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Future Mobility Newsletter

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zoox: Thinking outside the box

"I'm certain that none of the horse and carriage guys became providers of automobiles" says Michael (Mik) Harrison-Ford, Chief Strategy Officer at zoox (zoox.co), discussing how automobile manufacturers today are having difficulty moving too far away from their current thinking. That's where zoox comes in: design, engineering and creativity without the boundaries imposed by existing platforms.

Approximately three months ago, Tim Kentley-Klay, the organization's founder, formalized zoox - an organization that aims to develop "mobility for our time". Mik explains that in 2050, nearly 70% of the world's population will live in urban areas. In

Europe and North America, that percentage is expected to be even higher. New mobility solutions are required to alleviate the growing pressures of congestion, pollution and lack of parking in urban areas.

For the team at zoox, FULLY autonomous (Level 4, as defined by NHTSA) vehicle technology is the solution to alleviating the mobility strain being placed on cities. "Autonomous vehicle technology will take us to a new form of mobility, enabling point to point, mixed mode, on-demand mobility service", states Mik.

To bring their vision to market, zoox will be developing strategic alliances with complementary organizations



providing technology, components and materials. In seeking for an autonomous technology provider, the zoox team has met with Google as well as other organizations that have shown interest. Tim Kentley-Klay reached out to Anthony Levandowski (Google) about a year ago and ever since, several conversations have taken place with representatives of the Google team.

The team at zoox share many of the safety concerns being

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expressed by several autonomous technology experts regarding Level 3 autonomy. Mik underlines safety issues related to handover scenarios and the strong potential for diminishing driver capabilities over time.

The zoox team (and we, at MARCON, strongly agree) sees the real value of autonomous technology at Level 4. Level 3 may add convenience but it doesn't fundamentally change mobility AND it may or may not improve safety. Level 4, however, allows for a complete change of business models and holds the promise for increased safety, accessibility to those unable to drive, reduced congestion, fluidity of circulation, and ... the penetration of electric vehicles with a significant impact on pollution reduction. (Aaahh ...It's wonderful to find like-minded individuals ☺)

As has been stated by EDF (Électricité de France) as well as other reputable organizations around the world, autonomous vehicle technology is an enabler for electrification of transportation. Today, consumers purchase vehicles to meet all of their needs - even the rare occasions where they need to driver over 500 km. For those situations, the electric vehicle is not ideal ... yet. However, in a context where consumers USE (not purchase) vehicles on demand, the electric vehicle is perfect for almost all trips. The large majority of our trips fall well within the range of

today's electric vehicles. With a fully autonomous EV, the user need not worry about charging, range etc as the vehicle is programmed to charge between uses and not to undertake a voyage that exceeds its range. It is also programmed to park in areas that do not require payment for parking.

Just as many of the OEMs are operating car-sharing programs around the world, the vision of zoox is that fully autonomous urban mobility will be composed of fleet operations of on-demand service. In this context, Mik explains, that the "cost of the vehicle over its lifetime is what is most important ...and electric vehicles make most sense in this scenario."

With respect to the thorny issue of product liability and insurance, Mik feels that Level 4 is relatively simple compared to Level 3. He believes that Level 3, particularly hand-offs, is a grey zone with much potential for litigation. According to Mik, "the manufacturer should take on the liability and insurance should be part of the membership service fees" that would be charged to user-members of the autonomous vehicle-sharing programs. He's optimistic that "we'll find a way through the legal issues because it's difficult to refute the case for driverless cars".

Mik is also optimistic about the technology's adoption. He expects a rapid penetration once it becomes available, as users will see its many benefits.

So when can you expect to see a zoox vehicle riding potentially on a street near you? The target is 2021 but Mik explains that in conversations that the zoox team has had with autonomous technology developers, that date is far too conservative. In fact, "almost everyone [the zoox team has] spoken with has concluded that the technology available today meets 95% of the driving task. It's the other 5% that they need to get right."

Mik explains that technology providers are confident with how the technology performs in lower speed urban "driving" and highway "driving". The distances between city and highway driving are more challenging but much has already been accomplished and there's nothing to stop the "experts" from mastering that last 5%.

Mik and his team have much to do until commercial product launch. Their immediate concern is "getting the right team together with the talent required to move forward". The 2014 objectives include announcing the zoox "team and partners and prototyping as soon as possible after that".

We thank Mik for taking the time to share his thoughts with us and wish the zoox team much success. We will certainly keep you updated on their progress. In the meantime, a bit of news: zoox will be unveiling a new vehicle design at the 3D Printing World Expo in California (<http://www.3dprinterworldexpo.com>) January 31-February 1, 2014.



In the news

► Race to bring driverless cars to road takes mark in 2014

<http://globalnews.ca/news/1056103/race-to-bring-driverless-cars-to-roads-takes-mark-in-2014/>

► Renault shows off Urban Mobility Advanced Platform prototype

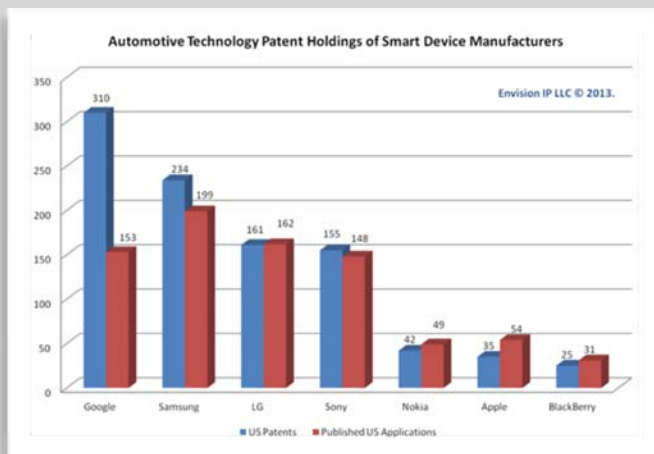
Another confirmation of MARCON's future mobility model: electric, shared, autonomous. <http://www.worldcarfans.com/113123068080/renault-shows-off-their-urban-mobility-advanced-platform>

► Renault showcases PAMU self-driving technology

<http://www.motoroids.com/news/renault-showcases-pamu-self-driving-technology/>

► Smartphone manufacturers racing to acquire vehicle patents

Apple and Google forging ties with automakers to develop various vehicle technologies such as infotainment platforms and autonomous driving systems. <http://envisionip.com/blog/2013/12/31/smartphone-manufacturers-racing-to-acquire-smart-vehicle-patents/>



► IHS Automotive: Self-driving cars to jolt market by 2035

IHS predicts nearly 54 million SDCs by 2035 but a slower introduction of fully automated vehicles. <http://www.detroitnews.com/article/20131231/AUTO01/312310086/1148/auto01/Study-Self-driving-cars-jolt-market-by-2035>

► 2013: Year of the Autonomous Car

<http://www.pcmag.com/article2/0,2817,2428697,00.asp>

► Snyder signs bills allowing driverless vehicles in Michigan



► Look to CES 2014 for more autonomous tech

http://ces.cnet.com/8301-35289_1-57615940/ces-2014-will-showcase-the-near-future-of-driving/

► Electric car vending machine: China's future mobility?

<http://www.forbes.com/sites/markrogowsky/2013/12/28/kandi-crush-an-electric-car-vending-machine-from-china-could-upend-the-auto-industry/>

"By 2025, driverless cars will be in widespread operation, which could revolutionize individual mobility ... This will enable people to drive until an old age, fuel efficiency will increase, and accidents will be reduced to close to zero."

HSBC report