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**4th Annual Princeton**  
**SmartDrivingCar Summit**  
evening May 19 through May 21,  
2020

*This conference brings together the buyers, sellers and facilitators of SmartDrivingCars, trucks and buses. It is time to move past the hype and accelerate the commercialization and deployment of SmartDriving technology so that society can begin to capture its benefits. We will have four focus areas:*

- *Near-term safety benefits of safe-driving cars*
- *Near-term regulatory challenges*
- *Near-term mobility and community service benefits*
- *The current state-of-the art in DeepDriving*  
<http://summit.smartdrivingcar.com/>



and



**UNECE**

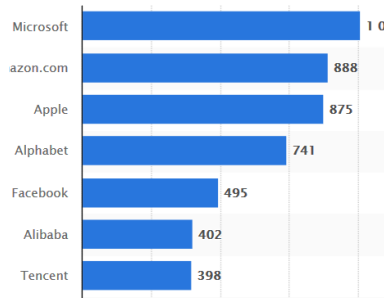
**The SYMPOSIUM ON THE**  
**FUTURE NETWORKED CAR 2020**  
**GENEVA, SWITZERLAND**  
**5 MARCH 2020.**

*Held on the first public day of the Geneva International Motor Show, FNC-2020 will bring together representatives of the automotive, information, and communication technology (ICT) industries and government leaders to discuss the status and future of vehicle communications and automated driving:*

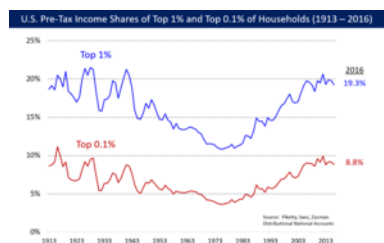
- *Connected and automated vehicles at the crossroads to success*
- *Cybersecurity impact and outlook for automotive systems*
- *AI for autonomous and assisted driving*
- *Policy and regulatory issues to support deployment of automated mobility*

## Turning Over Vehicle Infotainment to Tech Titans

Market capitalization of the largest Internet companies worldwide as of June 2019



U.S. Pre-tax income shares of the top 1% and top 0.1% of households from 1913 to 2016. 1970 is when the first college-educated Baby Boomers began to enter the workforce, and 2012 is when they began to retire.



Personal income inequality and monopolistic behavior of the Tech Titans are two major targets of the left-of-center candidates for the Democratic Party's contender in the next U.S. Presidential election.

1. GENIVI began as a standard for an open source infotainment development and maintenance platform based on open source core services, middleware and open application layer interfaces.

*This topic was chosen for the lead article as a result of two seemingly unrelated events. In the October 26<sup>th</sup> issue of THE ECONOMIST there was a feature on the proposed business policies of Elizabeth Warren, one of many politicians vying to be the Democratic Party's presidential candidate in next year's U.S. election. Chances for her nomination are increasing, and, if she is elected, those policies could well become law. The second event was an article about Volvo's imminent introduction of Google Android and the Google navigation platform in its updated Sensus infotainment system, something the two companies have been working on since the announcement of their partnership was made two years ago. Yes, these two subjects are definitely connected.*

HOW DID CAR navigation and infotainment get mixed up in the US presidential campaign? Ask that question to one of the candidates and they would not know what you were talking about. Ask the question to a CEO of one of the car OEMs, and they would refer you to their governmental affairs office where the path would end. But mixed up it is, and if Elizabeth Warren wins the Democratic nomination and the presidential election, and if she follows through with her promise to voters, the big golden egg that *Mother Google* has laid will be cracked open, the yoke separated from the white and each used in different dishes.

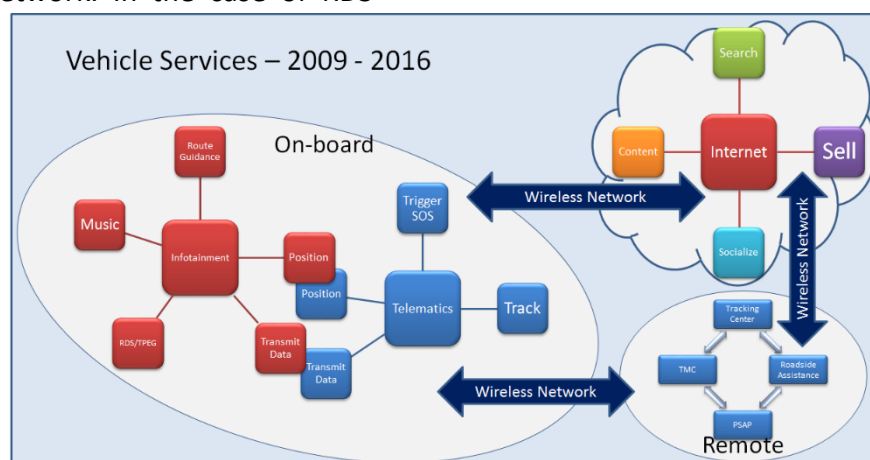
The problem, in a nutshell, is that a breakup of Google can have a direct effect on the growing number of car OEMs, like Volvo Cars, that are turning over their infotainment systems to Google after many years of insisting that no other brands than their own appear in front of their customers. Traditionally, the OEMs have either developed their own, proprietary platforms in close cooperation with their tier one suppliers, or have used industry standards, such as open source Linux. With OEM-proprietary systems or with GENIVI<sup>1</sup>, the OEM controls all of the content, including who delivers the map data, who provides the

route guidance software, who supplies the traffic information and which apps are accessible to the drivers. Remote services and Internet content are requested and enter the vehicle via controlled access points over the wireless network. In the case of RDS-TMC/TPEG traffic messages, the FM broadcast network is also used. If an OEM decides to change suppliers of map data for route guidance (e.g., from HERE to TomTom), or its route guidance supplier or traffic data supplier, it can do so without affecting any of its other systems or services. It definitely does not need to change its infotainment system's operating system to make supplier or content changes.

