ITS World Congress 2017

High Level Policy Roundtable

Digital Innovation and Integration for 21st Century Transport and Mobility

Tuesday, October 31, 2017

The High Level Policy Roundtable is a traditional feature of the Intelligent Transportation Systems (ITS) World Congress and a key event that brings together Ministers, ITS industry executives and government leaders from around the world. The 2017 Roundtable included representation from North America, Europe and the Asia-Pacific region. A complete list of roundtable participants can be found in the Annex to this document.

The intent of the roundtable was to gain insight into the key issues associated with the move towards ever-increasing levels of automation and connectivity in transportation. It provided a forum for representatives of the public and private sectors to deepen their collective understanding of transformative changes in the automotive and transportation sector and to discuss how national approaches could be designed to help create an enabling environment in which new technologies can be developed and deployed.

The 2017 High Level Policy Roundtable was hosted and moderated by the Honourable Marc Garneau, Canada's Minister of Transport. Minister Garneau's opening remarks outlined the purpose of the discussion as a means to facilitate dialogue between the public and private sectors. Minister Garneau summarized the high-level trends that are shaping transportation, such as automation and connectivity, and electrification, among others, and highlighted some of the actions the Government of Canada is taking to support transportation innovation and to address challenges such as road safety, climate change, and congestion.

Following Minister Garneau's opening remarks, the Roundtable heard from three industry panelists, each of whom provided their perspectives on

the new possibilities being created by the rapid advancement in technology and trends in the global transportation marketplace.

Following the panelist presentations, Minister Garneau posed a series of questions to the roundtable for their consideration and for subsequent discussion:

What actions are most important by governments in fostering innovation in transportation?

How does technology and innovation need to address some of the challenges and risks, such as those associated with distracted driving?

What challenges currently exist that hinder effective collaboration between the public and private sectors? What can be done to address these challenges?

How should governments prioritize actions in order to provide a better line-of-sight to critical industrial sectors (automotive, technology, telecommunications, infrastructure, etc.)?

With the above questions in mind, roundtable participants were provided an opportunity to ask questions of the three panelist and to other roundtable participants. The discussion that took place during the roundtable was conducted under the Chatham House Rule: *"When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed."* What follows is a summary of the main points that were raised during the course of the discussion, organized by theme.

Timing and Location of CV/AV Introduction and Electric Vehicle Spread

- In general, it was noted that large urban areas would likely witness the introduction of CV/AVs first due to the large number of vehicles present in urban areas, which is linked to a higher number of vehicle accidents, greater GHG emissions and more congestion. The timing of widespread AV adoption will likely take several decades due to the lifecycle of vehicles that are being manufactured today and for the foreseeable future.

- It was also noted that there tends to be a difference in the types of vehicles most often seen in rural areas compared to urban. Rural areas tend to see a higher ratio of larger vehicles, such as SUVs and trucks. This can have an impact on electrification trends as larger vehicles would require fuel cell applications for their electrification. Electric vehicle use will likely be more prevalent in urban areas, to begin with, eventually spreading to more rural areas.

Infrastructure

- It was noted that there should be a minimum reliance on infrastructure in order for AVs to function on city roads. AVs should be able to function independent of specific infrastructure requirements, but certainly, "smart" infrastructure has the ability to accelerate the pace of AV integration, for example the integration of AV taxi fleets.

- With respect to infrastructure to support the uptake and use of electric vehicles, it was acknowledged that electric vehicle charging stations are a huge investment. However, at the government-level, steps can be taken to make improvements to existing obstacles for electric vehicles. For example, updating building code frameworks that would prevent the charging of electric vehicles in condominium parking garages.

- It was also noted that a certain point, additional electric vehicle charging stations will be required in high-density areas. Related challenges include finding the right locations to install the stations and acquiring the necessary funding to support their implementation. It was noted that Socially Responsible Investments (SRIs) are one way to support the expansion of needed electric vehicle infrastructure.

Liability and Insurance

- It was noted that the issue of CV/AVs and liability will need to be examined more closely. From a technology standpoint, determining liability is related to image recognition and decision-making. However, logic isn't always transparent and it will be difficult to translate logic into a vehicle.

- The issue of liability is a topic that is occupying governments and the insurance industry. It is likely that the implementation of "black box" technology will need to be integrated into these vehicles, similar to what is currently being done with aircraft, in order to have access to the vehicle data in the case of an accident. This data will assist the insurance industry in recreating the incident.

- In addition to, and related to liability, roundtable participants felt that further discussions need to take place on the issues of morals, ethics and regulations as they relate to AVs.

