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Telematics Industry
Insights by
Michael L. Sena

THE DISPATCHER

IN THIS ISSUE

4TH ANNUAL PRINCETON SMARTDRIVINGCAR SUMMIT
DECEMBER 8TH THROUGH 10TH, 2020

*The focus of the **4th Annual Princeton SmartDrving-Car Summit** will be moving beyond the AI and the sensors to addressing the challenges of commercialization and the delivery of tangible value to communities. We've made enormous progress with the technology. We're doing the investment, however this investment delivers value only if is commercialized, made available and used by consumers in large numbers. Demonstrations and one-off events are great, but to deliver value that is anywhere near commensurate with the magnitude of the investment made to-date, initial deployments need to be able to scale.*

This year's summit was originally scheduled to be held in May. It is now going to be a virtual event and will be held in December. See the program and register at: https://summit.smartdrivingcar.com/

THE SYMPOSIUM ON THE FUTURE NETWORKED CAR 2021
A VIRTUAL EVENT
22–25 MARCH 2021.

The 2020 Future Networked Car Symposium was a hybrid event, held just before COVID-19 caused most of the world to enter a period of restricted travel and remote working. Previous events had always been held in conjunction and co-located with the Geneva International Motor Show. Due to the cancellation of the Motor Show, the event was moved to FNC headquarters where some of the Symposium's participants and attendees gathered, and the remainder took part online.

*With the 2021 Motor Show still in doubt, FNC and UNECE have decided that next year's **FNC 2021 Symposium** will be totally virtual. It will be held on four successive days in March, each day consisting of three-hour sessions dedicated to one of four important topics. The complete program will be ready soon and details will be forwarded to THE DISPATCHER readers as soon as they are available. See this year's 2020 program at:* https://www.itu.int/en/fnc/2020/Pages/default.aspx

THE DISPATCHER

Telematics Industry Insights by Michael L. Sena
November 2020 – Volume 8, Issue 1

Will the Vehicle OEMs Acquiesce on Data Sharing?

In the February 2020 issue of *THE DISPATCHER*, in the lead article titled *Open Data Access Challenges the Entire Car Ecosystem*, I discussed the challenges of trying to balance the needs and desires of two groups within the automotive industry, one of the most important business areas for many of the world's countries. On one side are the vehicle manufacturers and on the other are the companies that deliver services to both new and used vehicles. They both want unrestricted access to the consumers of their products and services. In the case of the service providers, they are looking to government to help them achieve their aims, and in the case of the manufacturers, they are trusting that the laws that require that they accept product liability will ensure that they alone can communicate with their vehicles.

In this article I have presented the views of the automotive industry. In a future issue, it is my plan to present the case of the service providers.

Service providers and car OEMs diverge

DATA SHARING BY automotive OEMs with service providers may seem like an extremely off-topic issue in these COVID-19 times. Western automobile manufacturers are still not back to full capacity after two months of lock-downs. Car buyers, worried whether they will have jobs when the COVID-19 dust settles—whenever or whether that will happen—are delaying new car purchases. This is reflected in significantly lower sales of new cars. (Those who can afford to buy expensive luxury cars seem to be unfazed, as is reflected in TESLA's record third quarter sales.) The U.S., Canada and countries in Europe are providing emergency funds of previously unheard of amounts to keep their companies and their economies afloat, and this includes their car companies. However, western OEMs have announced major layoffs in attempts to make the handouts last until sales get back to pre-COVID-19 levels.

Amidst all of this, the battle over who should control the flow of data to and from vehicles has continued unabated, particularly in Europe and within the EU. A recent article in *THE ECONOMIST* (*Which market model is best?* September 12th 2020) offers a hint at why this can be the case. It distinguishes among liberal market economies (LMEs) such as the U.S., Britain and Canada, co-ordinated market economies (CMEs) such as Germany, the Nordic countries, Austria and The Netherlands, and authoritarian market economies (AMEs) with state-driven capitalism such as China. LMEs rely on market mechanisms to allocate resources and determine wages, the article says, and on financial markets to allocate capital. CMEs, on the other hand, rely on structures they have erected to steer their economies, and they continue to erect more structures in order to do more steering. The article goes on to say that under political capitalism "the state's lack of accountability to the public can lead to disregard for individual welfare in the short term." AMEs don't so much steer as tell everyone where to go, and clearly the Chinese

government, not businesses or consumer groups, will determine whether data is shared between vehicles and services providers and on what terms.

