

# SMART DRIVING CARS

<http://smartdrivingcar.com/Waymo-121416>

[Wednesday, December 14, 2016](#)

## **THE VERGE**

[Google is spinning off its self-driving car program into a new company called Waymo](#)

A. Hawkins, Dec 13, "Today, Google announced that it would be spinning off its six-year-old self-driving project into a standalone business called Waymo, which stands for "a new way forward in mobility," according to John Krafcik, the CEO of the new company.

It was previously reported that Google would be dropping its plan to build its own vehicle without steering wheels and pedals, instead focusing on creating the self-driving technology that can be installed in third-party vehicles. Krafcik didn't provide much clarity there, but did state definitively that the new company was still fully committed to fully autonomous vehicle technology.

"We are all in, 100 percent, on Level Four and Level Five fully driverless solutions," he said.

Krafcik didn't comment on a report in Bloomberg that Google would be starting its own ride-sharing service in partnership with Fiat Chrysler using the Italian car maker's Pacifica minivans as its fleet of self-driving taxis. Google and FCA announced their collaboration earlier this year. Krafcik did confirm that the self-driving Pacificas were still in the build phase, but would hopefully be on the road for testing very soon.

It may be too soon to say that Google is abandoning its plans to build its own fleet of driverless cars, without steering wheels and pedals. That said, Krafcik made it clear that Waymo "is not a car company, there's been some confusion on that point. We're not in business of making better cars, we're in the business of making better drivers."...[Read more](#) *Hmmm... Boy that is a lot of hedging. If they are in the business of making better drivers, then all they need to do is to make Automated Collision Avoidance systems that actually work... avoid collisions (aka Safe-driving Cars). That would make all drivers better drivers, but it wouldn't do anything for non-drivers... the young, old, poor, blind, those under the influence, ... Has Google abandoned all of those folks and reverted to the 'dark-side'? Alain*



WAYMO

### [Say hello to Waymo: what's next for Google's self-driving car project](#)

J. Krafcik, Dec 13, "...Today, we're taking our next big step by becoming Waymo, a new Alphabet business. Waymo stands for a new way forward in mobility. We're a self-driving technology company with a mission to make it safe and easy for people and things to move around. We believe that this technology can begin to reshape some of the ten trillion miles that motor vehicles travel around the world every year, with safer, more efficient and more accessible forms of transport. We can see our technology being useful in personal vehicles, ridesharing, logistics, or solving last mile problems for public transport. In the long term, self-driving technology could be useful in ways the world has yet to imagine, creating many new types of products, jobs, and services...

On October 20, 2015, we completed the world's first fully-self driven car ride...[Read more](#)

*Hmmm... Kudos on the mission, but the terminology remains confusing. Adding the word 'fully' does not provide enough separation from the run-of-the-mill 'self-driving', which can't chauffeur Steve Mahan "on a sunny Tuesday morning ... down an ordinary Austin street". The ability to offer this enhanced mobility deserves a unique/separate name so that there is no confusion. I've proposed "Driverless", just like an elevator is driverless! This technology **can't** be really useful in 'ridesharing, logistics, or solving last mile problems for public transport' unless it is **Driverless**. Now if you're only interested in it being useful in 'personal vehicles' then Self-driving is good enough. But, Self-driving doesn't deliver the societal benefits of ridesharing, logistics, or solving last mile problems for public transport. It doesn't even provide incremental **Safety** benefits (Those are captured by **Safe-driving** cars that have Automated Collision Avoidance, the fundamental precursor of Self-driving. Self-driving only delivers comfort and flexibility to the driver that, unfortunately, will substantially increase VMT (Vehicle Miles Traveled), congestion, pollution, energy consumption, sprawl, ... :- ( Alain*



WAYMO

### [On the road with self-driving car user number one](#)

N. Fairfield, Dec 13, "... This time was different. This time I asked if he'd like to go it alone, and be the first passenger for the world's first fully driverless ride on public roads — no police escort, no closed course, and most importantly, no test driver.

And so, on a sunny Tuesday morning last fall, I watched from the sidewalk as Steve rode down an ordinary Austin street, with everyday traffic. Our software and sensors were in full control. The wind from the open car windows was blowing through his hair, and he was chuckling as he relished the freedom and independence of being alone in a car for the first time in 12 years..."