Cyber Security and Data

- Roundtable participants noted that it is difficult for the public sector to examine the issues surrounding CV/AVs and cyber security without the help and support of industry. While the dialogue between government and industry is just beginning, the goal is to have deeper conversations on the subject.

- With respect to cyber security and the role that academia can play, it was noted that work on specific cyber security-related technologies is occurring at various Canadian universities, including the University of Ottawa, Carleton University and the University of Waterloo.

- It was also noted that best practices are still important when it comes to vehicle cyber security. Although some roundtable participants felt that the likelihood of a cyber-attack on a vehicle is low, it would likely take only one incident, at the wrong time, to alter the public's perception.

- With respect to data, it was noted that data can be used as a means to offer incentives for electric vehicle users and electricity companies. For example, if a customer's electricity bill is going towards the charging of an electric vehicle, the costumer should be rewarded in some way.

Environment

- Roundtable participants discussed the overall environmental impact of electric vehicles versus that of traditional combustion engine vehicles. When examining the lifecycle of an electric vehicle, including manufacturing, battery production, energy use and disposal, some roundtable participants noted that, as a whole, the environmental impact (carbon footprint) might be comparable to that of a traditional vehicle. Other roundtable participants felt that the electricity that is used to run electric vehicles remains less impactful than the environmental impact of combustion engines and that the solution for the future needs to be electrification.

Roundtable Tour de Table

Following the panelist presentation discussion, Minister Garneau proceeded to ask roundtable participants to provide a few remarks, asking them to consider the following issues:

Please try to paint a picture of transportation in 50 years. What are the most important innovation opportunities in the transportation system? What goals should be pursued and, given limited resources, how should we prioritize actions? What are the ways in which governments can be helpful or hurtful to innovation?

Roundtable Remarks

- CV/AV technology is best left to the market and to industry and their use should not be overregulated. The issue is about public perception and acceptance. On the subject of cyber security, there is nothing that cannot be hacked and governments and industry will need to prepare for that. With respect to liability, it is an ethical issue and a technology issue (e.g. decision-making systems in cars). With respect to infrastructure, we are going to need infrastructure to support vehicle to vehicle communication and vehicle to infrastructure communication.
- Training will be very important as the public, cities and governments continue to embrace these innovative transportation technologies. Testing is an important component of this – without vehicle testing, academic institutions will not be able to train the leaders of tomorrow. CV/AV testing should take place on the road as it is only through this testing that industry, academia and the technology sector will be able to learn from their mistakes. Mistakes help us to improve the technology.
- There remain many issues to consider as advancements are made in research and development and live trials. These include social acceptance and legal issues. Governments and industry can't work alone on this – sharing our experiences will be very important.
- Interoperability on a global scale will be required in order for CV/AV vehicles to be sold and used in every market around the world. Governments should act as facilitators and will need to consider the well-being of citizens. They must also be cognizant that cities are not built around the car – public transit will continue to be important and CV/AV vehicles should be integrated into existing public transit systems.
- When it comes to safety, perception is critical. Even a 30 percent decrease in vehicle-related deaths is progress. It is critical that expectations be managed, for example, how the public perceives the technology. The technology needs to be applicable to all – it cannot be perceived as only favouring urban environments.
- The earliest adopters of CV/AV technology will be the trucking industry as it will place fewer demands on infrastructure. The real challenge will be the distribution of energy infrastructure. The future will not be accident-free. Industry needs to explain the benefits to consumers so that when accidents inevitably happen, further progress can be made in correcting any problems and enhancing the technology.