In spite of the fact that tier one suppliers deliver many of their cars' components, and OEMs are principally assemblers rather than manufacturers, customers are hard put to see the name of suppliers on anything other than a car's tires. When CDs and DVDs were used in navigation systems, NAVTEQ's slogan, *Navteq on board*, was plainly printed on the media, but as data became embedded or downloaded to USBs, even this type of advertisement disappeared.

A company deciding to use Google is making a much larger commitment than companies incorporating *Apple CarPlay*. Google is more deeply embedded than *CarPlay* because the Google Android operating system is the basis for the entire infotainment system. With *CarPlay*, the vehicle's display is simply mirroring the screen on the *iPhone*. With Google Android as your operating system, the core of your map, guidance and traffic infotainment systems become dependent on the Google platform of services, which are themselves very tightly integrated. Google Maps are updated with data that are gleaned from all of Google's and its subsidiaries' processes (e.g., *Waymo* developing self-driving and driverless vehicles are developing processes for updating map data in real time).

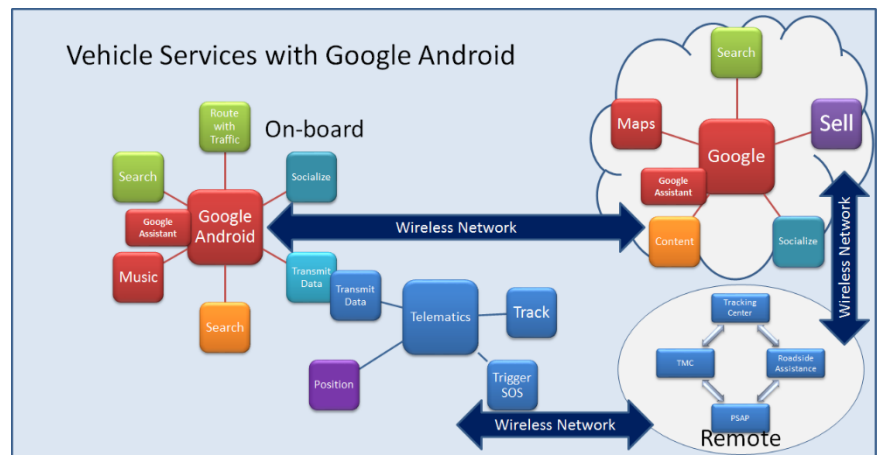
Some car OEMs have decided that the benefits for them and their customers outweigh the reduction in choice. Take Volvo Cars, which decided to embed Google Maps, Google Play Store and voice-controlled Google Assistant in its Sensus infotainment system based on Google Android as the operating system. It will



*In the ten years prior to the financial crisis in 2009, telematics services based on satellite positioning, such as emergency call, roadside assistance, logistics and security tracking and traffic information were introduced into most vehicle systems. In the years following the crisis, Internet apps for music, maps and other content were incorporated into the infotainment systems via the driver's mobile phone.*

debut in Volvo's first battery electric vehicle, the Volvo XC40 Recharge. Henrik Green, Senior VP of R&D for Volvo Cars said in a news release announcing the strategic partnership with Google: *"Bringing Google services into Volvo cars will accelerate innovation in connectivity and boost our development in applications and connected services."*

The customer who is used to negotiating his way around an Android-based phone can simply enter the car with an Android operating system at its heart and do basically everything he can do on his phone—except drive, of course, at least for the time being. Green said further: *"The Google partnership is an important strategic alliance for Volvo Cars, and the Android platform, Google services and Google's working relationship with app developers in-house and worldwide will help us further improve the Volvo car experience."*



### **Good for Google is not always good for us ganders**

There is mounting support in both business and government circles to rein in and break up the Tech Titans, especially Google, FACEBOOK and AMAZON. APPLE and MICROSOFT are also on the hit list. The argument is that they have gotten too big and much too powerful. They are so dominant, both nationally and globally, that no other companies have a chance to compete with them unless those companies are championed and protected by their governments, such as those in China. One of the big gripes is that the Titans gobble up potential competitors before they have a chance to gain a significant market share, and then incorporate them into their own offering. Examples include Google's acquisitions of *YouTube* and *Waze*, and FACEBOOK's purchase of *Instagram* and *WhatsApp*.

Ms. Warren's proposal, which has been developed for her by think tank cognoscente and academics who are not what might be called 'pro business', is to separate the companies' content from their platforms. That concept is easy to grasp if the example is AMAZON's sales platform or APPLE's *App Store*. APPLE and AMAZON would be prevented from selling their own branded products or services alongside those of third parties. It is not quite so easy if

*"All modern smartphones—including iPhones—contain hardware that monitors users' activities and locations. But (Roger) McNamee and many experts argue that Androids are unique in the extent to which they collect and retain user information. Much of this data is collected even when a phone is offline, then uploaded to Google's servers and integrated into an archive that includes your search, Gmail, and Google Docs history. The Android platform finds information in your apps and your online activity, and often makes this information available to third parties, like advertisers. A user agreement also gives Google Assistant the right to record conversations that occur within earshot of the device's microphone."*

*Big Tech's Big Defector: Roger McNamee made a fortune as one of Silicon Valley's earliest champions. Now he's one of its most fervent critics. By Biran Barth. THE NEW YORKER. November 25, 2019*

you think about separating *Amazon Web Services* from the rest of AMAZON or dividing up Google's platform into a separate and unconnected search engine, an ad broker and a location-based content provider. This last component is where the in-vehicle domain intersects with the political hot potato world. As a car company using all of Google's services, what do you do when a law is passed that breaks up Google into multiple parts that must, by law, keep all systems and data separate from its platform?