So the U.S. is letting its companies focus on what they need to do to get through the pandemic while providing financing to allow them to do it. The EU spent valuable time deciding whether the aid they would give (back) to the countries would be considered loans or handouts, and its Commission bureaucrats have carried on with their previously agreed plans. This includes sticking to their climate goals. The European Commission recently proposed even deeper cuts to green-house gas emissions, increasing the goal to 55% by 2030 from the previously set (and unreachable) goal of of 40%. This will further diminish the competitveness of western automotive companies.

Every story of human drama always has two sides

It is clear that the issue of data sharing by vehicle OEMs in Europe is not going to disappear into the miasma of the COVID-19 virus. I decided it was time to take a closer look at the different sides of this issue and started by making contact with the advocacy group for the European automotive OEMs, the EUROPEAN AUTOMOBILE MANUFACTURERS ASSOCIATION (ACEA). ACEA represents the sixteen major Europe-based car, van, truck and bus manufacturers.[1] I got in touch with Joost Vantomme, Smart Mobility Director for ACEA, who is a reader of *THE DISPATCHER*, and asked him if he would be willing to spend time on a call to discuss the automotive data sharing issue in general and the approach to data sharing being proposed by the European automotive industry. He agreed.

My first question to Joost was whether ACEA had any relationship to the European Commission or to any other EU body. The answer was a definitive 'no'. It is <u>not</u> a non-governmental organization (NGO) and it does not depend on financing from any sources other than its members. It represents the interests of its sixteen members, and its Board of Directors is comprised of the CEOs of its member companies. Its website states that technical expertise and advisory input come from working groups made up of experts from the member companies and by ACEA staff. Its priority fields are the following:

- Connected and Automated Driving
- Competitiveness, Market and Economy
- Environment and Sustainability
- International Trade

1. ACEA's mission is to:
   - Define and advocate the common interests, policies and positions of the European automobile industry;
   - Engage in dialogue with the European institutions and other stakeholders in order to advance understanding of industry-related issues, and to contribute to effective policy and legislation at both European and global levels;
   - Act as a portal for expert knowledge on vehicle-related regulation;
   - Communicate the role and importance of the industry, using reliable data and information;
   - Monitor activities that affect the automobile industry, cooperating with the other stakeholders involved; and
   - Undertake strategic reflection on the increasingly global challenges of mobility, sustainability and competitiveness.

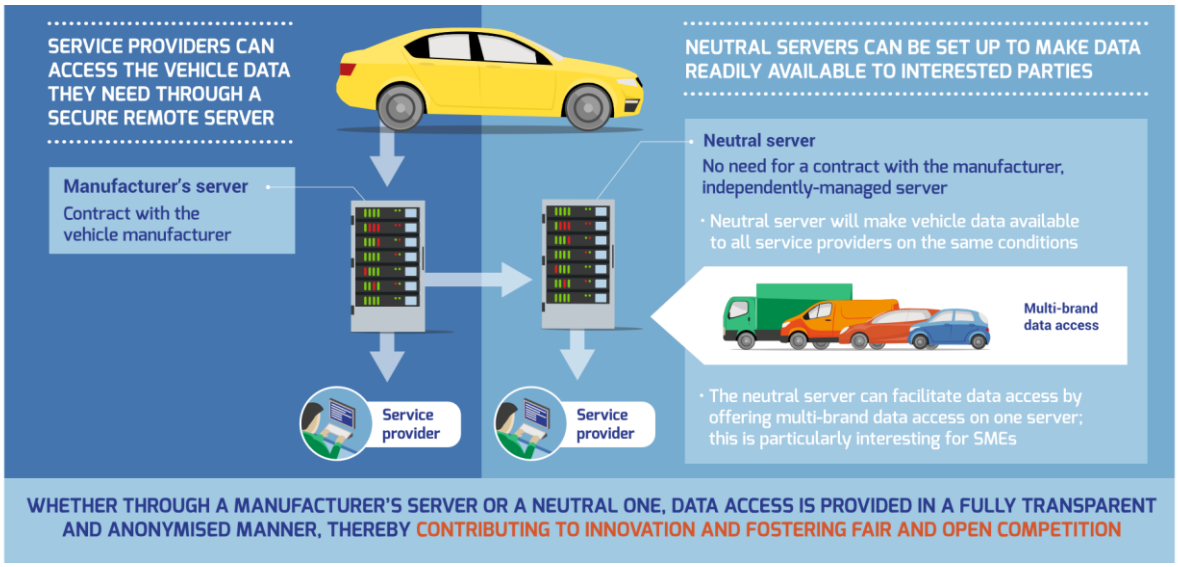
- Research and Innovation
- Safety
- Transport Policy

Does ACEA have a mandate from the OEMs on data sharing?

