CAV Strategy for Canada

A White Paper developed by the Canadian Automated Vehicle Initiative (CAVI) Working Group comprising:

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Executive Summary

Connected and Automated Vehicles (CAVs) represent the most significant transformation in automobile technology since its invention. Major automotive nations have begun large-scale CAV deployment, supported by comprehensive national strategies. Canada must act decisively to become an active shaper of this transformation rather than a recipient of technologies developed elsewhere.

The Canadian Automated Vehicle Initiative (CAVI), a national association of stakeholders from government, industry, academia, and business, advocates for developing a cohesive national CAV strategy. This white paper outlines CAVI's strategic framework for establishing Canada as a global leader in CAV development and deployment, with particular emphasis on our unique strengths in cold-weather operations and remote connectivity.

Current State and International Context

Canada brings significant strengths to the CAV landscape, including a robust automotive manufacturing sector employing over 100,000 people, excellence in academic research, and strategically located test sites.

However, Canada's approach has been fragmented, unlike those of its peer countries. The United Kingdom, for example, has successfully implemented a coordinated national approach through organizations like Zenzic and the Centre for Connected and Autonomous Vehicles (CCAV).

In Australia, the Centre for Connected and Automated Transport (CCAT) is hosting a National Future Transport Summit in September 2025. This will bring together senior leaders from Australian governments, industry, academia, and business to define a national pathway for the future use of CAVs.

By adopting a similarly unified approach, Canada has an opportunity to establish a competitive advantage through unified national standards and coordinated development efforts.

Strategic Recommendations

This White Paper proposes six key initiatives:

- **Create a Government/Industry Planning Body**: Establish a central organization to drive CAV development nationally; coordinate efforts; and maintain a deployment roadmap through 2035

- **Create the CAV Regulatory Framework**: Develop comprehensive federal legislation that prevents fragmentation, while preserving appropriate provincial and municipal authority over traffic management

- **Establish the Canadian CAV Centre of Excellence**: Create a central technical authority to coordinate development, testing, and deployment nationwide

- **Develop the National CAV Testing Network**: Expand existing cold-weather facilities and establish new testing centers, supported by capital investment matched by provincial funds

- **Launch a CAV Innovation Fund**: Support Canadian companies developing CAV technologies, prioritizing solutions for winter operations and remote areas

- **Build the CAV Skills Pipeline**: Develop comprehensive training and education programs to ensure Canadians can seize CAV-related opportunities across multiple disciplines

Implementation Timeline

The strategy operates on dual planning horizons:

- Short-Term Foundation (2025-2028):
  - Focus on establishing fundamental frameworks and infrastructure

- Long-Term Transformation (2025-2035):
  - Encourage broader technological and economic transformation, and social adoption

Expected Benefits

Implementation of this strategy would:

- Establish Canadian leadership in cold-weather CAV operations and testing
- Create high-value jobs in CAV development and manufacturing
- Provide government and industry with a better understanding of the needs of vulnerable users, rather than leave it until after deployment
- Provide Canadians with a better understanding of CAV technology, its limitations and opportunities, and promoting social acceptance
- Improve mobility in remote and rural communities
- Build upon existing strengths in AI, robotics, and automotive manufacturing
- Shape continental standards to reflect Canadian requirements
- Develop exportable expertise in harsh-environment autonomous systems

Next Steps

CAVI recommends expanding this initial framework through broad stakeholder consultation to ensure the strategy delivers benefits to all Canadians.

CAV Strategy for Canada

Introduction

Connected and Automated Vehicles (CAVs) represent the most significant transformation in automobile technology since its invention. Major automotive nations have already begun large-scale CAV deployment, supported by comprehensive national strategies and dedicated institutions. The decisions that Canada makes in the next few years will determine whether we become active shapers of this transformation, or recipients of technologies and standards developed elsewhere. Our window of opportunity to establish leadership in specific areas, particularly cold-weather operations, remote connectivity, and social acceptance - requires timely, coordinated action.