If maps and other content were separated from the Google platform, the entire data collection and updating process would lose both its technical and financial foundation. Google would have to allow equal and undifferentiated access by other suppliers on its platform and would have to share data collected by its platform with the other content providers.

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Will a law that breaks up the Tech Titans force Google out of the map business altogether? Google is not in the business of making and maintaining maps; it is in the ad brokering business. Geo-referencing makes ad brokering easier, and Google initially licensed map data from third-party suppliers, like TELEATLAS (now TOMTOM). Google decided to build its own maps in order to lower its costs for licensing map data from third parties, but it also allowed Google to capture all the value through owning the geo-references that have been used in all types of income-generating searches. Buying *Waze* to enhance the usability of the maps simply brought more ad-using customers to the platform.

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### ***We are the Borg. Resistance is futile.***

Why would the car OEMs put themselves in a position where they build what has become one of the most important components of today's vehicles, its infotainment system, around a single supplier that essentially excludes cooperation with any other suppliers?

The answer to that question is simple: Pressure from the tech giants has become too great to resist. Most car companies include *Apple CarPlay* as an option alongside their own offering, but the lure of a really, truly mobile device at the center of the infotainment system is seductive and overpowering. Company strategists look at the millions of users of *Android* phones in all corners of the world, they see all the applications that are available for these phones and they cannot find the arguments for developing a mediocre-at-best alternative to it. Ödgård Andersson, Chief Digital

*"Elizabeth Warren wants operators of any on marketplace which generates annual global revenues of more than \$25 billion to be declared 'platform utilities' and prohibited from both owning a platform and doing business on it. At a minimum this would mean, for instance, that Amazon would have to spin off its private brands, in particular Amazon Basics. Apple (and Google) would have to shed such apps as Mail and Maps."*

*THE ECONOMIST. How to dismantle a monopoly. October 26<sup>th</sup> 2019*

WE ARE THE BORG. LOWER YOUR SHIELDS AND SURRENDER YOUR SHIPS. WE WILL ADD YOUR BIOLOGICAL AND TECHNOLOGICAL DISTINCTIVENESS TO OUR OWN. YOUR CULTURE WILL ADAPT TO SERVICE US. RESISTANCE IS FUTILE.

"The 'Borgs' of *Star Trek* are part organic and part artificial beings. They assimilate almost everyone they come in contact with. In other words, they absorb them into the 'Borg' which is a mass consciousness, and they become efficient drones who do not even remember their old life." <https://bitrebels.com/entertainment/we-are-the-borg-you-will-be-assimilated/>



Officer for Volvo Cars, summed it up in recent interview: “We are not the largest (car manufacturer) in the world, but when we choose to cooperate with the largest (company) in its area our users can always receive the absolute latest. The time when the car was its own universe is past. People want to feel familiar with the digital environment (in the vehicle) and not have to learn a massive number of new interfaces.”<sup>2</sup>

Ms. Andersson came to Volvo Cars three years ago after spending twenty years at ERICSSON, a Swedish telecommunications and IT company. She was likely recruited for the position she holds precisely because she does not carry all that car OEM baggage around with her. She rose to her position following the departure of Atif Rafiq, who held the position of Chief Digital Officer and Global Chief Information Officer between January 2017 and April 2019. He came from McDONALD’S with previous, brief stops at YAHOO and AMAZON, and left for MGM RESORTS INTERNATIONAL. He definitely had no car baggage when he arrived at Volvo—although he never actually spent much time in Gothenburg. He said in an interview with AUTOMOTIVE NEWS that his task was to “increase the size of VOLVO’S team of ‘digital natives’ in Silicon Valley, which he did during his sojourn at VOLVO CARS from 35 to 100.”<sup>3</sup>

It is not people like Andersson and Rafiq who are deciding to take the car companies into *The Borg*. They are hired after company managements have already made the decision to go where these people and others like them, non-car guys, will lead them.<sup>4</sup> It appears that more and more boards and investors want to see a clear break with the way cars have been built and sold. They believe customers will stop buying their cars if they don’t offer them what they get when they buy a mobile phone. They have bought into the physical model of the car as a phone and are attempting to adapt the business model as well. Choosing to hand over the core connected services functionality to one of the Tech Titans, rather than staying the standards course, may be one step too far. We shall see how this plays out in the coming year. There’s a lot riding on next year’s election.

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I believe a car is so much more than a mobile phone, but when I visit my Swedish nephew, his wife and their thirteen-year-old son who live in a three-room rental apartment in the middle of Stockholm, I understand there is a parallel world that is populated by people who live by, on and for their mobile phones. My nephew is the son of my wife’s brother; his surname is, therefore, the same as my wife’s maiden name: ‘Borg’. He is 41 and has never had a driver’s license. They have three *Amazon Assistants* in their apartment and have various Android-based (no iOS for them) app, music, movie and sports subscriptions. If they did own a car, they would expect it all to work in there as well. So it goes.

