

Happy New Year
2017

SMART DRIVING CARS



<http://smartdrivingcar.com/HNY2017-010417>

Wednesday, January 4, 2017

The Dispatcher Volume 4, Issue 3

M. Sena, Jan. 5, "In This Issue:

Report from Dispatch Central 1 "...While the 12 million people in the EU who earn their livings directly from the automotive industry are delighted by the news that car sales figures for November were up significantly, and it looks like 2016 will be another banner year, there are people in governments doing everything in their power to make both building and owning motorized vehicles economically unviable..." [Read more](#) *Hmmm...Very interesting!*

Autonomous Driving News Apple's Letter to NHTSA 1 "...The Vehicle Safety Act requires companies to certify vehicles to the FMVSS (Federal Motor Vehicle Safety Standards) before first sale. But this law applies to new motor vehicles intended for sale to the public, and by implication, by companies that make and sell cars, not companies like Apple that may or may not intend to sell cars. Further, FAST Act2 specifically allows car makers, but not non-car makers, to test on public roads without requiring ex-emptions from FMVSS..." [Read more](#) *"Hmmm... Very interesting!"*

What Car Companies Are Doing 2 "...So Uber must have made Volvo a pretty sweet offer when it gets rid of all the drivers with their own cars and has its own fleet of driverless cars..." [Read more](#) *"Hmmm...Very interesting!"*

Reurbanization or Spreading the Sprawl 3 "...Where do you want to go? My chart below has two opposing scenarios. In the top scenario, we keep doing what we have been doing. In the bottom scenario, we try to match policies with desired results. You choose..." [Read more](#) *"Hmmm...Very interesting!"*

Automotive Navigation-The Future of Traffic Info 4 "...ROUTE GUIDANCE WITHOUT traffic information is useless.." [Read more](#) *"Hmmm...Stop right there. We've known that! The connected world will not get here until most of road vehicles are part of what will be but a few competing fleets. It is those fleet owners/managers that will find it compelling to deploy connectedness throughout their own fleets. Any meaningful sharing of data between competing fleets is not in any future that I foresee. It may even violate anti-trust laws (Unless Putin takes over the world). Alain*

Musings of a Dispatcher – Civilis cogitationes 6 "...I did not see a lot of people cycling to their jobs when I was in Västerås in the early autumn of this year. Like most places in Europe

and the U.S., when cars became affordable for people with even modest incomes—starting in the 50s in the U.S. and in the 60s in Europe—it was a delight for workers to get out of the rain and snow and into their own car. It's the same today in emerging markets, especially China,..."

[Read more](#) *Hmmm...Our only hope is "Driverless"! Alain*



[Tesla introduces first phase of 'Enhanced Autopilot': 'measured and cautious for next several hundred million miles' – release notes](#)

F. Lambert, Jan 2, "Tesla didn't want to start the new year on a bad note by missing a deadline with its Autopilot update for new cars to work is its 'Tesla Vision' image processing system and while it didn't bring the system to parity with the last generation Autopilot, the company sort of kept its 'December 2016' goal for the release of 'Enhanced Autopilot', but it's only what the automaker is calling the "first phase" of the new features...[As we reported yesterday](#), Tesla started pushing the update to the first 1,000 cars in its fleet. It includes the Autopilot's Traffic Aware Cruise Control feature, Forward Collision Warning, and Autosteer, but it will only be enabled at "low-speed" as a beta feature...What is particularly interesting is that it's the first time features inside the vehicles are powered by the new hardware suite and Tesla Vision. ..."

[Read more](#) *Hmmm...Once again, a very nice article by Fred. Alain*



[MIT study says 3,000 ride-sharing cars could replace every cab in New York City](#)

J. Golson, Jan 2, "All 13,000 taxis in New York City could be replaced by a fleet of 3,000 ride-sharing cars if used exclusively for carpooling, according to research published today by MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL). Instead of hailing taxis, passengers that use ride-sharing services for carpooling may lead to reduced traffic congestion, pollution, and fuel use.

The CSAIL researchers used public data from NYC taxi rides published by the University of Illinois to develop the algorithm. They calculated that 3,000 four-person vehicles traveling to similar destinations could meet 98 percent of taxi demand in the city with an average wait time of 2.7 minutes. Perhaps the most important part of the system is a dynamic repositioning of vehicles based on real-time demand, which makes the system 20 percent faster." [Read more](#) *Hmmm...Maybe??? If one looks at the demand for taxis in NYC on a typical day, say on Wednesday, January 13, 2016, then according to tabulations performed by my student Keith Gladstone'17, there were 395,090 taxi trips that day that provided mobility to 643,456 customers. The, very relevant, Time-of-Day distributions of those trips [can be seen in this Link](#). At its peak, 5,982 taxicabs served customers; that's the minimum number of cabs that could have physically provided that Level-of-Service (LoS) on that day. So, with casual ridesharing (sharing with 'Strangers'), it is conceivable that this number could be cut in half if the demand correlates well-enough spatially and temporally.*

However, as is naturally the case, the temporal distribution of people being served peaks. On this day, the high point had 9,770 people traveling at exactly the same time. An average occupancy of 3.25 would be needed for 3,000 cabs to serve this peak. Since max capacity is 4.0,