The **Canadian Automated Vehicle Initiative (CAVI)** (www.cavi-icva.ca**)** serves as the national focal point for Canada's CAV ecosystem. Established as a collaborative platform, CAVI brings together stakeholders from three levels of government, industry, academia, and civil society to shape Canada's CAV future. Our nine-person Board of Directors, with representation spanning from British Columbia to Nova Scotia, reflects the truly national scope of this initiative.

CAVI's mission is to accelerate Canada's transition to CAV technology while ensuring this transformation benefits all Canadians.

Objective and Scope

As part of this mission, CAVI advocates for the development of a national Canadian CAV strategy.

This White Paper provides CAVI's vision and roadmap for developing such a strategy, one that would establish Canada as a global leader in CAV development and deployment.

The scope encompasses all land-based CAVs, including passenger vehicles (private, commercial, micro-mobility, etc.); freight transport; service vehicles; and off-road applications (robotics for surveillance, agriculture, etc.). While emerging technologies in marine vessels and aerial drones present related opportunities, their distinct regulatory, technical, and operational requirements warrant separate strategic consideration.

To develop this White Paper, CAVI formed a Working Group that comprises:

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- Mohamed El-Darieby, Ontario Technical University, Oshawa ON
- Simon Diemert, Critical Systems Labs Inc, Vancouver BC
- Tim Gibson, University College of the North, Thompson MB

While this document represents our initial strategic framework, we envision an iterative approach, with a more detailed implementation plan to follow in 2025 based on extensive stakeholder consultation.

We note that this report reflects the consensus of CAVI members but does not necessarily reflect the views or opinions of any single person or organization.

Before detailing our strategic recommendations, it is essential to understand both the global context of and Canada's current position in, CAV development. This background illustrates both the opportunities before us and the urgency of acting upon them.

Background

Globally, the CAV sector is advancing rapidly, with robotaxis pilots and initial services in place now and commercial deployments expected to grow substantially over the next decade. Major automotive-sector nations like the United States, the United Kingdom, Germany, China, and Japan have established comprehensive national strategies, but to date Canada's approach has been more fragmented.

International Leadership Models

The United Kingdom's coordinated approach to CAV development offers valuable lessons for Canada. Through careful planning and institutional design, the UK has established itself as a global leader in CAV development despite having a similarly sized economy and automotive sector to Canada's.

The UK's success rests on three key pillars: strategic coordination, legislative frameworks, and testing infrastructure. At the strategic level, Zenzic, a joint government-industry organization, develops and maintains the nation's CAV roadmap through 2035. This living document provides clear direction and measurable milestones for all stakeholders in the UK's CAV ecosystem.

The legislative pillar centers on the UK's groundbreaking *Automated Vehicles Act*. Developed through extensive consultation—over 350 sessions across four years—this legislation establishes comprehensive safety frameworks and new legal structures for self-driving systems. The thorough consultation process helped ensure the resulting

framework balances innovation with public safety while providing the certainty that industry needs for long-term planning.

Institutional coordination forms another crucial element of the UK's approach. The Centre for Connected and Autonomous Vehicles (CCAV) bridges the Department for Transport and the Department for Business and Trade, breaking down traditional governmental silos to encourage synergies. A parallel Canadian structure might bridge Transport Canada and Innovation, Science and Economic Development Canada (ISED), though such an arrangement would need to account for our federal system's distinct requirements.

The UK has also solved a challenge that currently faces Canada: coordinating multiple testing facilities. Like Canada, the UK has multiple test sites across the country (eight in their case, compared to our six). However, while Canadian facilities seem to compete with each other, the UK's CAM Testbed UK program provides a single point of contact for the entire network. This coordinating body efficiently directs users to the most appropriate facility for their specific needs while encouraging collaboration rather than competition between sites.

This comprehensive UK approach demonstrates the value of coordinated national action in the CAV sector. While Canada must develop solutions that reflect our unique circumstances - particularly our federal structure and vast geography - the UK example shows how purposeful coordination can accelerate CAV development while ensuring public benefit. As we develop our own national strategy, these lessons should inform our institutional design, legislative approach, and coordination mechanisms.