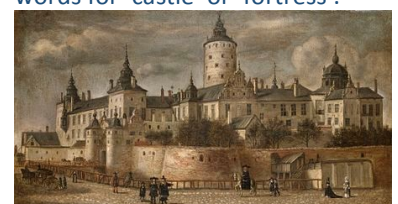
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2. DAGENS INDUSTRY WEEKEND, Volvo’s Vägvisare. (1 November 2019).

3. <https://europe.autonews.com/move/volvo-digital-chief-join-mgm-resorts>

4. In 1992, I was recruited by AB Volvo for my knowledge and experience of working with digital maps. Volvo Cars would be introducing its first route guidance system in 1995 and the company needed someone with map expertise. At that time, my automotive travel trunk contained only my undergraduate college degree which was financed by a National Merit Scholarship sponsored by CHRYSLER CORPORATION. The more I learned about how car companies worked, the more I was able to help Volvo during the four years I was employed, and, after leaving Volvo, the automotive clients I have had during the past two-plus decades.

*Borg* is one of several Swedish words for ‘castle’ or ‘fortress’.



## Who is Arm?

ARM HOLDINGS is a British multinational semiconductor and software design company, owned by SoftBank Group and its Vision Fund. It is headquartered in Cambridge, UK. In 2018, Arm chose NVIDIA's open source Convolutional Neural Networks (CNNs) chip technology for integration in its AI hardware IP for Deep Learning, called Project Trilium.

*"The massive amount of technological innovation required to power fully self-driving vehicles at scale requires collaboration at an industry level," said [Massimo Osella](#), AVCC chairman of the board, and lab group manager, Research & Development at General Motors. "We are delighted to join this group of key leaders in the automotive industry. As the AVCC, we are working together to create the 'go to' organization for autonomous computing expertise to help bring this technology to market."*

## New Consortium for Self-driving Cars

THE AUTONOMOUS VEHICLE COMPUTING CONSORTIUM (AVCC) launched on 9 October at the *Arm TechCon 2019* gathering in San Jose, CA, a showcase for ARM HOLDINGS and a meeting place for its customers and co-developers. This industry group includes ARM, BOSCH, CONTINENTAL, GM, TOYOTA, NVIDIA, NXP, DENSO and RENESAS (previously NEC ELECTRONICS).

The group's stated goal is to work together in order to "solve some of the most significant challenges to deploy self-driving (autonomous) vehicles at scale." To achieve this goal, the group has set an objective to develop a set of recommendations of a system architecture and computing platform that "reconciles the performance requirements of autonomous systems with the vehicle-specific requirements and limitations in terms of size, temperature range, power consumption and safety". The group says that it wants to move from today's prototype systems (e.g., those being created by *Cruise Automation* for GM and those by DENSO for TOYOTA.) Their aim is to work together "to enable solutions that address these challenges and create an ecosystem of industry experts to focus on innovations to meet these goals".



The founding group says that all automotive and technology companies are encouraged and welcomed to join. On its web site it states: "The path to delivering autonomous vehicles is long and

complex and as an industry we're not as far down this path as the hype suggests." It's encouraging to see that some of the companies participating in building up the hype are now trying to tone it down. According to the Consortium's bylaws, "Any automobile manufacturer or other company, corporation or organization in the automobile supply chain, and any association, governmental agency, or other not-for profit entity that develops and/or publishes

standards or requirement documents for the automotive industry shall be eligible to become a Member.”<sup>5</sup>

Although BOSCH and CONTINENTAL are Founding Members, I wonder if we will see any of the German OEMs joining. Founding Members will be able to appoint and maintain a representative to serve on the Board of Directors, while the next group of members will have to be elected. Could DAIMLER, BMW or VW agree to such terms? I, for one, doubt it. It is more likely that the Germans and perhaps RENAULT/NISSAN/MITSUBISHI, JLR and GEELY companies (remember, GEELY owns a major share of DAIMLER and all of VOLVO CARS) will band together in their own consortium, while FCA/PSA (see next *Dispatch* below) could well slip into the AVCC.

### **Sergio's Vision Still Guides FCA**

SERGIO MARCHIONNE believed that the huge challenges facing the automotive industry necessitated global consolidation. That is why he merged Fiat with Chrysler and formed FCA. That is why he courted Mary Barra of GM, and would have continued doing so if he had not died before he could follow through with his plan. He may have approved of the bid his successor made for Renault, but he probably wouldn't have settled for second best. In the July 2019 issue of **THE DISPATCHER** I wrote on the failed merger proposed by FCA with RENAULT: *“What about an FCA merger with another French company, GROUPE PSA? There's that old connection between the companies when, in 1978, PSA bought CHRYSLER EUROPE. That didn't go well. Then there is the French state connection again. The French state owns 13.68% of PSA and the Peugeot family and DONGFEN MOTOR GROUP each also have 13.68%.”* As you can see, I was not very positive about such a match-up. My opinion has not changed now that the two seem to have agreed on a merger.

