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Future Mobility Newsletter

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Jobs in the information society

Plan for the future because the future is where you will spend the rest of your life. (Mark Twain)

With transportation becoming increasingly intelligent, taxi and bus drivers, airline pilots and ship captains will become obsolete. While the Google Car raises much debate, a single driver in the first vehicle leads a truck platoon of as many as eight trucks following each other on Swedish highways. Soon, ships will be piloted like drones with captains driving to a command centre every morning but, eventually, they also will disappear. It is exactly what mining companies do with ore trucks in the Australian outback today, saving more than \$100,000 a year on each driver it needn't employ. Furthermore, it could perhaps already be argued that planes would be safer if there were no pilots on board!

Does *Welcome to the Information Age* actually mean Welcome to an age where countless jobs will be tossed on the ash heap of history?



We quickly remember that many faced the same dire predicament during the 18th, 19th and 20th centuries when humanity transitioned from the Agricultural Age to the Industrial Age. During the industrial revolution, whole families were reduced to the role of beggars so, will history repeat itself ?

Not likely.

First, our modern economies benefit from a considerable social security nets. Second, this Information Age, or Third Wave in Alvin Toffler's words, comes at a time when cohorts of baby boomers (nearly 30% of North America's population) leave active life with an insufficient number of young people to replace them.

Let us examine what automation means for truck, taxi and bus drivers.

In 2013, the Conference Board of Canada predicted that Canada could experience a shortage of 25,000 to 33,000 for-hire truck drivers by 2020.

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This could have disastrous effects on the supply chain and, eventually, on the whole economy. But platoons of trucks like in Sweden might just be the solution to such a problem.

As for taxi drivers, the challenge is quite different. In 2013 Forbes reported that Uber was taken to court partly because their App to hail a cab was considered to foster “age discrimination” since older people were less likely to own a smartphone! Canada has roughly 50,000 taxi drivers, almost half in Montreal, Toronto and Vancouver. Collectively taxi permits are now worth billions of dollars but they will essentially be worthless after the introduction of autonomous cars. How will we, as a society, solve this problem?



Finally, bus drivers represent the single most important operations cost for urban transit systems. With no drivers to pay, autonomous buses will be a lot cheaper to operate and we might see urban transit systems become (once again) self-sufficient. Service should also improve greatly with increased bus frequency, night service and buses showing up on time. But public transit is a highly unionized sector and unions already play down the possibility of autonomous buses hitting our

roads anytime soon as it was the case in Vancouver when Metro Vancouver's transit authority announced it is exploring the possibility of driverless buses guided by computerized maps and laser technology. TransLink stated it is looking into a form of driverless transit, service which has already been implemented in the Netherlands. The bus driver's union vice-president quickly retorted that TransLink should concentrate attention on more current issues.

Will all humans eventually be replaced by robots? Where do humans fit in the future? And how will we compensate them?

Intelligent robots such as autonomous vehicles require a lot of data to function and humans cannot be dissociated from the data acquisition process. Big Data has already syphoned significant amounts of data from the outside world, data that could be construed as belonging to the people that generated it directly or indirectly.

For example, if Google takes a picture of your house, shouldn't you be compensated? When you enter information on Facebook, shouldn't you be paid when Facebook uses it to generate revenue? Providing information to “Big Data” should be compensated for it is the raw ore of data mining activities. Arguing that users have free access to that data isn't an excuse while Google fills its coffers using the information we donate.

Jaron Lanier, one of the pioneers of the Information Age, suggests that users who provide the raw data that make those information based companies fabulously wealthy should be able to reap the benefits they helped generate through micro payments. But will “jobs” of the future simply consist of providing information to Big Data about yourself and your daily activities in exchange for micro payments whose value will be determined by some sort of data stock exchange? Let's admit that this is a little mind boggling for us, mere Second Wave citizens.

It would not be surprising to see companies closely linked to Big Data benefit the most from the introduction of autonomous vehicles. In fact, this is possibly one of the reasons why Google became involved with autonomous cars! Many car companies, on the other hand, see driverless cars as a disruptive force in their industry since it represents a tremendous shift in their 100 years-old+ business model. But some auto manufacturers are reinventing themselves. Daimler and BMW have already entered the car sharing era in preparation for these changes, to name but two.

It is simplistic to see the introduction of autonomous vehicles as the mere destruction of transportation related jobs. But it is definitely a paradigm shift our governments should address right now if we want society to transition as seamlessly as possible to the Information Age.

Interested in daily updates on future mobility? Check out the following:

<http://www.scoop.it/t/evolution-of-transportation>

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In the news

► Warren Buffett says so !