In Australia, the Centre for Connected and Automated Transport (CCAT) is hosting a National Future Transport Summit in September 2025. This will bring together senior leaders from Australian governments, industry, academia and economic sectors to define a national pathway for future use of CAVs.

The Canadian Situation

Past work in Canada brings significant strengths to the country’s CAV landscape[1]. Most prominently, Canada has a robust automotive manufacturing sector: a cornerstone of our economy and our international trade. The automotive industry directly employs over 100,000 people and contributes billions to our GDP through manufacturing facilities across Ontario and other provinces. This established industrial base provides crucial infrastructure, expertise, and supply-chain relationships that could be leveraged for CAV development.

[1] This White Paper was finished very early in President Trump’s second administration. The impacts of his policies on the Canadian auto sector are not yet clear.

Beyond this manufacturing foundation, Canada has built significant capabilities in several key areas, with different regions developing distinct strengths. Ontario has taken a pioneering role in CAV policy, creating comprehensive frameworks for testing passenger vehicles, light trucks, and commercial vehicles on public roads. In addition, the Ontario Vehicle Innovation Network provides good leadership. This provincial leadership provides valuable experience that can inform national frameworks.

Other jurisdictions have developed complementary strengths:

- Excellence in academic research across multiple universities
- Numerous successful pilot and demonstration projects
- Private sector achievements in specialized vehicles and systems
- Forward-looking planning by various federal and provincial agencies
- Strategically located test and demonstration sites
- Successful CAV deployment in niche markets, including robotics
- A highly skilled technical workforce

These distributed pockets of excellence demonstrate Canada's potential in the CAV sector. However, maximizing their impact requires coordinated national action to create synergies and prevent fragmentation. Furthermore, there is a need for coordination of CAV policy and regulation across the provinces, which is a federal role.

The global nature of the CAV ecosystem presents both challenges and opportunities for Canada. One challenge is that, as a smaller actor (in terms of population and our economy), we must be strategic in our approach, focusing on areas where we can excel rather than attempting to compete in every domain.

Another challenge is the fact that in the United States, momentum is building for comprehensive federal CAV legislation. With multiple states already enacting or developing their own CAV frameworks, pressure is growing for national coordination. This evolving policy landscape in our largest trading partner creates urgency for Canadian action but also offers an opportunity. By developing our own coherent national framework now, Canada can help shape continental standards while ensuring our unique requirements—particularly around winter operations and remote connectivity—are reflected in cross-border protocols.

One domain where Canada has a clear value proposition is in CAV testing, given our interest and expertise in cold-weather operations. As noted, the UK’s provision of a single point-of-contact for their eight sites demonstrates Canada could do more in this regard. The situation raises several strategic questions that would benefit from a national perspective:

- How much market demand is there for testing services in Canada?
- Could these facilities evolve beyond basic testing infrastructure into comprehensive engineering excellence centres?
- Could they serve as operations centers for live deployments?

- What additional services could these centres provide to maximize their value to the CAV ecosystem?
- Is the UK's coordination model appropriate for Canada as well?

Answering these questions, and others like them, requires a national strategy.
The deep integration of North American transportation networks, with thousands of vehicles crossing the Canada-U.S. border daily, necessitates careful alignment of cross-border regulations. This integration extends beyond passenger vehicles to our deeply connected automotive manufacturing and supply chains. Our cross-border trade relationship both constrains and enables our CAV policy choices. While we must maintain interoperability with U.S. systems, Canada's position as a major automotive manufacturer and key trading partner gives us an opportunity to influence continental standards.

But given the current US landscape of varying state-by-state regulation, which creates significant complexity for CAV developers and operators, Canada could establish a competitive advantage by:

- Having Transport Canada establish clear minimum standards that all CAV deployments must meet
- Creating a unified approach that would allow organizations to confidently deploy their technology across the country without managing different provincial requirements
- Offering a more predictable and efficient regulatory environment than the fragmented US approach

By establishing clear, consistent regulations across the country, Canada could become a preferred destination for CAV development and deployment, while maintaining our crucial alignment with the USA. But again, this will require a national strategy to actively engage with provincial, territorial, and municipal levels of government to ensure a unified approach.