At the end October, FCA and PSA announced a “merger of equals”, with a 50-50 joint shareholder-owned entity. They claim the merger will result in an annual saving of €3.7 billion, have a combined revenue of €170 billion with more than €11 billion in profits, based on 2018 figures, and have a market value of \$50 billion. With the French state's aversion to losing jobs through plant closings, the firms stated that no plants would be closed, neither in the U.S. nor Europe. Headquarters for the new firm will be in The Netherlands, where FCA is already headquartered, with a board comprised of five members nominated by FCA, five by PSA and the current Chairman of FCA John Elkann (a member of the

5. <https://www.avccconsortium.org/wp-content/uploads/By-laws-Approved-03-28-19.pdf>



*Carlos Tavares left Renault where he was COO. He resigned in 2013 after making public his desire to become CEO of a car company. His boss at the time, Carlos Ghosn, had no plans to relinquish his position, and didn't seem to want someone who wanted his job shadowing him. In 2014, Tavares left Renault and two months later became CEO of the other French automaker. Unlike his former boss, he still holds that position.*



Agnelli family that owned FIAT) assuming the role of Chairman of the new company. Carlos Tavares, CEO of PSA will become the CEO of the merged company.

In 2018, the two companies sold 8.6 million vehicles worldwide, with FCA selling 4.6 and PSA 3.96. FCA sells most of its cars in the U.S., Italy and Brazil, while PSA's major markets are France, the U.K. and Germany. It would be the fourth largest manufacturer behind VW, TOYOTA and RENAULT-NISSAN-MITSUBISHI and just ahead of GM.

Carlos Tavares is credited with performing miracles turning around PEUGEOT and CITROËN, and then repeating his super human feat with OPEL and VAUXHALL after they were acquired from GM. His success is the result of what has been called his "tireless devotion to profits", as opposed to company bigness or praise for the great leader. I am certain that Sergio will be cheering him on, but truth be told, he would probably have waited for one of the bigger fish to show up before making the perfect cast over it.

### ***The EU wants to know if it is needed***

No, THE EU is not having an identity crisis. The question refers to what has been called 'Connected and Automated Driving' by the European Commission. To open the new term for the Commission (which has been delayed by a month to the 1<sup>st</sup> of December due to three of the new Commission's candidates for posts being rejected by the Parliament), a meeting was organized by the Forum for Mobility and Society on the 13<sup>th</sup> of November. The title of the event is ***Connected and Automated Driving: What's needed from the EU?***. The purpose of the event was to "identify and discuss some of the major challenges and opportunities for connected and automated driving (referred to as CAD <as if this acronym had never been used before>) and whether the EU and Member States are acting decisively enough from (an) industry, consumer and societal perspective".

I have always found it odd that the Commission organizes events that are principally about the automobile industry and then forgets to invite more than a token member of the companies that build and sell cars and trucks. Abayomi Otubushin, Corporate and Governmental Affairs for BMW, was the only participant from an OEM listed in the draft program, and he was still "to be confirmed" as of the 11<sup>th</sup> of November. In the end, Paul Daman, a Specialist in the Active Safety and Vehicle Automation group at BMW was his replacement. The rest of the speakers and panel

#### ***Final Program for Connected and Automated Driving: What's needed from the EU?***

10:00 Registrations

10:30 *Introduction and keynote speeches*

*Welcome by Barbara Schretter, Director of the Representation of the Free State of Bavaria to the EU*

*Keynote speech by Gwenole Cozigou, Director for Industrial Transformation and Advanced Value Chains at DG GROW*

*Setting the scene for vehicle connectivity and automation: Richard Cuerden, Director at TRL Academy*

11:00 *Panel discussion: What should be the priorities of the EU on CAD?*

*Claire Depré, Head of Sustainable and Intelligent Transport Unit at DG MOVE, European Commission*

*Laurianne Krid, Director General at FIA Region I*

*Paul Daman, Active Safety and Vehicle Automation Specialist, BMW Group*

*Sigrid de Vries, Secretary General, CLEPA*

*Fazilet Cinaralp, Secretary General, ETRMA*

*12:10 Closing Speeches*

*Maria Rautavirta, Director of Data Business Unit at the Finnish Ministry of Transport and Communications.*

members are from the Commission, the EU Parliament, industry organizations or public authorities. The moderator is a professional moderator.

So what did the group conclude? Now that the automotive industry is turning down the hype volume on driverless cars, does the EC believe it should be turning up its regulation volume and having more of a say? The only presentation on the site after the conference was from the representative from the *UK Transport Research Lab*. It was a presentation of TRL's view of the benefits of connected and automated vehicles. The last slide contained the changes TRL believes would be needed to accommodate CAVs (see sidebar). Most of them would need to be addressed at the member country level, not by the EU Parliament.

### ***Tesla Does the Right Thing with its New Plant***

WHILE GM AND FORD are closing them and putting people out of work, Tesla is opening new plants. While Amazon is locating its twin headquarters in places where jobs are in abundance (NYC and Arlington, VA), Tesla has located its new battery and vehicle assembly plant in a place where pressures from environmentalists are causing jobs to be lost. *Good on ya*, Elon, on both counts.

Cottbus, in the Lausitz region of what was once part of East Germany (see map) is a city that is extremely dependent on a natural resource that environmentalists love to hate: lignite, most often referred to as 'brown coal'. The coal in the mines surrounding Cottbus and the neighboring town of Spremberg is not running out, but Germany's Greens are doing everything they can to close down the mines and the coal-burning electric generation plants in the cities by 2030. These plants once supplied 90% of East Germany's electricity. They now provide for 7% of Germany's needs. Eight thousand of the remaining jobs will disappear, those that are left after tens of thousands were lost following reunification of East and West Germany. The population of Cottbus is down from 140,000 at its height in 1990 to 100,000 and falling.

Schönefeld, where the new Berlin airport is due to open in the coming year, is also where the Tesla plant will be located. It is located at the southeast edge of Berlin. It's a mere 100 kilometers to Cottbus. Add a hyperloop to the mix, Elon, connecting Schönefeld, Cottbus, Spremberg and Leipzig—in a loop. You will have plenty of eager workers taking it each day and Tesla will have a hand in revitalizing a region that was hard hit by reunification and is now being hit hard by the same forces pushing for electric cars.