What mandate have the ACEA members given the ACEA staff on the subject of data sharing, I asked. Is it a subject at the top of the CEOs' agendas, or is it a low-level issue that has not been given much serious thought? Joost assured me that the issue of data sharing has a very high priority. The CEOs know that the topic of sharing data directly from and providing services directly to vehicles is receiving a great deal of attention from various European Commission Directorates who are being pushed hard by the service provider lobby. The vehicle manufacturers have decided that they are going to put their full weight behind their proposed approach to data sharing, and ACEA has been charged with bringing their case to the Commission and to the public.

Joost referred me to a website titled *Car Data Facts*[2] which sets out the policy of ACEA's members. The opening page of the site has six questions which leads the site visitor from the starting point, *Why share car data?*, through the explanations of why the car manufacturers' recommended approach is the better of the two options, and finally to the question of whether data can be shared with all service providers. The two options are: direct access from and to the vehicle by third parties; and, off-board access from the OEM's own server or a so-called neutral server which is able to assemble data from multiple OEMs. The second option, pictured below, is the one offered by the OEMs.

2. https://www.cardatafacts.eu/



There is one message that comes through in the entire presentation: *"Vehicle manufacturers are prepared to make car*

data available to third-party services, but they want to guarantee that this happens in a way that:

- *Ensures the protection of the vehicle user's personal data;*
- *Does not endanger the safe and secure funtioning of the vehicle; and,*
- *Does not undermine the liability of the vehicle manufacturer."*

The vehicle manufacturers list four major risks of allowing direct access to in-vehicle car data to third parties:

- Every new external data interface increases the number of potential targets and entry points;
- Endangering safety-critical functions through the use of vehicle resources and computing capacity for unapproved third-party apps;
- Increasing distraction through the introduction of apps or additional control units that draw the driver's attention away from the road; and,
- Malfunction or crash of the entire vehicle software system through the installation of external software.

Thus far, no other alternative proposals have moved the OEMs from their position.

What policy guidelines from the EC are being followed, if any?

The *European Data Task Force-Data for Road Safety* is the group Joost feels is working highly effectively on a coordinated approach to the issue of road-related data, particularly for safety information.[3] It was established as a public-private cooperation on the 15th of February 2017 in Amsterdam by the European transport ministers, the European Commission and a group of industry partners at a meeting on Connected and Automated Driving. The DUTCH MINISTRY FOR INFRASTRUCTURE AND WATER MANAGEMENT has chaired this since the beginning. Joost from ACEA has now been nominated as the new *Task Force* chair.

The *Task Force* identified two so-called 'building blocks' for their work. The first is the *European Commission Delegated Regulation No 886/2013* of 15 May 2013, which "establishes the specifications necessary to ensure compatibility, interoperability and continuity for the deployment and operational use of data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users on a Union level in accordance with Directive 2010/40/EU.[4]

3. https://www.dataforroad-safety.eu/background

4. https://eur-lex.europa.eu/legal-con-tent/EN/TXT/PDF/?uri=CELEX:32013R0886&from=EN

The other building block is the ACEA's position paper *Access to Vehicle Data for Third-party Services*.[5]

There are three Directorate Generals that have an interest in the subject of data sharing between vehicles and third-party service providers, DG-MOVE, DG-CONNECT and DG-GROW. A legislative proposal is forthcoming, according to Joost, but he would not speculate on whether it would support the OEMs' position or the position put forward by the third-party service providers.

Are there any standards activities in which ACEA is engaged?

ISO Standard 20077-1:2017 Road Vehicles – Extended vehicle (ExVe) methodology is the basis for the proposal put forward by the OEMs on data sharing. The most important work being done at the moment, according to Joost, is in the *UNECE World Forum for Harmonization of Vehicle Regulations* (WP.29). I wrote about the standardization work of WP.29 in the September 2020 issue of *THE DISPATCHER*. The two areas of recent standard work, cybersecurity and over-the-air updating are of particular importance to the issue of data sharing with third parties.

Who coordinates discussions with the service providers?

The INTERNATIONAL ORGANIZATIN OF MOTOR VEHICLE MANUFACTURERS (OICA) is the voice speaking on automotive issues in global forums. ACEA is a member of OICA. Speaking partners representing the service providers are the EUROPEAN ASSOCIATION OF AUTOMOTIVE SUPPLIERS (CLEPA) and the FÉDÉRATION INTERNATIONALE DE L'AUTOMOBILE FIA, which represents the interests of motoring organizations and motor car users (in the form of organizing auto racing events, such AS FORMULA ONE). Two other service-oriented organiztions are the ALLIANCE FOR THE FREEDOM OF CAR REPAIR IN EUROPE (AFCAR) and the AUTO CARE ASSOCIATION, which is a U.S. organization that represents the interests of businesses providing aftermarket products and services for all classes of motor vehicles.