These examples from other nations, combined with Canada's existing strengths and challenges, point to both the urgency and opportunity of developing a coordinated national approach. The case for such a strategy rests on two main pillars: strengthening our innovation economy and advancing our social and regional development goals.

The Case for a National Strategy

The development of CAV technologies offers Canada an unprecedented opportunity to enhance safety, productivity, and economic competitiveness. Through developing and implementing a well-structured national strategy, our nation can seize a leadership position in transportation's next revolution. Recent precedent demonstrates the value of coordinated national action in emerging technologies: in November 2024, the federal

government created the Canadian Artificial Intelligence Safety Institute to leverage our country's strengths in AI and help develop AI effectively, responsibly, and safely. The same principle applies to CAVs. We must create an appropriate policy and regulatory environment for this technology to flourish.

Fortunately, such an environment would align with and advance two of Canada's existing national priorities: strengthening our innovation economy and promoting social and regional development. To achieve these goals in the CAV context, however, we must also establish effective governance frameworks. The case for a comprehensive national CAV strategy thus rests on three fundamental pillars, two aspirational and one enabling: strengthening our innovation economy, advancing our social and regional development goals, and establishing the governance frameworks necessary to achieve both. Each of these pillars builds upon existing Canadian strengths while addressing critical gaps in our current approach.

Innovation Economy Benefits

CAV technology will advance multiple priorities under Canada's Innovation and Skills Plan while creating substantial economic opportunities. Most notably, it provides Canada with an opportunity to establish leadership in CAV certification and testing under challenging weather conditions. Building upon existing facilities in Thompson, Manitoba, and Ottawa, Ontario, these assets could form the foundation of a comprehensive testing network. While long-term climate change may affect winter conditions at these locations, the fundamental need to validate CAV systems under adverse weather conditions—including rain, snow, ice, and rapid temperature variations—will remain critical for global deployment.

Canada's unique combination of proximity to the U.S. market, diverse testing conditions, and existing automotive manufacturing base creates opportunities for specialized technology clusters. The potential exists to attract new assembly and R&D facilities focused on developing robust autonomous systems that can handle challenging environmental conditions. This could strengthen our existing capabilities in AI development, sensor technology, and specialized software solutions, while creating high-tech employment opportunities across the country.

In the logistics sector, CAV adoption promises transformative improvements to supply chain efficiency. By reducing human error - the leading cause of vehicular accidents - CAV systems can simultaneously enhance safety and reduce operating costs. CAV trucking could reduce costs by 15-25% while addressing the critical driver shortage (currently exceeding 25,000 unfilled positions, per the Canadian Trucking Alliance). CAV trucking and logistics operations could also enable 24/7 operation capability and reliability improvements, enhancing the competitiveness of Canadian ports and logistics hubs, a key objective of the National Trade Corridors Fund.

Canada has particular strengths in automated vehicles operating in controlled industrial environments. Our resource sector has already demonstrated leadership in this area, with successful deployments in mining operations, oil sands facilities, and forestry applications. These achievements provide a foundation for broader CAV innovation, combining our expertise in robotics, harsh-environment operations, and industrial automation. Additional opportunities exist in other controlled environments such as airports, ports, agricultural operations, and renewable energy installations. These controlled settings offer ideal conditions for early CAV deployment while providing immediate productivity benefits and developing Canadian expertise that could be exported globally.

Social and Regional Development Benefits

CAV adoption could fundamentally reshape mobility in rural and remote communities. Where traditional transit is economically unviable, automated shuttle services could improve access to healthcare and educational facilities. The elderly would particularly benefit from enhanced mobility options, reducing isolation in rural areas.

People who are unable to drive due to economic or other factors could benefit from enhanced mobility options, reducing isolation in rural areas. However, without adequate and fulsome engagement with vulnerable future users of CAV systems the promise afforded through CAV and similar innovations in transportation may be, at best delayed, or more likely, simply left unrealized.