TRL's list of changes required in order to approve CAVs:

- Driver rules and licensing
- Criminal law and procedures
- Civil liability for personal injury
- Insurance governance and supply
- Privacy (data protection) guidelines
- Vehicle regulations, including new measures, for example cyber security



*This map is from a story in the September 21<sup>st</sup> 2019 issue of THE ECONOMIST titled Dirty, and not quick. Germany's pricey "coal exit".*

# A Dispatcher's Musings: The 95% Solution Myth



**95** SEEMS TO BE an unlucky number for the car world. When the driverless car craze got started more than fifteen years ago, it was claimed by the promoters of robot-driven vehicles that 95% of all vehicular accidents were the result of (human) driver error. The remaining 5% of the accidents, they said, were attributable to problems with the car or the road or mystical factors beyond the control of the driver. Take humans out of the driving loop, substitute them with robots and, *voila*, 95% of accidents disappear and millions of lives are saved. Of course, that 95% was an overstatement. Swerving to avoid a cat to save the cat or swerving to avoid a moose to save yourself counts as driver error. Driving into a ditch on an icy road also is just as much the driver's fault as plowing into the back of someone stopped at a red light because you were looking down at your mobile phone checking your INSTAGRAM or TWITTER accounts.



*Wouldn't it be nice if we could deflate our cars, fold them up, like a portable kayak, and put them in a small locker until we are ready to use them? Even better, we could fold them so small we could carry them around in our pocket.*

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Recently, I have been hearing and reading that our private cars are sitting idle 95% of the time. Is it a coincidence that this number, 95, has popped up again? A combination of climate activists and promoters of the sharing economy are using this figure to show how wasteful car ownership is. I did some investigating to find out from where this 95% conclusion was derived.

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I found a posting on the topic on a site called 'Reinventing Parking' ([reinventingparking.org](http://reinventingparking.org)) which listed three methods used in the U.K. to determine what percentage of time vehicles, on average, are not being driven. The first was to use statistics on the number of cars in use, the number of trips made and the average time duration of each trip. This was available in a report on parking published by the RAC in 2012. It found that the average car in the UK was moving only 6 hours per week, meaning it was idle 96.4% of the time.

The second was to use transportation surveys to determine the amount of time drivers spend driving and assume one car per driver. This resulted in cars being parked 95% of time. The third option was to use kilometers driven

per car per year and divide by overall average speeds. I used this method for my own vehicle and found that my number is 97.1%, so I guess I drive a bit less than the average.

Naturally, there are days or even weeks when we don't drive at all, for example when we leave our car parked at the airport while on a business trip on the other side of the world. When I was making business trips to places on the other side of the world on a bi-weekly basis, the only safe (meaning, I wanted to make sure I caught the plane, and the train had disappointed me on one too many occasions) and least expensive (a taxi was four times the cost) way to make the one-and-a-half-hour trip to Arlanda Airport was to drive. There are other times when you are driving for six or seven hours at a stretch for several days when on vacation. But, clearly, most folks don't drive their cars more than ten hours a week, on average.

Just for comparison purposes, I took a look at other items that I own. There is nothing I use all the time. Although I get a good night's sleep (7 hours), I am not at home every night due to travel. Therefore, I am not in my bed 83% of the time during the course of a year. Of course AIRBNB would love to have my bed available for the 7,271 hours that I am not using it, but most folks sleep during the same 1,500 each year that I do. My wading boots get a good workout during the days when I fish, but I don't fish as often as I would like, so they are sitting for 99.997% of the time. Renting wading boots is definitely not an option. I bought a tuxedo forty-five years ago. During that time it has been sitting in the closet in a garment bag for 99.9999% of the time. It never goes out of style, and, given the time it would have taken to rent one each time I needed it (fitting, picking it up, taking it back), as well as the cost, it was definitely a great investment.

I have a burial plot in a family grave that has been unused 100% of the time by me since I obtained an interest in it 35 years ago when my wife and I married. At some point, I will be using it 100% of the time, but I can wait for that day to arrive. In the meantime, I suppose I could rent it out to someone who needs a temporary place to rest his bones while the grout is drying on his mausoleum. Maybe there's a business idea there, although I'm certain that some enterprising soul has already thought of it.

The point is, I own many items and none of them is used close to 100% of the time, including the tool I use most, the laptop with which I am typing this article. It is idle and turned off 72% of the



time. It does not matter if I store all of my files and load all of my programs on this laptop or access them from a cloud server; it is my laptop that I use to perform my work. Is there anyone who believes I should rent a laptop every time I need one, whether I am in my office or on a train (like I am at this very moment)?

### Humans own things to maximize our freedom

Humans, unlike other mammals and life forms, have always produced useful tools that we have reused when needed. Imagine an early human having to make a *bison bonker* from scratch every time he had to bring home dinner. I'm not sure we'd be around today if he did. When the plough was invented, early farmers must have known it would only be used for very short periods at the end and beginning of the growing seasons. Still, they made their ploughs and stored them away when they were not needed. They stored them in sheds they had made to keep all the other tools they had made. When they finally got around to inventing the wagon to take their products to market, they stored that in the shed and renamed the shed 'garage'.

