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Future Mobility Newsletter

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Will Canada pass on this unique opportunity?

Cugnot's Fardier and the "Jamais Contente" have each made their mark on the history of the automobile industry by becoming respectively the first combustion engine vehicle in 1771 and the first electric vehicle to exceed 100 km/h in 1899.

A new era and a different paradigm: automobile manufacturers having pushed sales using "the driving experience" for several decades, are they now trying to create a demand for the "self-drive" experience? The driving experience is about to become secondary with the latest technological advancements. Autonomous vehicles (AV) are undeniably among us!

The Google car and the Mercedes-Benz F015, to name a few, are two "autonomous" vehicles authorized to operate on public roads in several American states. Several projects have started or will be started in Europe. CityMobil 2 in which electrical autonomous low speed shuttles are tested in La Rochelle, in France; also, the city of Milton Keynes, in England, will be

experimenting with low-speed electric pods. The number sites and projects are multiplying and several countries, states and municipalities wish to become leaders in this field.

In Canada, no project of remotely similar ambition has been concretely defined. With its Nordic climate and its proximity to the United States, Canada is the ideal testing ground for the harshest conditions this technology must be able to face. Several aspects are already being addressed (including regulations and insurance). However, the main challenge for Canadians, is to ensure this technology is as efficient in winter conditions as it is the almost ideal conditions where trials are currently generally conducted. We must act now to ensure that these advanced technology vehicles are technically capable of circulating in Canada in coming years and that this country's citizens can profit from the benefits of this technology.

In several applications, AVs effectively replace traditional transportation systems such as buses or light rail as

they are less expensive to operate and allow greater flexibility. The pods that have been operating on a guided roadway at Heathrow airport since 2011, are an early example of driverless technology. Since then, numerous autonomous electrical low speed shuttles have been introduced including the Navya (Induct) and the EZ 10 (Ligier group). These vehicles have not been used in extreme climatic conditions and, if they are to be used in Canada, they need to be proven. Canadian businesses need to be involved in testing this technology and the challenges it presents.

Today, we have difficulty establishing a standardized system for electrical vehicle charging (Tesla, CHAdeMo, SAE.). How will we harmonize decisions with respect to driverless vehicles? Are decision-making algorithms infallible? In what conditions should we be using driverless vehicles? What impact will winter climatic conditions have on the navigation system? Only by real-world testing will we have concrete

answers to these questions.

Canadian stakeholders must act soon as global automakers are unlikely to develop autonomous vehicles for our relatively small market given the challenges our climate represents. Canada has a lot to offer: our expertise in robotics, optics and

Le Fardier de Cugnot et la « Jamais contente » ont marqué, chacun à leur manière, l'histoire de l'automobile, pour être devenu respectivement le premier véhicule à moteur thermique connu en 1771 et la première automobile électrique à avoir franchi la barre des 100 km/h en 1899.

Changement d'époque, changement de paradigme. Alors que les constructeurs automobiles ont, pendant plusieurs décennies, utilisé « l'expérience de conduite » comme argument de vente, seraient-ils en train de nous créer une demande pour « l'expérience sans-chauffeur »? En effet, l'expérience de conduite deviendrait accessoire avec les dernières percées technologiques. Les véhicules autonomes (VA) sont bel et bien parmi nous!

Google Car ou encore le Mercedes F015, pour ne nommer que celles-ci, sont des voitures autorisées à circuler sur des routes publiques dans quelques états américains. Plusieurs initiatives fleurissent en Europe, comme le projet CityMobil 2 dans lequel sont expérimentés des navettes électriques à basse vitesse à La Rochelle, en France, ou encore dans la ville de Milton Keynes en Angleterre, qui expérimentera à son tour, sur un site dédié, ce type de véhicules. Les sites d'expérimentation se multiplient et plusieurs pays, états et villes américaines souhaitent devenir des chefs de file en la matière.

advanced engineering can contribute significantly to the development of this technology.

We need testing grounds or geographic areas where pilot projects can be undertaken, where vehicles can be tested. We need to encourage those involved in the development of

Au Canada, aucun projet d'envergure n'a encore été défini concrètement. Avec son climat nordique et sa proximité avec les États-Unis, l'expérimentation de ce type de véhicule est un enjeu majeur. Plusieurs aspects sont déjà en réflexion ailleurs (légal, assurances, etc.). Mais pour nous Canadiens, le défi principal, est avant tout de déterminer si ce type de technologie sera capable d'être aussi efficace dans les conditions hivernales que dans des conditions presque idéales ou sont actuellement menés ces fameux essais. Il y a fort à parier que la réponse est au mieux « pas tout à fait » au pire « non pas du tout ». Dans les deux cas, nous devons prendre action de cette réponse et agir afin que les véhicules les plus avancés jamais construits ne puissent circuler chez nous!

