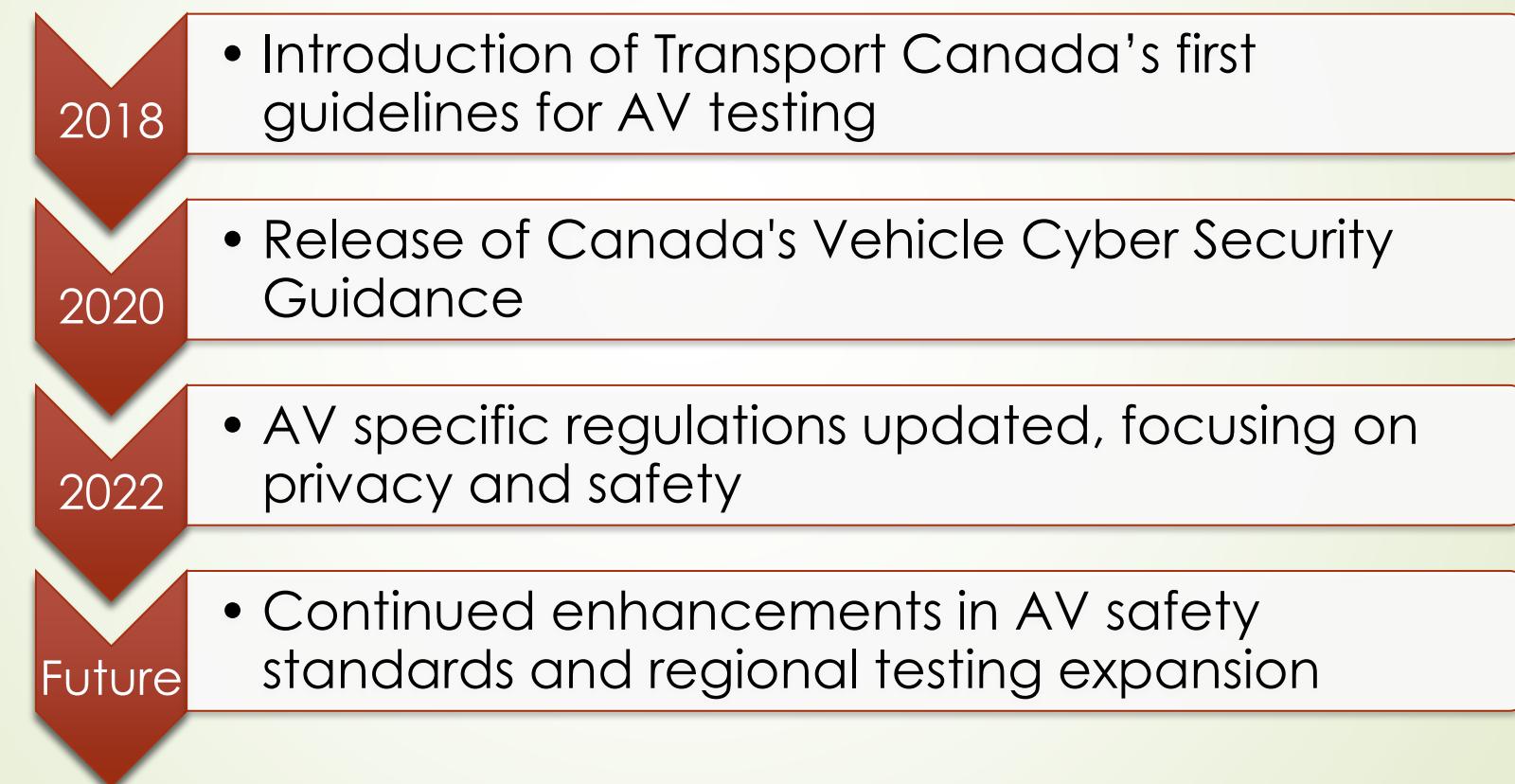
National Guidelines on AV Safety:

Framework provided by Transport Canada to guide safe testing.

4

Current AV Landscape in Canada

Timeline of Key AV Developments in Canada



Some pros and cons of AVs

Pros

- ▶ Improved Road Safety
- ▶ Increased Accessibility
- ▶ Reduced Traffic Congestion
- ▶ Environmental Impact



Cons

- ▶ Ethical and Legal Challenges
- ▶ Data Privacy and Security
- ▶ Job Losses in Driving Industries
- ▶ High Development and Maintenance Costs



Key Ethical Concern 1: Safety and Accountability

- ▶ Ensuring AVs prioritize human life in all scenarios.
- ▶ Defining **accountability**: Who is responsible in the event of AV failure?



Technology

Environment

Ethics

Key Ethical Concern 2: Privacy and Security

8

- ▶ **Data Collection:** AVs gather extensive data on users and surroundings.
- ▶ **Data Protection:** Policies needed to safeguard personal and location data.



Key Ethical Concern 3: Equity and Accessibility

Access for All:

AVs should be accessible to rural communities and those with disabilities.

Inclusivity:

AV technology should benefit all Canadians equally.

Recommendations for Policymakers and Developers



Standardize safety protocols across provinces



Establish clear accountability laws for accidents.



Enhance data security standards specifically for AV data.



Prioritize accessibility in AV development

Conclusion: A Safe, Ethical Path Forward



Canada's AV framework focuses on safety, privacy and equity.



Future AV integration depends on strong ethical standards and public trust.

Questions?

12



References

1. Transport Canada. (2023). *Guidelines for Testing Automated Driving Systems in Canada: Version 2.0*. Transport Canada. Retrieved from <https://tc.canada.ca/en/road-transportation>
2. Canadian Council of Motor Transport Administrators. (2018). *Canadian Jurisdictional Guidelines for the Safe Testing and Deployment of Automated Driving Systems*. Canadian Council of Motor Transport Administrators.
3. Office of the Privacy Commissioner of Canada. (2020). *Canada's Vehicle Cyber Security Guidance*. Office of the Privacy Commissioner of Canada.
4. Jenkins, R., Černý, D., & Hříbek, T. (2022). *Autonomous Vehicle Ethics: The Trolley Problem and Beyond*. Oxford University Press.
5. Bonnefon, J.-F., Shariff, A., & Rahwan, I. (2016). *The social dilemma of autonomous vehicles*. *Science*, 352(6293), 1573–1576. <https://doi.org/10.1126/science.aaf2654>
6. Wang, H., Khajepour, A., Cao, D., & Liu, T. (2020). *Ethical Decision Making in Autonomous Vehicles: Challenges and Research Progress*. *IEEE Intelligent Transportation Systems Magazine*, 14(1). <https://doi.org/10.1109/mits.2019.2953556>