Healthcare offers a compelling early use case. By automating routine transportation needs while supporting aging-in-place initiatives, CAV technology could help control healthcare transportation costs. More reliable medical supply delivery to remote locations would strengthen healthcare resilience in underserved areas. People with mobility challenges, including those who are blind or have low vision, could experience increased mobility and independence when computers are doing the driving.

Northern and remote communities would see particular advantages through improved goods movement and reduced transportation costs for essential supplies. Better connections to southern markets could enhance economic opportunities. Additionally, CAVs could support resource sector operations and improve access to government services. These benefits align naturally with Canada's Arctic sovereignty initiatives and northern development priorities.

Governance and Implementation Requirements

The successful realization of these benefits depends on establishing robust governance frameworks at both federal and provincial levels. This governance structure must address three critical dimensions: regulatory harmonization, provincial capacity building, and cross-border coordination.

The complexity of Canada's federal system, combined with the inherently cross-border nature of transportation, makes regulatory harmonization essential. Within Canada, a unified federal framework would prevent the emergence of conflicting provincial regulations that could impede CAV adoption. Such conflicts are already emerging: Ontario permits pilots of car and light truck CAVs on its roads, and is developing a framework for larger trucks, including 18-wheelers. On the other hand, British Columbia has proactively banned Level 3 to Level 5 cars from public roads. Given that CAVs will routinely cross provincial boundaries, a patchwork of regulations would create significant operational challenges.

Provincial capacity building represents another crucial element. CAVs offer great promise but require careful, proactive, and sophisticated regulation. The expertise to deliver good outcomes in this regard is not spread evenly across the federation. Federal leadership would enable all provinces and territories to access essential resources and expertise, including:

- Access to testing and certification standards
- Training programs for certification and enforcement personnel
- Shared cybersecurity infrastructure and expertise
- A national reference guide defining the environmental and operational challenges that CAV systems must master for Canadian deployment
- Access to CAV data from across the nation, alongside standardized data-reporting requirements (respecting individual and corporate confidentiality)

At the international level, particularly within North America, harmonization of CAV standards and operations is inevitable. Individual provinces lack the capacity to engage effectively in complex international negotiations over cross-border CAV traffic. A coordinated national strategy would ensure Canadian interests and requirements are reflected in crucial agreements with the United States and Mexico, particularly regarding cross-border operations, safety standards, and data sharing.

Similarly, planning for CAV deployment provides an opportunity to clarify the roles and responsibilities in transportation. A clear federal framework would provide municipalities, provinces, and territories with implementation guidance and best practices. Such direction would help ensure consistency in traffic management and road-marking standards, upon which successful CAV implementation will depend.

As mentioned earlier, we recommend that Transport Canada provide stronger leadership and a clear federal framework that would prevent the fragmentation of CAV regulation at the provincial and municipal levels. Other federal countries are already taking similar steps. While cities must retain authority over their streets and traffic management, letting individual municipalities ban CAVs entirely would create an unworkable patchwork across Canada. The national framework should therefore establish CAV operation as a default right, while empowering municipalities to regulate specific aspects like speed limits, pickup/drop-off zones, and traffic management. This

balanced approach would give cities the tools they need to manage CAVs effectively without allowing local opposition to block Canada's transition to automated transport.

Having established the clear need for federal leadership in CAV development, the next step is defining the timeframes in which this leadership must manifest. Like any major technological and societal transformation, CAV development requires both immediate action and long-term vision.

Strategic Planning Horizons

To balance immediate action with long-term transformation, this strategy operates on dual planning horizons:

Short-Term Foundation (2025–2028)

This three-year horizon focuses on establishing the fundamental frameworks and infrastructure necessary for CAV deployment. Key priorities include:

- Creating the regulatory and legislative foundation
- Establishing the institutional frameworks
- Developing robust initial testing capabilities
- Creating comprehensive operational safety standards
- Building essential skills pipelines
- Harmonizing provincial approaches

Long-Term Transformation (2025–2035)

This ten-year vision addresses the broader technological and societal transformation that CAV technology enables. This horizon encompasses:

- Full deployment of testing infrastructure
- Integration of CAVs into existing transportation networks
- Transformation of urban and rural mobility
- Development of Canadian CAV expertise and intellectual property
- Achievement of leadership position in cold-weather operations

These horizons align with similar planning timeframes adopted by other leading nations while reflecting the specific pace of Canadian institutional development. The three-year foundation period matches typical government program cycles, while the ten-year vision provides the stability needed for major infrastructure investments and workforce development.