What happens if the EU proposes legislation opposed to the OEMs' proposal?

Joost does not believe it should come to this. The solution must be technically neutral. The Commission had it fingers rapped by the EU Parliament for not being technology-neutral when it pushed for its ITS-G5 solution to V2X and dismissing the other options.[6] He argues further: "Why should the Commission be able to single out the automobile industry for such regulation when it

5. https://www.acea.be/uploads/publications/ACEA_Position_Paper_Access_to_vehicle_data_for_third-party_services.pdf

6. See the June 2019 issue of *THE DISPATCHER*, *European Commission is getting it wrong on V2X.*

does not do it for any other industry?" There are all types of devices that generate data that are used by the manufacturers and software developers to improve their products and customer services. Many companies sell their data to third parties without any restrictions. The car industry has offered to provide data on fair terms to all those who want to use it, but it wants to ensure that access to and from the vehicle is secure.

As his last argument against forcing a totally new business structure on the automobile companies, he says that the car companies do not see a case today for *ex-ante* forcing a change to a system that exhibits no sign that it is failing. There is no apparent outcry from consumers who claim that they are being forced to use services at unreasonable prices. Many services, such as roadside assistance during warranty periods for new cars and during extended warranty periods, are free to customers. Customers do have the choice of using and paying for services offered by the OEMs. They can choose to purchase one car versus another based on what the brand offers as its selection. Consumers don't expect to receive on their Android phone what they receive on an iPhone. That's why they buy one rather than the other.

An end around and a quarterback sneak

End around – an American football play in which an offensive end comes behind the line of scrimmage to take a handoff and attempts to carry the ball around the opposite flank.
Quarterback sneak - a usually quick run with the ball by a quarterback into the middle of the offensive line. The advantage of the play is that there are no hand-offs after the ball is snapped to the quarterback.

I am making my own conclusions now based on my own opinion on the issues, so this is not representing the views of ACEA or the automotive OEMs. As I see it, the basis of data sharing is a tripartite relationship among three interests: 1) an OEM that delivers a vehicle that is capable of collecting, using and communicating data (the data controller in GDPR terms); 2) a consumer that purchases or uses the vehicle (the data subject in GDPR terms), thereby generating data that is both personal to him or her, such as speed, acceleration, distance travelled, and data that is related to the vehicle, such as the relationship between braking and acceleration to battery range; and, 3) a service provider that is engaged either by the consumer or the OEM to deliver a specific service as a result of receiving data from the vehicle (the data processor in GDPR terms).

The consumers/owners can rightly claim, in my opinion, that the data generated by the cars they own belong to them and the destination of that data should be at their discretion. Car OEMs have acknowledged this and their proposed solution provides for this, although it may not be according to the way the service providers want to receive it. But what happens if the OEM is the owner of the vehicle and rents it to users, and the terms of that

rental are that all services are included. Whether the OEM is providing cars on a subscription basis, offering its own car sharing program or simply running its own short-term car rental business, if it provides an all-inclusive price, it should be able to decide who delivers roadside assistance, insurance, traffic information, tire pressure monitoring and any other vehicle-related service. Is this one of the loopholes the automotive OEMs are looking to exploit by moving to a non-sale business model? Is this the 'end around'?

Also, what happens to the argument in favor of installing special equipment in the vehicle to deliver data directly to service providers when the OEM turns over its operating system to Google and allows Google Android-compatible apps? This is what VOLVO CARS and other OEMs have already done. If a company offering personal services to drivers who either own, share, subscribe to or rent cars can have its app approved by Google, and that app can access any data that Google is able to extract from the vehicle according to its agreement with the OEM, apps can be developed for any type of personal application. Instead of delivering data from the vehicle to the OEM's backend server and then to a neutral server, the data can be assembled on-board by the Google Android app and sent directly to the service provider. Is this the 'quarterback sneak'?

Both the end around and the quarterback sneak are intended to catch the opposing team off guard. In a future issue of *THE DISPATCHER* we will be talking to a representative of the opposing team, the one representing the service providers. I can assure you beforehand that the other side is not easily deceived and has developed both an excellent defense and an effective offense.