There are both economic and philosophical reasons for owning things. (It would be truly remarkable if that were not the case, in spite of the apparent fact that a combination of climate activists and promoters of the sharing economy believe that humans have lost the ability to think and reason for themselves.) It's not just because interest on mortgages is deductible from our income taxes in some countries that we own homes rather than rent or camp out in tents in the woods or caves in the mountains. It's not simply a desire to possess things that we purchase and own our clothes, furniture, pots and pans and, most of all, our cars. I found an excellent explanation of the philosophical side of our reasoning in an unexpected place. A friend sent me a review of a book titled **This Life**, which is, in part, about why all religions trivialize the time we spend alive on Earth by glorifying the time after death. I bought (I did not try to find it in a local library) and read the book. The author, a practicing atheist and lapsed Swede, talks about the realms of necessity and freedom and negative and positive measures of value.<sup>6</sup>

The author explains that from birth to death, free humans (i.e., those who are not enslaved; today, 0.8% of the world's population is enslaved) have one possession which is theirs to dispose: **time**. We spend that time in one of two ways: doing the necessary things to keep ourselves alive, which we may or may not enjoy (which Hägglund calls *negative value*); and, doing things that are



*A Neolithic (circa 12,000 years ago) stone ax with a wooden handle found at Ehenside Tarn, northwest England. One example of a bison bonker.*

6. Hägglund, Martin. **This Life: Secular Faith and Spiritual Freedom**. Pantheon Books (2019).



unnecessary for staying alive, some of which we enjoy and some of which we do to be social (called by Hägglund *positive value*).<sup>7</sup> If we have to spend all of our time doing the necessary things (e.g., staying warm and dry, hunting food, avoiding predators), we have no time left over for the unnecessary (e.g., looking for star patterns in the night sky or watching TV).

We cannot save up time in a jar and take it out when we want it. But we can generate a surplus of *negative value* in the form of paid labor that allows us to buy things that generate a *positive value* in time savings. In the old days, we bought a big pot so we could cook more than we needed to eat on a particular day, and then we could save time by just heating up what was in the pot for supper on successive days. Smart. That meant we had more time to paint pictures of our hunting exploits on the walls of our caves and tell each other stories about why the wind blows. This is the reason we own things, so we don't have to use time on necessary activities that we have already performed by buying the things. We buy a car and park it in a place that is convenient so that when we need it, it is there for our use. We don't need to book it, find it, and fulfill obligations when we have finished using it. It may cost us more in money terms (i.e., dead labor, money we have earned performing necessary tasks so we can do things with our free time) but we are willing to pay for the convenience.

### The parable of the duplex house

In the early 1920s, seven years after my maternal grandparents immigrated to the United States, they bought a property in an old orchard where many of the immigrants from the same village in Italy had come from. With the help of their neighbors, they built a duplex house. Of course, they would return the favor when their neighbors built their houses. My grandparents and their children lived on one side of the house and his widowed brother-in-law lived on the other side with his three children. My grandfather and his three brothers-in-law (the two others also lived on the same street, which was and still is called Orchard Street in Old Forge, PA) took the trolley to the coal mine where they all worked.

One day, my grandfather decided to buy a *Model B Ford*. The four men all saved money and time by riding in his car, and they all used the time they saved doing things they enjoyed but which also contributed to their well-being, namely, fishing, hunting and gardening. The *Ford* also served as a bus on the weekends to take the three adults and seven children for excursions to the country where they picked berries and mushrooms and ate their Sunday

7. According to Hägglund, the negative measure of value in the realm of necessity (the cost of labor time, which he calls 'dead labor') presupposes the positive measure of value in the realm of freedom. (See page 224.)



dinner out in the open. His brother-in-law found a smaller place when his children grew up and my uncle and his wife moved in. That meant a small additional income from the rent and then guaranteed elderly care in my grandparents' old age. My uncle and aunt had built-in baby sitters.

Working in a coal mine was back-breaking work, much harder than sitting at a desk and managing a staff of office workers, which is what my grandfather's college-educated son did to earn a living. My grandfather had tried being a baker, a grocer and a teamster, but he failed at those jobs to be able to produce a positive surplus of value so that he could be free: free to build his own house; free to grow his own vegetables; free to buy his own car; and, free to give his children the education he never had. He did not have to negotiate with and pay anyone when he wanted to use his *Ford*, and he could take anyone he wanted for a ride in it. He did not have to give most of the vegetables he grew to the land owner, as his family had done for generations in Italy because they farmed land they did not own. He owned his own piece of paradise. He built a two-car garage where he kept his own car and where his son eventually kept his.

### **What the MaaSers are missin'**

There is a reason why e-scooters and dockless bicycles are strewn all over the place in cities where they are allowed to be rented. It's the same reason why there are cigarette packs littering sidewalks and street gutters, why single-use charcoal grills are left in parks and why no one changes the oil and washes a rental car. There are litter laws, but since they are rarely enforced, people ignore them because it is more convenient to simply drop an empty cigarette pack or leave it to someone else to dispose of a used-up grill. There are conditions in car rental contracts that the car must be brought back with a full tank of gas or else a hefty provision will be added to the amount one would have paid at a filling station, but there are no contract requirements for replacing windshield washing fluids, motor oil or washing the car before returning it. So people don't do it.

It's the difference between *accountability* and *ownership*. *Accountability* is an extrinsic motivation, doing what you are supposed to do because someone expects it of you, like placing a used e-scooter or dockless bicycle in a place that is not in the middle of a sidewalk. *Ownership* is doing what needs to be done because you expect it of yourself, and it springs from the intrinsic motivation of pride and engagement. *MERRIAM-WEBSTER* defines

*"Communism doesn't work because people like to own stuff."*  
Frank Zappa

ownership as “the state, relation, or fact of being an owner, which in turn is defined as to have power or mastery over.”