- The data ecosystem is going to be transformed. Issues related to data ownership and data sharing will need to be addressed. More conversations will need to be had on this subject.
- Further collaboration between governments, industry, academia and the technology sector should be encouraged in order to determine how the technology can best be deployed and how good models can be developed. Canada should consider the development of a strategy to address the issue of deployment.
- There are many ITS challenges, but also many opportunities, including the Internet of Things and the integration of CV infrastructure.
- To truly make advancements in CV/AV technologies, emphasis will need to be placed on vehicle to vehicle communications. There is an aftermarket issue as well, for traditional vehicles that are currently on the road. Industry will need to consider how CV/AV technology can be integrated into existing vehicles. It will also be important to focus on education and jobs so that we can train future workers.
- The transition from vehicle ownership to mobility as a service (MaaS) will be a key challenge. Other challenges include those related to data and legal issues, as well as deregulation versus regulation. User behavior will need to change in order to see the full benefits of AVs and to create a better mobility system. A focus will need to be placed on end-users and not just on the technology.
- Initially, it is expected that the adoption rate of CV/AVs will be slow. Different adoption scenarios should be examined in order to best prepare for CV/AV integration onto our roads. It will also be essential to think about the smart energy distribution architecture and not just the car.
- In certain European cities, bicycle use far exceeds that of cars – using bikes and public transit just makes more sense for a lot of European cities. Additional digitization will be key for these cities to provide broader mobility, less congestion and, perhaps, no cars.
- Some regions have been considering major challenges related to new vehicle technologies, including safety and the environment. Governments should continue to work together to expand on these initial discussions.
- Going forward, the public and private sector relationship will be very important. We should continue to strive for good relations and to create learning opportunities where governments, industry, academia and the technology sector can learn from one another.
- It will be important to continue to have discussions between industry and government on CV/AVs – both from a regulatory and policy perspective but also in the areas of research and testing. This roundtable discussion highlights the complexity of the issue, including issues related to social benefits, smart cities, the economy, and productivity. It will be important to continue to work together, but it is clear that there exist many areas where we are in agreement.

END

ANNEX A

High Level Policy Roundtable Participant List

1. **The Honorable Marc Garneau**, Transport Minister of Canada (Chair)
2. **John Wall**, Vice President and Head, QNX Software Systems
3. **Chris Philp**, ITS Canada CEO and Chair
4. **Grover Burthey**, Deputy Assistant Secretary for Transportation Policy, United States
5. **Morten Kabell**, Mayor of Copenhagen
6. **Claire Depré**, Head of Unit ITS, European Commission
7. **Georg Kapsch**, CEO of Kapsch Global
8. **Chris Murray**, ITS America Chair and CEO of Kapsch
9. **Ray Tanguay**, Auto Advisor for the Government of Canada
10. **Ross McKenzie**, Managing Director, Waterloo Centre for Automotive Research (WATCAR)
11. **David St. Amant**, ITS America Interim CEO
12. **Walter Nissler**, Chief of Vehicle Regulations and Transport Innovations Section, UNECE
13. **Jacob Bangsgaard**, CEO of ERTICO
14. **Cees de Wijs**, ERTICO Chairman and CEO of Dynniq
15. **Lam Wee Shann**, Chief Innovation and Technology Officer, Land Transport Authority, Singapore
16. **Atsushi Yano**, Vice Chairman, ITS Japan
17. **Shigetoshi Tamoto**, International Affairs, ITS Japan
18. **Yutaka Hasegawa**, Councillor for Traffic Bureau National Police Agency, Japan
19. **Wen-Jong Chi**, Deputy Minister of Transportation and Communications, Taiwan
20. **Dato' Sri Zohari Bin Haji Akob**, Secretary General, Ministry of Works, Malaysia
21. **Dato' Sri Haji Fadillah Bin Haji Yusof**, Minister of Works, Malaysia
22. **Susan Harris**, CEO of ITS Australia
23. **Judith Zielke**, Deputy Secretary, Department of Infrastructure and Regional Development, Australia
24. **Lenny Louis**, Canada Country Director, Tesla
25. **Stephen Carlisle**, President and Managing Director, GM Canada

High Level Policy Roundtable Participants

Jacob Bangsgaard, CEO, ITS Europe

Walter Nissler, Chief Vehicle Regulations, UNECE

David St. Amant, Interim CEO, ITS America

Ross McKenzie, Managing Director, Waterloo Centre for Automotive Research

Ray Tanguay, Automotive Advisor to Federal and Ontario Government

Chris Murray, President, Kapsch North America

Georg Kapsch, CEO, Kapsch Group of Companies

Claire Depré, Head of ITS, European Commission

Morten Kabell, Mayor of Copenhagen

Grover Burthey, Deputy Assistant Secretary for Transportation Policy, USDOT

Chris Philp, CEO/Chair ITS Canada

John Wall, Blackberry QNX

Hon. Marc Garneau, Minister of Transport

Stephen Carlisle, GM Canada

Cees de Wijs, CEO Dynniq and Chair, ITS Europe

Lam Wee Shann, Chief Innovation and Technology Officer, Land Transport Authority, Singapore

Atsushi Yano, Vice Chairman, ITS Japan

Shigetoshi Tamoto, International Affairs, ITS Japan

Yutaka Hasegawa, National Police Agency, Japan

Wen-Jong Chi, Deputy Minister of Transportation and Communications, Taiwan

Dato' Sri Zohari Bin Haji Akob, Secretary General, Ministry of Works, Malaysia

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