*the spatial element of the demand would need to be VERY well aligned in order to come anywhere close to this number. So, the implication that, even with an empty vehicle management algorithm/process that could move the cabs infinitely fast between where they are made empty to where they are needed, are **very** 'challenging'.*

However, the article does have a "98%" caveat. If that 98% is 98% of all the day's trips, then from the temporal distribution, one sees that much of the day, the demand is substantially less than the peak. Much of the day, the demand is substantially less than the peak, and 3,000 cabs can 'easily' do the job (and not many more were probably doing the job on Jan13). So if the 2% (or 12,000) personTrips that aren't served by the MIT simulation are used to flatten out the peaks leaving 10 to 15% of the trips un-served during peaks, then 3,000 cabs could do it. But we all know that mobility without peaks is easy to provide. What makes it hard are the peaks and walking away from the peaks is not helpful.

More info is provided in [CSAIL](#) which suggests that MIT also spatially and temporally aggregated the demand so that they are not really simulating an on-demand "hailing" LoS. Displayed is a network with many fewer nodes, than actual locations where people get in and/or out of cabs on a typical day and they report "average waits" of 2.7 minutes which may well be much larger than the average wait that those 643,456 customers experienced on January 13. No doubt that through spatial and temporal aggregation one should be able to uncover casual ride-sharing opportunities that would reduce substantially the number of cabs on NYC streets. But, would NYC cab patrons be please with such reduced levels of service remains to be demonstrated.
Alain

R/GA [The Road to Autonomy](#)

M. Weinreich Jan. 4, "As someone who loves cars, it is difficult to look forward to a world without driving. I remember an old Volkswagen campaign that presented the act as a metaphor for life itself, proclaiming, "On the road of life, there are passengers and there are drivers." "There are passengers and there are more passengers" just doesn't have the same ring to it.

For now, humans are still in the driver's seat, but with each new car model, there comes a steady integration of autonomous features. And as ride sharing proliferates, individual ownership starts to feel unnecessary, especially in urban environments. A major cultural shift in how people think about cars is under way, which, in turn, puts an onus on automakers to embrace this new change...we examine all of these forces at play. In the stories that follow, we enter the expanding web of industry partnerships, investments, and acquisitions ("Hardwiring Mobility"); journey through the key trends ("All Roads Lead to Intelligence"); and sit down with Mark Aikman, General Manager of Marketing Services at Mercedes-Benz USA, to discuss the automaker's efforts at creating the next level of luxury ("Redefining Luxury").

Finally, we look at the way automakers are embracing connectivity ("Designing Smarter Cars") and how that intelligence, along with autonomous driving, will shape urban areas ("Smarter Cars, Smarter Cities") :-) ...[Read more](#) *Hmmm...Goog thought and perspective article. Alain*



[Tesla Autopilot stops car from crash](#)

M. Wood, Jan 2, "...Hans Noordsij posted this video on twitter showing a Tesla vehicle using the Autopilot feature and how it reacted to a crash ahead.," [See the video](#) *Hmmm...It appropriately reacted to what was happening directly ahead. Whether or not the algorithms actually reacted to what was happening to the vehicle ahead of the vehicle ahead is questionable. Alain*



[Intel invests in Here to create precise maps for autonomous cars](#)

J. Kastrenakes, Jan 3, "Intel is buying a 15 percent stake in Here, the mapping service started by Nokia that was sold last year to Audi, BMW, and Mercedes for over \$3 billion... That's a key area for Intel, as it recently announced [plans to invest \\$250 million](#) in building self-driving vehicle systems..." [Not much to read here](#) *Hmmm... Doesn't say how much it paid for the 15%. More than \$450M? Doubtful! Else, it would be announcing that "...it plans to invest ..." much more than \$250M. But what do I know???? Let's see... Philips invested about \$1B, Nokia bought it for \$8.1B, the OEM's paid \$3.1B and now pieces are being sold for what??? (And Alphabet has all the really good data???) Alain*



[Mercedes-Benz design chief Gorden Wagener believes people will still drive their autonomous cars](#)

T. Warren, Jan 3, "...Of course we've seen models of sharing, but I believe we're not as advanced as everyone thinks because it's not that easy. There are various definitions of autonomous driving. There's the Google way: slow speed, small mapped environment, easy to handle because you know all the parameters. You know where every little traffic light is. Slow speed is every easy to manage because it has to do with sensor power. We want to give the customer a choice. There's actually a hyper analog movement, with increasing digitization we'll also see some analog solutions, like chrono watches and vinyl records. In terms of luxury it's much more sustainable, but we will see robo cabs driving around, the Google car. We want to give the customer the choice that he can be on autopilot or drive himself..." [Read more](#) *Hmmm... All about Self-driving with Driverless nowhere in sight of this or any other OEM. At some point, Kodak!!, Blockbuster!! Alain*



[BMW, Intel, Mobileye to test 40 driverless cars in second half of](#)