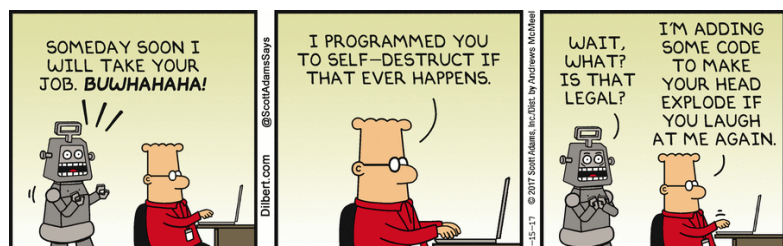
Mobility-as-a-Service masters (MaaSers) have built a folly around the idea that transport is subject to the rules of accountability, that we can delegate the selection of how we will move from one place to another to some anonymous platform. This platform will be entrusted with considering our requirements for travel, comparing them to the existing transport options, their availability given the requirements of other mobility users and their costs, and delivering a solution or multiple solutions which we will be expected to choose among. I say that this is a folly because it ignores our built-in tendency to desire to make our own decisions rather than being subject to and controlled by the decisions made by others. The reason that everyone who owns a car does not car pool, the reason that everyone who can take a bus, trolley or train chooses to take their own car, and the reason why people who could bicycle or walk decide to drive is because they want to own that decision and exercise that ownership.

If you tell people that they can only drive into a city on dates that are even or odd, depending on whether the last digit on their license plates is even or odd, as is the case in Bologna and other cities, those who can afford it will buy two cars and make sure that their licenses have one odd and one even final digit. If you tell people they can only use the high occupancy lanes with two or more people in the vehicle, they will put a dummy in the passenger seat. If you keep handing out parking tickets and making life miserable for car-owning occupants of cities, they will move out. I did so twice, and I would never live in a city if I did not have a parking space in the basement of the building where I lived.

Why in the name of Zeus can we not come to grips with the fact that humans are humans and not robots themselves who will simply OBEY!? Cities are claiming they will eliminate private vehicle ownership within five-to-ten years. It's such a waste, they say, having those cars sitting there for 95% of the time when we could use the space for so many other things. Is private dog ownership next? How about private kitchen ownership and private furniture ownership? If city officials and other would-be masters force people to choose between accountability and ownership, they will have only themselves to blame when people get fed up and revolt. It takes less than 5%.<sup>8</sup>



*My father was in a five-person car pool during the last ten years of his working life. One of the five owned the car in which they all rode the twenty-five miles to and from their place of work. The four riders paid a weekly fee that covered the expenses for the car and a tip for the driver. According to my father, the four riders slept on the way up and all five solved the world's problems on the way home.*

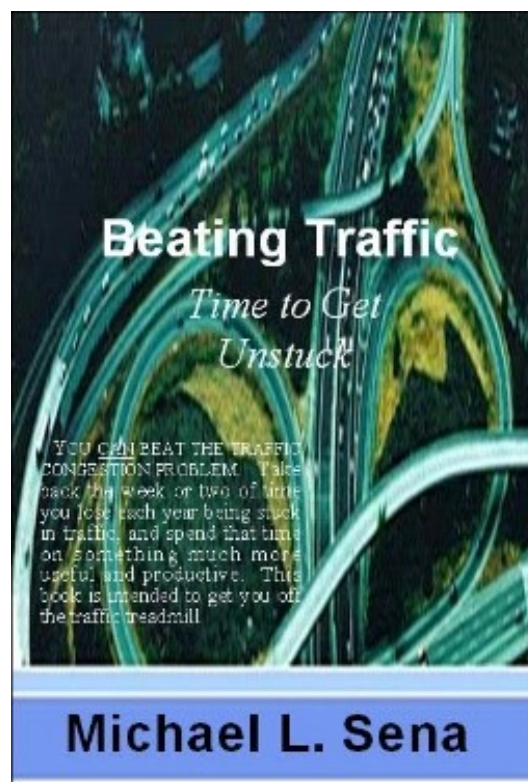


8. A Harvard University political scientist professor claims her research shows that if 3.5% of a country's population actively engages in peaceful civil disobedience, there is a higher chance that the goals will be achieved rather than if violent means are used. I guess that means over 95% of us are idle onlookers allowing our fates to be determined by a tiny minority with whom the majority may be in total disagreement.

## ***About Michael L. Sena***

Michael Sena, through his writing, speaking and client work, attempts to bring clarity to an often opaque world of vehicle telematics. He has not just studied the technologies and analyzed the services, he has developed and implemented them. He has shaped visions and followed through to delivering them. What drives him—why he does what he does—is his desire to move the industry forward: to see accident statistics fall because of safety improvements related to advanced driver assistance systems; to see congestion on all roads reduced because of better traffic information and improved route selection; to see global emissions from transport eliminated because of designing the most fuel efficient vehicles.

This newsletter touches on the principal themes of the industry, highlighting what, how and why developments are occurring so that you can develop your own strategies for the future.



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**Michael L. Sena**

**Editor**

**SUNDBYVÄGEN 38**

**SE-64551 STRÄNGNÄS**

**SWEDEN**

**PHONE: +46 733 961 341**

**E-MAIL: [ml.sena@mlscab.se](mailto:ml.sena@mlscab.se)**

**[www.michaellsena.com](http://www.michaellsena.com)**