Dans certaines utilisations, des VA remplacent avantageusement les véhicules de transport traditionnels de type autobus ou train léger, car elles sont beaucoup moins coûteuses à opérer et permettent plus de flexibilité à l'exploitant. À ce chapitre on peut citer le POD mis en service en 2011, à l'aéroport d'Heathrow en Angleterre, qui lui, roule sur une voie dédiée. Plusieurs autres cas de réussites concernent des navettes électriques autonomes à basse vitesse, ne dépassant pas les 25 km/h tels que Navia (Induct) ou encore l'EZ 10 développé par le groupe Ligier. Ces véhicules sont utilisés dans des conditions quasi idéales et n'ont, en aucun cas, fait leurs preuves dans des nos

this technology globally to undertake their winter and year-round testing here, attracting research and development activity, ensuring knowledge transfer to our engineers and software developers and setting the groundwork for tomorrow. Will Canada pass on this unique opportunity?

conditions extrêmes. Tout reste à prouver et le Canada devrait se positionner rapidement pour évaluer à son tour ce type de technologie et les défis qui les entourent.

À l'heure où il est encore difficile d'adopter un système standardisé pour les bornes de recharge rapides électriques (Tesla, CHAdeMO, SAE) qu'en est-il au juste des véhicules qui doivent décider à notre place en cas d'urgence? Les algorithmes décisionnels sont-ils infaillibles? Dans quelles conditions d'utilisation notre véhicule pourra-t-il être autonome? Est-ce que les conditions hivernales ont un impact significatif sur ces systèmes de navigation? Seules des expérimentations sur le terrain pourront répondre concrètement à toutes ces questions.

Si des participants du Canada ne relèvent pas le défi, qui développera les technologies requises par notre climat pour ces VA étant donné la petite taille de notre marché? Nous possédons une très bonne base de savoir-faire. Il nous faut développer certaines infrastructures, voire développer un circuit ou un quartier où les véhicules autonomes seront développés et testés dans nos conditions. Comme nous ne sommes pas le seul pays nordique, les constructeurs pourraient être intéressés à venir terminer leur développement chez nous, ce qui créerait tout un nouveau courant! Que de belles occasions d'affaires pour le Canada!

AT THE FOLLOWING EVENTS / AUX ÉVÉNEMENTS SUIVANTS

Y. Provencher will be speaking at the **PIT Conference** in Toronto, February 25th & 26th, 2015

Y. Provencher will be speaking at an event in Stockholm, Sweden on March 18th, 2015: **Towards Intelligent Cities and Transportation Management**

C.Kargas will be speaking at the **Advanced Vehicle Technology Forum** in Ottawa, February 26 2015

C.Kargas will be speaking at the **Insurance Canada Technology Conference**, in Toronto, March 9-10 2015

C. Kargas sera conférencière au **50e Congrès et Salon des transports : PROCHAIN ARRÊT!** de l'Association

québécoise des transports (AQTr), qui aura lieu du 30 mars au 1er avril 2015 au Palais des congrès de Montréal

C. Kargas will be speaking at the **Smart and Healthy Municipal Public Transport International Conference**, April 21-22nd, Pilsen, Czech Republic

C. Kargas will be speaking at **Climate Change Technology Conference**, May 25-27, 2015 in Montreal | C. Kargas sera conférencière à la **Conférence sur les technologies du changement climatique**, à Montréal, du 25-27 mai 2015

C. Kargas will be speaking at Canada's premier electric mobility event, **EV2015VE**, May 25-27th, 2015, in Halifax, Nova Scotia | C. Kargas sera conférencière à **EV2015VE**, 25 au 27 mai 2015 à Halifax, Nouvelle Écosse

For a free subscription or additional information | Pour un abonnement gratuit ou plus d'information :

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In the news | Les nouvelles

› Germany's A9 autobahn set for driverless

Germany has approved the use of self-driving cars (SDCs) on a portion of its [autobahn A9](#). Given the efforts of several German auto manufacturers and suppliers in developing self driving technology, this is overdue.

› Dutch approve SDCs for public, large-scale testing

After changes to Dutch legislation are approved, [large-scale testing](#) is scheduled to begin for both cars and trucks. The objective is to make The Netherlands a testbed for this technology.

› Singapore's SDC trials

The [trials](#), set to begin in March, will be conducted on a 6 km network of roads that encompasses both light and heavy traffic routes.

› UK trials

More information regarding the [four trials](#) aimed at helping the UK become a leader in the driverless race. Beyond safety, the government sees the enormous economic benefit that can be derived from R&D investments and later, developing and exporting its expertise. Milton Keynes is already seeing the economic benefits with [7000 new jobs](#) being created over the next six years.

Coventry & Milton Keynes: Autodrive Programme will develop infrastructure to work with autonomous cars navigating roads. Driverless pods will ferry people around pedestrian areas.

Greenwich: Gateway Project will test automated electric shuttles and robotic valet parking.

Bristol: Exploration of insurance implications of driverless vehicles.

As these and other countries prepare for tomorrow's mobility, we ask what Canadian governments are thinking and when we will see mobility history being made in this country with regulatory changes, permitting the testing and operation of driverless technology, and pilots that will attract investment and encourage development of this technology among Canadian organizations with strong relevant capabilities.