2017

Jan 4. [No details to read.](#) *Hmmm...But we know that they mean 'Self-driving'. No way they're going to test 'Driverless' any time soon. BMW is still 'The (as in The Ohio State..) Ultimate Driving Machine' and has zero interest in becoming 'The Ultimate Riding Machine', (or even "an Ultimate..."). Alain*

Automotive News

[Driverless cars finally steer near showrooms](#)

K. Naughton, Jan 3, "Now, the supplier is shifting from stunts to selling. In Las Vegas this week at CES, formerly known as the Consumer Electronics Show, Delphi will give test rides to hundreds of potential customers in driverless Audis over a course of rugged terrain and tunnels. The goal: to walk away from this critical conclave with a handful of hot prospects for its self-driving system...." [Read more](#) *Hmmm..Again, it would be nice if the writers got the headlines correct. Again.. all about 'Self-driving' which is quickly becoming the the 'chrome & fins' of the late 10s. Alain*



[BMW just unveiled a futuristic concept for the interior of its driverless cars](#)

C. Thompson. Jan 4, "BMW unveiled a concept for the interior of driverless cars on Wednesday at a press conference in Las Vegas at CES..." [Read more](#) *Hmmm.... Again, it has a steering wheel!!! It can't be driverless!!! BMW isn't stupid enough to put a steering wheel in a car that is meant to take someone home from the watering hole. Again, all about OEM's sweet spot... Selling Fantasies! Alain*



[Waterloo researchers help launch and demonstrate new autonomous vehicle](#)

Press release, Jan 4, "A research team at the University of Waterloo played a key role in the development of a highly autonomous vehicle that [Renasas Electronics America](#) unveiled today at the Consumer Electronics Show (CES) in Las Vegas.

Using sensors and powerful computers, the car is capable of detecting and responding to other vehicles, stop signs and traffic lights to provide a safer driving experience. For example, vehicle-to-infrastructure communications allow the vehicle to detect in advance when a traffic light will change...." [Read more](#) *Hmmm...Nice. Congratulations. Alain*



[Machine smarts: how will pedestrians negotiate with driverless cars](#)

M. Gough Sept 8, "...“There’s no more eye contact with the driver, there’s no more gesturing, there’s no one in the vehicle. So something has to be there instead to say, ‘Yes, it is OK to cross’...” [Read more](#) *Hmmm...Isn't it even easier with driverless cars.. They can be equipped to either display or speak exact information. Then there is no longer any need for ad hoc body language or flicking lights. It will be "just the facts, Mam"! Alain*



[CVTA Standards Integration Workshop Whitepaper available to download](#)

S. McCormick, Jan 4, "CVTA's Standards Integration Review Workshop was held on 5 October 2016... The workshop was intended to consider end-to-end security standards integration for the connected vehicle ecosystem:

- What standards are already available/in progress across the ecosystem?
- Where are the gaps and opportunities for collaboration in development, demonstration, testing of these standards?
- What should we be doing to ensure that our standards suite is sufficient to enable our ecosystem?... [Read more](#) *Hmmm...Standards for Connected Vehicles is now at the "white paper" stage. Alain*



[Ford cancels Mexico plant; will build electric and autonomous cars in Michigan](#)

Jan 3, "Ford is canceling its plans to build a \$1.6 billion plant in Mexico and is instead investing \$700 million into its plant in Flat Rock, Michigan.

Ford President and CEO Mark Fields made the announcement at the plant Tuesday morning. He explained the transformation and expansion of the Flat Rock plant will create 700 new jobs and allow for production of electric and an autonomous vehicles. [Read more](#) *Hmmm...xcellent!*
Alain

[On the More Technical Side](#)

<http://orfe.princeton.edu/~alaink/SmartDrivingCars/Papers/>

[C'mon Man! \(These folks didn't get/read the memo\)](#)



[Driverless cars save lives](#)

Opinion, Jan 4, "...One topic the article highlighted was the safety aspect of **driverless cars**. **Self-driving cars** have the ability to prevent accidents, thus saving lives and money. ... [Don't read more.](#) *Hmmm... In the same paragraph, they can't make up their minds what they are writing about, when, in fact, they actually mean 'Smart-driving Cars'.* [C'Mon Baltimore Sun.](#) *You are as bad as the Ravens (I'm a Stiller Fan!). :-)* *Alain*



[What Happens If Driverless Cars Cause A Drought Of Organ Donations?](#)

There's already not enough organs for everyone on the [transplant list](#), and [one of the major sources is people who die in car accidents.](#) Don't read more *Hmmm... For those that don't procrastinate enough over the Trolley Problem, you can have this cone, the Ultimate [C'Mon Man!!!](#) This article had to have been manifested by the OrganTransplant-Surgeon's Benevolent Organization (OTSBO). You can't make up this stuff!* *Alain*

Calendar of Upcoming Events:

[Self-driving Leadership Summit @ CES](#)

January 7, 2017

Las Vegas, NV

**Transportation Research Board
96th Annual Meeting**

January 8–12, 2017 • Washington, D.C.

[January 8-12, 2017](#)

[Washington, DC](#)

[Princeton Alumni & Friends Banquet](#)

Tuesday, 6:00pm Jan 10