Current Industry Developments

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In Toronto, Ontario, self-driving Uber vehicles are now being tested on public roads. In Ann Arbor, Michigan, Domino's is using autonomous vehicles to deliver pizzas to consumers. These examples highlight the fact that in the near future, if not already, autonomous vehicles will impact our day-to-day lives.

Since the release of our white paper in 2016, *Autonomous Vehicles: Revolutionizing Our World*, incredible changes in autonomous vehicle technology and implementation have occurred.

A snapshot of current industry and government activity follows:

Cross-Border Regulatory Initiatives: Transport Canada and the U.S. Department of Transportation have an nounced that they will "coordinate and collaborate" on Vehicle-to-Vehicle (V2V) and Vehicle to Infrastructure (V2I) technology.[1] This will include joint planning and priority-setting, collaborative research projects, information exchanges to support analyses, as well as architecture and standards development. In July of 2017, a Cadillac ATS and Chrysler 300 became the first autonomous vehicles to make a cross-border drive. The drive concluded in Traverse City, Michigan with the signing of a new agreement between Ontario and Michigan to continue collaboration in testing, developing and marketing of automated and connected vehicle technology.[2]

Senate Committee Calls for National Autonomous Vehicles Strategy: On Monday, January 29, 2018, the Standing Senate Committee on Transport and Communications delivered its report on the regulatory and technical issues related to the deployment of connected and automated vehicles — "*Driving Change: Technology and the Future of the Automated Vehicle*". The key message arising from this report is: "**Canada is ill-prepared for the fast-approaching future of transportation**." The first part of the report looks at the potential advantages and challenges of autonomous vehicles ("AVs") and connected vehicles ("CVs"). Part 2 provides in-depth recommendations, including the creation of a joint policy unit to coordinate federal efforts for the implementation of a national strategy. BLG is proud to have participated in the Committee's consultation process with industry. We hope that this report will be a significant step forward for the development of federal policy and the deployment of AVs on Canadian roads. Read more >

Increased Federal Investment in Regulation: the 2017 federal budget has promised $76.7 million over five years to Transport Canada to update transportation regulations, certifications and standards, including the development of regulations for "the safe adoption of connected and autonomous vehicles and unmanned air vehicles".[3]

Increased Provincial Regulation: Ontario is the first Canadian province to introduce autonomous vehicle regulations addressing operation on public roads.[4] As of July 31, 2017, Ontario has six participants in its automated vehicle pilot program: The University of Waterloo, The Erwin Hymer Group, Blackberry QNX, Continental, X-Matik Inc., and Magna.[5]

Collaboration Between Provincial Government and Industry: with an $80 million investment over five years, the Ontario government announced the launch of the Autonomous Vehicle Innovation Network (AVIN) on November 8, 2017.[6] Located in Stratford, Ontario, AVIN will include a Demonstration Zone where researchers can test autonomous vehicles in a wide range of everyday, real-life traffic scenarios.

Rethinking Essential Municipal Services: in May of 2017, Uber partnered with the Town of Innisfil to become Canada's first ride sharing and transit partnership.[7] This type of on-demand transit service will likely expand to other cities with the arrival of autonomous vehicles.

Environmentally Conscious Innovations and Initiatives: On November 16, 2017, the City of Ottawa announced that it had partnered with Transport Canada and the Ontario Ministry of Transportation to deliver the Assisted Commercial Vehicle Eco-Driving Pilot Project.[8] This one-year initiative, running along a six-kilometre corridor, uses 12 connected traffic signals to communicate with connected vehicles, providing information on when a traffic signal will change. This information helps drivers determine optimum speeds to reduce fuel consumption and emissions and avoid hard braking.

Safer Railways: in the United States, the National Transportation Safety Board (NTSB) has suggested that the implementation of autonomous technologies, such as crash-avoidance technology, could have prevented recent railway crashes.[9] Positive Train Control (PTC), an advanced train control system, can prevent train-to-train collisions, over-speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position.

Increased Pace of Industry Innovation and Development: Several Canadian developers are also using autonomous driving technologies to create products that can retrofit any vehicle and thus make it autonomous. For example, Toronto-based start-up X-Matik, recently unveiled its LaneCruise system which uses cameras and actuators to provide a level 2-3 autonomous system to any existing car for less than $3,000.[10] Magna has also unveiled its MAX4 Autonomous Driving Platform that can be integrated into any vehicle to enable up to Level 4 autonomous driving in both urban and highway environments.[11]

Overhaul to the Trucking Industry: Tesla unveiled its first semi-autonomous semi-truck at the end of last year, promised to be more efficient, safer, and higher performing than traditional transport vehicles.[12] The Tesla Semi is outfitted with Autopilot, an advanced driver assistance system found in the company's electric passenger vehicles. Autopilot uses sensors, cameras, and radar and software to offer several advanced

driver assistance features that when combined provides what some describe as “semi-autonomous” capabilities.

AI-driven Ship Awareness: autonomous shipping is set to change the maritime industry. Rolls-Royce has teamed up with Google to use Google’s Cloud Machine Learning Engine to train its own artificial intelligence (“AI”)-based object classification system, which will help detect and track surface objects, such as other ships, to make shipping safer and to improve shipping operations.[13]

Advancements in Unmanned Aerial Vehicles: Unmanned Aerial Vehicle (“UAV”) and drone operations have rapidly grown over the past several years. With an increased access to Graphics Processing Units (“GPUs”) and artificial intelligence technology, on-board sensing has developed to allow UAVs to autonomously assess their surroundings and respond without pilot input. This autonomous technology has also allowed for an increased ability to capture reliable and consistent data by UAV operators. However, these developments are not without risks – some have raised concern about the rapid development in UAV autonomous technology may lead to a potential arms race in artificial intelligence and robotic technology.[14]

The tremendous growth in autonomous vehicle technologies will, no doubt, disrupt many industries. Manufacturing, technology, transport, logistics, insurance, health, municipal planning, infrastructure, energy, and hospitality will be impacted economically and operationally. While these changes will have many positive impacts, they create tremendous legal and regulatory challenges.

It is our hope that The Sensor will enhance your understanding of how autonomous vehicles are revolutionizing transport, and as we move from disruption to adoption, we trust the information will enable you to proactively approach the issues affecting your industry sector.

By

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