Mr. Buffett, whose Berkshire Hathaway owns Geico, called self-driving cars a "Real Threat" to insurers. At his company's recent annual meeting, he acknowledged that driverless vehicles would be "very bad for auto insurers". He also stated that this "very bad" future would not arrive for 5, 10 or even 30 years. Hmm, I thought Buffett was a wise investor. Or maybe he's just saying what needs to be said to ensure the share price of Geico doesn't fall over night. [<http://www.linkedin.com/today/post/article/20140503191813-13780238-berkshire-2014-warren-buffett-sounds-worried-about-self-driving-cars>]

► Product liability and driverless cars

The Brookings Institute (www.brookings.edu) put out a discussion paper debating how products liability law will impact autonomous vehicles and suggests a set of guiding principles for legislation that should—and that should not—be enacted. (<http://www.brookings.edu/research/papers/2014/04/products-liability-driverless-cars-villasenor>)

► 100 Volvo self-driving cars on the roads

Volvo Car Group's groundbreaking project 'Drive Me' – featuring 100 self-driving Volvos on public roads in everyday driving conditions – is moving forward rapidly. The first test cars are already rolling around the Swedish city of Gothenburg and the sophisticated Autopilot technology is performing well.. (<https://www.media.volvocars.com/uk/en-gb/media/pressreleases/145619/volvo-car-groups-first-self-driving-autopilot-cars-test-on-public-roads-around-göteborg>)



► Commercially available NOW

It took 15 years but the Spirit is here now. As many as 16 tractors can be operated at one time—multiple units can be connected in tandem or parallel for

500+ horsepower loads.

(http://autonomoustractor.com/why_driverless.html)

MARCON at the following events / MARCON aux événements suivants :

Canadian Council of Motor Transport Administrators (Conseil canadien des administrateurs en transport motorisé), May 25-28 in Toronto: <http://ccmta.ca/en/component/ohanah/2014-ccmta-annual-meeting>

Rendez-vous du Transport 2014 aura lieu à Victoriaville le 12 juin : <http://www.rvtransport2014.com>

Transportation Research Board Automated Vehicles Symposium, July 14-18 in San Francisco: <http://www.trb.org/Calendar/Blurbs/169833.aspx>

Transportation Association of Canada, September 28 - October 1, in Montréal, Future Vehicle Technology Session <http://tac-atc.ca/en/conference>

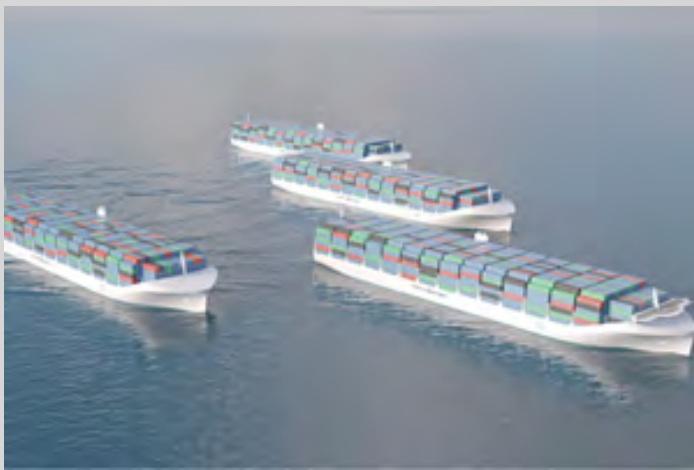
Executive Forum on October 7th in Toronto. The event focuses on insurance industry trends, including changes in mobility and their impacts on insurance.

EV2014VÉ: where electrification meets autonomous vehicle technology: October 28-30 in Vancouver. <http://emc-mec.ca/ev2014ve/en/>

Les nouvelles

► **MUNIN: Another EU backed Initiative**

Project MUNIN – Maritime Unmanned Navigation through Intelligence in Networks – is a collaborative research project that aims to develop and verify a concept for an autonomous ship, which is defined as a vessel primarily guided by automated on-board decision systems but controlled by a remote operator in a shore side control station. [<http://www.unmanned-ship.org/munin/>]



Rolls Royce believes that the safer, cheaper and less polluting drone ships might be deployed in regions such as the Baltic Sea within a decade. The technology is available now but challenges due to regulatory hurdles, union opposition and conservative ship owners will slow global adoption... once more.

► **University of Texas at Austin Study**

This new study (published March 28, 2014) predicts SAVs' (shared automated vehicles)

potential implications at a low level of market penetration (1.3% of regional trips) by simulating a fleet of SAVs serving travellers in Austin's 12-mile by 24-mile regional core.

Results show that each SAV is able to replace around 8.5 to 10 conventional vehicles while still maintaining a reasonable level of service (as proxied by user wait times). These results have substantial implications for parking and emissions. For example, if an SAV fleet is sized to replace 9.0 conventional vehicles for every SAV, total parking demand will fall by around 8 vehicle spaces per SAV (or possibly more, since the vehicles are largely in use during the daytime).

Though extra vehicle-miles traveled through unoccupied travel is a potential downside, vehicle fleet changes, a reduction in cold-starts, and dynamic ride sharing may be able to counteract these negative impacts and lead to net beneficial environmental outcomes.

[http://www.caee.utexas.edu/prof/kockelman/public_html/TRB15SAVsinAustin.pdf]

► **What else can unmanned farming do ?**

In addition to "self-driving", unmanned farming vehicles are able to ...

- better analyse crops,
- better identify signs of stress,
- Efficiently dispense water and pesticides,
- address aging farmer population, and
- maximize yield.

See hope the robotic agriculture market is emerging in this month's Mission Critical [http://issuu.com/auvsi/docs/mission_critical_agriculture_2014/10?e=2783066/7674504]