With these planning horizons established, we turn to the specific initiatives that will position Canada as a global leader in CAV technology. Based on our analysis of international best practices and Canadian capabilities, we propose six key initiatives that align with the goals of establishing both a short-term foundation and a long-term transformation.

Version 1.0 of a National CAV Strategy

We recommend six key initiatives to establish Canada as a CAV leader. Each builds on existing Canadian strengths while addressing critical gaps in our current approach:

1. Create a Government / Industry Planning Body

Canada needs a central organization to drive CAV development nationally. Following the successful model of the UK's Zenzic and CCAV, as detailed earlier, this body would:

- Champion Canadian CAV interests domestically and internationally
- Coordinate government and industry efforts
- Lead public education about CAV benefits and impacts
- Develop and maintain a detailed deployment roadmap to 2035; Zenzic has done a similar exercise, to a high degree of quality, for the UK. Canada should aim to do the same
- Guide and support strategic research investments to maximize Canadian CAV benefits

To date, the federal government has not been as active as some other countries on the subject of CAVs. It must take a more active role in establishing and supporting this organization than it has previously.

With this coordinating body in place, the next critical step is establishing the regulatory foundation for CAV development.

2. Create the CAV Regulatory Framework

As described earlier, a clear regulatory framework is essential to prevent fragmentation and foster innovation. This foundational element would:

- Develop a CAV Bill that builds upon the lessons learned from the UK's world-first *AV Act* while recognizing Canada's unique federal structure and geographic challenges
- Establish federal jurisdiction over CAV safety certification and CAV minimum capabilities, both hardware and software
- Create comprehensive operational safety standards that go beyond testing requirements, covering real-world deployment, continuous monitoring, and rapid incident-response protocols
- Establish clear intellectual property and investment protection frameworks, particularly for collaborations between private companies, universities, and government laboratories
- Create opportunities for provincial input into certification standards
- Establish CAV operation as a default right while preserving municipal authority over local traffic management and safety measures
- Align with U.S., E.U. and U.K. standards where appropriate
- Complete initial development of the framework by 2026

While regulation provides a framework, we need a central technical authority to guide implementation.

3. Establish the Canadian CAV Centre of Excellence

Canada needs a central technical authority to coordinate CAV development, testing, and deployment nationwide. This federal entity would:

- Certify CAV systems for Canadian deployment
- Develop technical standards and provide guidance
- Support provincial, territorial and municipal traffic agencies and regulators
- Represent Canada in international standards development
- Lead cross-border coordination with key trading partners. The link with any future tariffs will be a key consideration
- Collaborate with Canadian and international transportation and safety-related organizations - such as CCMTA, CSA, ITS Canada, SAE, TAC, and TIRF - to accelerate the adoption of common standards
- Collaborate with the automotive supply chain in Canada, including the OEMs and Tier 1 and 2 suppliers

The Centre would also manage three key programs: the National CAV Testing Network, the CAV Innovation Fund, and the CAV Skills Pipeline. The next three sections describe these in more detail.

4. Develop the National CAV Testing Network

Canada needs a comprehensive testing network that leverages both our winter conditions and our tech hubs. Drawing on the successful CAM Testbed UK model discussed earlier, but adapted for Canadian conditions, the Centre of Excellence would:

- Expand existing cold-weather facilities in Manitoba and Ontario
- Establish new testing centers in technology clusters, particularly Vancouver
- Create specialized facilities in other provinces to test specific capabilities
- Develop standardized testing protocols for all Canadian conditions
- Incorporate end user testing within vehicle testing protocols to ensure that the needs and opportunities of vulnerable users are not left to chance
- Support network-wide data sharing and collaboration
- Provide capital investment to be cost-matched by the host provinces

This distributed network would combine Canada's unique cold-weather testing capabilities with our growing strength in AI and autonomous systems development.

