



THE VAN HORNE INSTITUTE

PANEL ON “BEYOND PASSENGERS: AVS FOR GOODS MOVEMENT”

by

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As we have all learned over the past day-and-a-half, the coming of the automated vehicle (AV) will have a profound and transformative effect on how we move people around our cities and countries. But the movement of goods will be significantly affected as well.

Let me start by restating the major principle I enunciated yesterday, namely, that in the future any jobs or tasks done routinely today by humans will soon be done by computers. That principle suggests we are at an “inflection point” in human history, one that will be as profound in its effects on all of us as the Industrial Revolution was. We are truly on the threshold of a Second Machine Age. One wag recently said, “The factory of the future will have only two employees: a man and a dog. The man will be there to feed the dog and the dog will be there to keep the man from touching the machines.” If, as I said yesterday, nearly half the jobs in North America --- like those of truck, taxi and bus drivers --- are about to be taken by machines, we should be worried about the effect of these massive job losses on society, and the famous middle classes our politicians seem to be so much in love with these days. In other words, there is a huge ethical issue coming at us that most people --- particularly the teckies --- seem to be neither aware of nor care very much about.

The first stage of the movement of goods by AVs will probably happen when automated trucks become common on our roads. Last year in Nevada a driverless or automated 18-wheeler successfully navigated highways in that state. So, the initial testing phase for trucks, as opposed to passenger vehicles, has begun --- not in Canada, but elsewhere. But, even where the tests have started or are about to start, the regulatory systems needed to accommodate automated trucks are lagging behind. That is, no doubt, one of the many reasons why President Barrack Obama recently announced a \$2 billion program to create uniform federal regulations for the operation of AVs in the United States.

One major American trucking executive --- John White, chief marketing officer for Xpress, America's seventh largest trucking company --- last year said that the biggest limiting factor for the New Age of Trucking might be Washington's reluctance to pass legislation or to craft regulations to make AV trucks commercially viable. But White said that before Obama made the announcement I referred to earlier so he might be more optimistic now. There is no question that many trucking company owners and managers will welcome driverless trucks as one way to alleviate the truck driver shortage in North America, now said to be a shortfall of 20,000 drivers. And that number, without automated trucks, is expected to rise to 100,000 in the next few years.

And don't forget that the automated truck revolution is already underway --- not on public lands but on the private lands of Suncor in Alberta' oil sands where, today, I am told that roughly one-third of the large, heavy trucks carrying bitumen have been automated. The remainder will be automated in the next two years.

Driverless trucks would not have limits on how many hours they could be driven. No downtime for sleeping or eating by drivers would be needed. No drugs, alcohol or driver exhaustion would affect the trucking industry any more. And drivers would not quit in the middle of a run or text dangerously while driving. When I spoke about this subject to a conference of trucking people in Atlantic Canada last October in Halifax, many privately told me they could not wait for the coming of the driverless truck. The new technology would not only simplify management of trucking firms but would, in their opinions, leave more money on the bottom line.

One of the interesting questions that is not being widely asked is: who will own the new AV trucks? I can imagine state-owned and managed automated vehicles of all kinds being proposed by some --- much like today's transit systems in cities. But if I had to make a wager, I would bet --- given the high costs of building and maintaining the new computer systems needed for automated trucks --- that they will be privately run. If that opinion is correct, the next question is whether the Googles, the Teslas and the Apples who will be building many of these new vehicles want to own and operate them and to charge users for the privilege of renting them. Remember, in the 1940s, IBM's founder, Thomas Watson, Jr., famously said the world would only need four mainframe computers in the future --- and IBM planned to own all of them. One would therefore only be able to rent time on those computers from IBM, forever.

The corporate culture embodied in Watson's attitude continues today with Watson, its supercomputer which can only be rented by users. That culture probably also caused IBM to reject Bill Gates's offer, in the early days of Microsoft, to become part of IBM. How different the computing world would be today if Microsoft had joined the button-down, blue-suited world of IBM and kept the personal computer out of the ownership of individuals.

If the Googles of the world attempt to create a monopoly of any of their AVs, whether trucks or cars, by refusing to sell them or attempting to own most of them, the anti-trust folks in government will have to intercede to ensure that the monopoly power of the manufacturers and owners of AVs does not violate good public and economic policy. I believe that Teslas marketing of the Tesla 3, and future Tesla models,

will counter the possibility of all or most AVs remaining in the hands of their manufacturers. Tesla, by the way, is promising to send a fully automated vehicle from Los Angeles to New York next year. That event will be the equivalent, I believe, of the first coast-to-coast airplane flight that took place in the United States in 1911. And look at where the airline industry is today.

One of the results of the takeover of the main roads and city streets by automated cars and trucks will be the question of who then will keep the roads, streets and highway systems in good repair. We all know that much of this infrastructure needs repair and rebuilding in Canada and that its maintenance is a major expense of tax dollars at the provincial and municipal level. Will the responsibility for this repair and maintenance function pass from the public to the private sector. Don't forget that in another time, in the 19th century, many roads and turnpikes in some parts of the world were privately owned. But those largely-toll-driven turnpikes gradually became public property which they mostly all are today. The right of AVs of all kinds to travel on 21st century roads in future might mean that the users will have to pay the externalities they do not pay today --- and to build and maintain roads without assistance from the public purse. That will be good news for both governments and beleaguered taxpayers.

Once the automated truck becomes common on our roads and city streets, the next question will be: how will those trucks be loaded and unloaded. I believe that for the large 18-wheelers and super-Bs on the main roads will have to be reconfigured to have some kind of roll-on, roll-off system (Ro-Ros) similar to those employed today in some sectors of the marine shipping industry. If such techniques were to be used, then they could be easily automated. And, of course, many warehouses have already been converted to systems which are autonomous and not ``manned`` by humans anymore. I remember 20 years ago being taken to a factory in Japan at the foot of Mount Fuji where the entire factory was roboticized. So, it's already happened.

As the child of a senior public servant and as one who has hung around the political arena for much of my life, I worry about the ability of governments to prepare properly for the Second Machine Age. Most government policy is reactive, not proactive. And most government-employed policy advisors in Canada were defenestrated during the financial crisis of the 1990s or during the nine-and-one-half year reign of Prime Minister Stephen Harper. Although Harper was a bright policy wonk before taking power, he quickly transformed into an all-politics-all-the-time manager of the public space once in office. So, he never grappled with anything I am talking about

today. The new Trudeau government in its recent budget did not lay out a broad policy framework for infrastructure renewal. The federal government is still a by-stander when it comes to infrastructure money commitments. Ninety-five per cent of that money in the past has gone to its recipients without too many broad policy strings attached. Whether that will change under Trudeau is not clear. The placing of Transport Canada into some kind of `receivership` by the new government means that whatever policy advice might be offered by that department may not be as welcome as it might otherwise have been in the past.

The recent report of the Canada Transportation Act Review process headed by Hon. David Emerson promised a 30 to 50 year set of policies for transportation and infrastructure in Canada. While many parts of Emerson`s report are impressive, it failed to deliver the kind of template that was promised. That means that the private sector must take a greater responsibility than ever for shaping policy in the 21st century. The goods movement industry cannot sit idly by and hope that most government --- federal, provincial and municipal --- will be on the cutting edge of developments in the Second Machine Age. Those in this industry must acquaint themselves with what is happening around the world --- and mostly not happening here yet --- and put public and private pressure on its Masters to stop being behind the AV curve. What needs to be done is well-described in a White Paper on AVs that was handed to the federal government last December by my friends and colleagues at CAVCOE. All of us must ensure that it is being read and respected by our new Masters in Ottawa.