Who better than Canadians to develop the technology that will allow for driverless vehicles to function properly in [snow and on ice](#)?

› Ride sharing insurance products

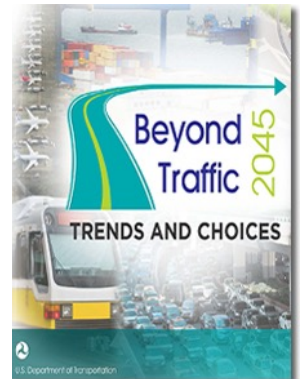
In the last few weeks, [Farmers](#), [Metromile](#), [USAA](#) and [Geico](#) have introduced insurance products for the ride sharing market.

› Sharing ...Audi style

Audi's [Unite](#) program allows up to four people to share a car for up to two years. Insurance, maintenance, seasonal tire changes, monthly cleaning and customer support are included in a monthly fee. Packaging mobility may be interesting to a larger audience.

› US Government looking to the future of mobility

Secretary of Transportation Anthony Foxx [introduced](#) the US Government's look at next thirty years of mobility, *Beyond Traffic 2045: Trends and Choices*, at Google's headquarters. Foxx's decision to introduce this report in Silicon Valley, instead of Washington DC or Detroit is telling of where mobility is headed.



› Construction upheaval

[Komatsu](#), the world's no. 2 construction equipment manufacturer, has announced a new business: SmartConstruction. Using construction machinery equipped with Intelligent Machine Control technology alongside drones, the goal is to automate pre-foundation work job sites and monitor them from a central location. The machines are expected to be leased.

› Consumer interest in SDCs

While numerous studies have been indicated consumer fear of SDCs, one study among [UK motorists](#) concluded that 59% of car buyers would buy an SDC.

Meanwhile, a [study](#) by Carnegie Mellon reveals that the self-driving preferences of millennials and baby boomers are "miles apart". While assessing consumer preferences about this technology is interesting, we shouldn't fall into the trap of asking consumers to state what they want from a technology they hardly understand. Could consumers have stated what they expected from a smart phone before the iPhone was introduced?

In the news | Les nouvelles

► What will the Apple vehicle be?

Over the last few days, we have seen and heard countless articles, blog postings and discussions regarding Apple's entry into the mobility space. There are certainly more questions than there are answers but one thing is certain: if Apple, a company renowned for its secrecy, did not want the world to find about its activities and interest in this space, we would still be in the dark. It all started a couple of weeks ago when "mysterious" Apple vans were spotted in San Francisco and New York.



Then, more news surfaced about Apple being in talks with [automotive suppliers](#) and that the organization is working on an electric [self-driving](#) vehicle. Apparently, Apple has been on a hiring spree and that [Steve Zadesky](#), a 16-year Apple veteran who has instrumental in the development of the original iPod and iPhone, is leading Apple's automotive research lab located in Silicon Valley outside the company's Cupertino campus.

Apple already has its foot in the automotive industry with CarPlay but the development of a vehicle by this innovator with \$178 billion in cash is something that has pleased many of those who know that if anyone can create an entirely new vision of mobility, it's Apple. And, according to news reports from this week, we will not have to wait long as it appears that targeted vehicle production is [2020](#).

► The Google | Uber "rift"?

Also over the last few weeks, much discussion focused on what was described as a "[rift](#)" between Google and Uber. The latter's decision to invest in driverless technology by investing in robotics research at [Carnegie Mellon University](#) and the former's launch of a [ride sharing app](#) for its employees may have resulted in a "[crack](#)" of what appeared to be a great relationship with Google being an important investor in Uber and Uber looking to driverless technology to power the mobility service of tomorrow.

► Uber: America's next big automaker?

A new report from [Morgan Stanley](#) has predicted that Uber is on the path to becoming the fifth major automobile company in the United States. Could the Carnegie Mellon University partnership have something to do with this?

► Software steering the auto industry

The [Financial Times](#) had a great article this week about the fact that as software becomes an increasingly important part of the overall cost of the vehicle (according to BCG, the "cost of the electronic parts in the average vehicle will rise from 20% in 2004 to 40% this year" and "a premium class car now contains 100 microprocessors and runs on 100m lines of software code"), it is revolutionizing the auto manufacturing industry and shifting the balance of power between the auto OEMs and the big Tier 1 suppliers (of note: "Bosch and Continental supply 40% of vehicle electronics"). As the vehicle increasingly becomes a computer on wheels, Silicon Valley giants, like Google and Apple, can become powerful players in the mobility space, once dominated by Detroit.



► FAA Drone Rules: Delivery is out...for now

The FAA unveiled [rules](#) governing drone operation in the US. Many were disappointed with the rules as, for now, drone deliveries are not permitted. The rules do however permit unmanned aircraft of less than 25kg to be operated with visual line of sight only (daylight operations only). The drones can only operate over persons directly involved in their operation. Maximum airspeed of 100 mph and maximum altitude of 500 feet above ground level.

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