[Read more](#) *Hmmm... This is **REALLY IMPRESSIVE!** Important numbers going forward are the personMiles and vehicleMiles of **Driverless** operation on public roads operating normally ("no police escort, no closed course, ... no test driver" and no external human monitoring.) Alain*

 [theinformation.com](http://theinformation.com) [Google's Car Diaspora](#)

A. Efrati, Dec 13, "At least a dozen senior members of the Google autonomous car team have departed in the past year, most of them to Uber and to a self-driving car startup that's right next door to Google's campus in Mountain View...." [Read more](#) *Hmmm... Given how valuable each Google employee is to every startup, it is impressive how few have jumped ship. (Thanks to Glenn Mercer for link) Alain*

## **NHTSA** [U.S. DOT advances deployment of Connected Vehicle Technology to prevent hundreds of thousands of crashes](#)

Press Release NHTSA 34-16, Dec 13, "Citing an enormous **potential** to reduce crashes on U.S. roadways, the U.S. Department of Transportation issued a proposed rule today that would advance the deployment of connected vehicle technologies throughout the U.S. light vehicle fleet. The Notice of Proposed Rulemaking would enable vehicle-to-vehicle (V2V) communication technology on all new light-duty vehicles, enabling a multitude of new crash-avoidance applications that, **once fully deployed**, could prevent hundreds of thousands of crashes every year by helping vehicles "talk" to each other... [Read more](#) *Hmmm... One must always be well aware of the caveats! Here the caveats are "potential" and "fully deployed".. Potential implies that vehicles don't already have Automated Collision Avoidance (ACA) systems that work (aka 'Safe-driving Cars'). If they do, the potential incremental reduction of crashes that this proposed rule would have is a small fraction of what is claimed above. Moreover, an infinitesimally small portion of what is already a small fraction can't be achieved until there is **substantial** deployment. V2V only avoids crashes between vehicles that **BOTH** have the mandated technology. That means that the chances that V2V can play a part is the product of the probability that vehicle A has it and the probability that vehicle B has the technology. It isn't until 70% of the vehicles on the road have the technology that there is even a 'Coin flip's' chance that V2V could play any part in avoiding a crash ( $0.7 \times 0.7 = 0.49!$ ) That level of penetration isn't going to happen for at least 25 years given that there is no "retrofit" requirement.*

*At 33% deployed (which might be achieved in 10-15 years), V2V is only 10% effective at potentially avoiding crashes that haven't already been avoided by ACA. In 5 years, adoption may still be less than 10%, making V2V relevant to only 1% of the potential crashes that ACA would not have already not have avoided. Essentially no value is achieved until we've been really successful at deployment/adoption and what's been adopted/deployed actually works. Whew!!!*

*Moreover, this proposed rulemaking is restrictive in that: "...V2V devices would use the dedicated short range communications (DSRC)..." How obsolete is a DSRC approach going to be before this approach contributes anything measurable?*

*I thought that Secretary Foxx had realized that automation was the way to go. Why didn't he propose a rule requiring Automated Collision Avoidance system that actually work to be installed in every new car. At least such systems would eliminate most of the crashes that would have been caused by the drivers of each of the so-equipped vehicles.*

*So Dec 13 had Google moving forward and DoT/NHTSA moving backwards. Oh well. Happy that it is not the other way around. :-) Alain*



### [An EU strategy on cooperative, connected and automated mobility](#)

Press Release, Nov 30. "Today the European Commission adopted a European Strategy on Cooperative Intelligent Transport Systems (C-ITS), a milestone initiative towards cooperative, connected and automated mobility..."

The Strategy will make it possible to deploy vehicles that can "talk" to each other and to the transport infrastructure on EU roads as of 2015. To achieve this, the Strategy presents a hybrid communication approach combining complementary and available communication technologies. Currently, the most promising hybrid communication mix is a combination of WiFi based short range communication and existing cellular networks.9..." [Read more](#) *Hmmm...At lease they haven't painted themselves into the DSRC corner. Alain*



### [Michigan law permits cars with no steering](#)

#### [wheels](#)

R. Mitchell, Dec 9, "e governor of Michigan signed a legislative package Friday that allows cars without steering wheels or drivers to be tested on the state's highways."

The plan is to make the state "the epicenter for driverless vehicle technology," said Gov. Rick Snyder. Florida already allows testing of completely driverless cars. With the new law, Michigan and Florida now are the most liberal states on laws governing driverless car technology. [Read more](#) *Hmmm... There are other parts of this legislation that fund a test center and provide other incentives for this industry, as opposed to a bill forwarded by a NJ Assembly committee that basically discourages (my opinion) this technology in New Jersey. Kudos to Michigan :-)* We're hurtin' in NJ :- ( *So depressing!!!! Alain*

#### [On the More Technical Side](#)

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

**Half-baked stuff that probably doesn't deserve your time:**



[Taking back control of an autonomous car affects human steering behavior](#)

Stanford U. Public Release, Dec 6, "...The researchers, who had a combined expertise in autonomous car design, human-robot interaction research and neuroscience, found that the transition could be rough. Drivers who experienced certain changes in driving conditions since their last time at the wheel, such as changes in speed, since their last time at the wheel had a period of adjustment in their steering..." [Read more](#) *Hmmm... Actually the subjects did not experience a change in speed..."...Changing the steering ratio from the standard 15:1 to 2:1 simulated the more sensitive steering feel drivers experience at a higher speed..." Changing the response of a system, of course, requires some readjustment and changing a response from 15:1 to 2:1 may well be very drastic. What speed change is this really "comparable" to??? Maybe some inflated claims here. My apologies, if not. Alain*

**Calendar of Upcoming Events:**

**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