5. Launch a CAV Innovation Fund

To accelerate Canadian leadership in CAV technology, particularly in challenging environments, we propose a dedicated innovation fund, managed by the Canadian CAV Centre of Excellence, that would:

- Support Canadian companies developing CAV technologies
- Prioritize solutions for winter operations and remote areas
- Match private-sector investment in testing and deployment
- Create dedicated funding streams for rural and remote applications
- Target opportunities that build Canadian intellectual property and expertise
- Leverage Canadian AI expertise to create unique CAV capabilities

6. Build the CAV Skills Pipeline

CAV technology will create opportunities across multiple disciplines and skill levels. To ensure Canadians can seize these opportunities, the Canadian CAV Centre of Excellence would also:

- Support technical training programs at post-secondary institutions
- Develop specialized programs for CAV operations, maintenance, and fleet management
- Create retraining programs for workers in transitioning industries
- Build research capacity in universities and colleges
- Establish apprenticeship programs with industry partners
- Support indigenous communities in developing CAV-related skills and businesses
- Create pathways for software developers, systems engineers, and AI specialists to enter the CAV sector
- Develop partnerships with other organizations and associations in support of the preceding items

This comprehensive approach to skills development would help ensure the benefits of CAV technology create opportunities for all Canadians, from technical specialists to operators and maintenance workers.

These six initiatives form the foundation of a comprehensive national approach to CAV development. However, their successful implementation will require broad engagement and support from stakeholders across Canadian society.

Metrics of Success

To track progress and ensure accountability, we propose these specific metrics, aligned with each major initiative:

1. **Government / Industry Coordination**
    a. Establishment of the planning body with cross-Canadian representation
    b. Development of a national CAV roadmap

2. **Regulatory Framework**
    a. Passage of federal CAV legislation

b. Number of provinces/territories harmonizing regulation

3. **Technical Leadership**
    a. Development of Canadian technical standards
    b. International adoption of Canadian cold-weather standards

4. **Testing Infrastructure**
    a. Number of operational testing facilities
    b. Testing facility utilization rates
    c. Geographic distribution of testing capabilities
    d. Range of weather conditions covered by test facilities

5. **Innovation Outcomes**
    a. Total investment leveraged through the Innovation Fund
    b. Number of Canadian CAV patents filed
    c. Number of Canadian CAV companies founded/scaled
    d. Jobs created in the CAV sector
    e. Export revenue from Canadian CAV technology

6. **Skills Development**
    a. Number of workers trained in CAV-related skills
    b. Industry satisfaction with graduate capabilities

These metrics provide concrete measures for each initiative while maintaining focus on our core objectives of establishing Canada as a global CAV leader and ensuring benefits reach all regions of the country.

Conclusion

Connected and Automated Vehicles are poised to transform Canada as profoundly as the 1908 introduction of the Model T Ford. CAVs promise equally far-reaching changes for Canada and the world in our century. That transformation will happen with or without Canadian leadership. Unlike our forebears in 1908, we can anticipate and plan for this transformation. To be clear, the choice before us is not whether to *adopt* CAV technology, but whether to *shape its development* to serve Canadian needs and priorities.

Without coordinated national action, we risk missing opportunities to:

- Establish leadership in cold-weather operations and testing
- Create high-value jobs in CAV development and manufacturing
- Ensure CAV systems meet the needs of remote and rural communities
- Build upon our existing strengths in AI, robotics, and automotive manufacturing
- Shape continental standards to reflect Canadian requirements
- Develop exportable expertise in harsh-environment autonomous systems

This white paper has outlined CAVI's vision for how Canada can lead rather than follow in the CAV revolution. The next step is to expand this vision into a full strategy, through broad consultation with stakeholders across the nation. Beyond the CAV industry itself, we need to hear from those whose lives and work will be transformed: from police forces to disability advocates, from truckers to urban planners. Such engagement would help to ensure both that Canada reaps the benefits of this transformative technology, and that those benefits are available to all Canadians.

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- Marie-France Laurin, Member of the CAVI Board, and MFL Consulting Services, Chateauguay QC
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