THE GENERAL DATA PROTECTION REGULATION (GDPR) PERSONAL DATA

The term 'personal data' is the entryway to the application of the General Data Protection Regulation. Only if a processing of data concerns personal data, the General Data Protection Regulation applies. The term is defined in Art. 4 (1). Personal data are any information which are related to an identified or identifiable natural person.

The data subjects are identifiable if they can be directly or indirectly identified, especially by reference to an identifier such as a name, an identification number, location data, an online identifier or one of several special characteristics, which expresses the physical, physiological, genetic, mental, commercial, cultural or social identity of these natural persons. In practice, these also include all data which are or can be assigned to a person in any kind of way. For example, the telephone, credit card or personnel number of a person, account data, number plate, appearance, customer number or address are all personal data.

Source: https://gdpr-info.eu/

Dispatch Central

Is Trevor Milton a visionary automotive entrepreneur or a snake oil salesman?

Electric Vehicle News

GM and Nikola: A deal made in heaven or hell

THERE WERE THREE positive traits I saw in NIKOLA when it first caught my attention. I wrote about the company in the January 2020 issue of *The Dispatcher*. NIKOLA, under the leadership of its founder, principal owner and CEO, Trevor Milton, was focusing on improving the environmental sustainability of large commercial vehicles; it was developing hydrogen fuel cell technology for this purpose; and, it was incorporating the one part of the electric vehicle solution that most other companies, with the exception of TESLA, have completely ignored: the charging infrastructure. NIKOLA has said it will build 700 hydrogen stations in North America by 2028, along with 70 stations in Europe by 2032.

How did it start?[7] In 2009, Trevor Milton founded a company called DHYBRID INC. with a $2 million contract he had received from SWIFT TRANSPORTATION as an upfront payment for research, development and installation of technology to run SWIFT's trucks on compressed gas. The expected fuel savings did not materialize, the firms sued each other, and DHYBRID was closed. It was eventually purchased by WORTHINGTON INDUSTRIES for $12 million and Milton then founded NIKOLA MOTOR COMPANY with some of the proceeds. Other investors in DHYBRID received nothing from the sale since the company that was sold was, on paper, different from the company in which they had invested.

Since he could not convince top-notch automotive engineers to leave their employers, he started hiring engineers who had zero experience in the automotive world, including his chief engineer, Kevin Lynk. In June 2016, Milton said that NIKOLA had $2.3 billion in pre-orders for its truck that was going to be based on natural gas as its fuel source. With advice from an employee at WORTHINGTON INDUSTRIES, Mark Russell (who joined NIKOLA in 2019 and became its CEO in June 2020), Milton switched his technology pitch to hydrogen fuel cells. At this point NIKOLA did not have anything close to a working version of even a natural gas vehicle. In December 2016, the *Nikola One* was revealed and was presented as a fully functioning truck. It

7. The referenced article provides an excellent summary of Trevor Milton's journey. I have extracted highlights from the article. https://www.livemint.com/companies/start-ups/long-before-nikola-trucks-trevor-milton-sold-investors-on-startups-that-faded-11601620543004.html

wasn't. Its electrical system was plugged into a wall socket. The only hydrogen feature it had were the words "hydrogen electric" stenciled on its side. It was filmed in motion, but the motion was from a run down a hill. Still, NIKOLA continued to gain traction with investors and partners.

In September 2017, it announced a BOSCH partnership to collaborate on hydrogen fuel cells and motors. BOSCH invested over $100 in NIKOLA in 2019. Brake company WABCO HOLDINGS INC. in December invested $10 million for a 1% equity stake, valuing the company at $1 billion. NIKOLA in 2018 said it had a preliminary order for 800 trucks from ANHEUSER-BUSCH INBEV SA. In September 2019, CNH INDUSTRIAL NV, which owns IVECO, invested $250 million in the company, valuing NIKOLA at $3 billion and giving IVECO a 7.11% of NIKOLA. Also in 2019, IVECO and FPT INDUSTRIAL agreed to produce a NIKOLA battery electric vehicle for European markets. This would be a bridge to a future fuel-cell electric vehicle, the companies said.

On the 2nd of June this year, NIKOLA went public through an acquisition by VECTORIQ.[8] Just before the IPO, major investors who had started to be concerned that Milton was not up to the task of running the operations of the company, maneuvered Milton out of his CEO position and had Mark Russell named CEO. Milton became Executive Chairman. Milton's father was also removed from the board as part of this reshuffling. At the IPO, the stock opened at $37.55. The acquisition infused NIKOLA with more than $750 million in capital, $525 million from investments and $230 million from VECTOIQ. The majority of the money came in through a "PIPE" (private investment in public equity) transaction where investors, including FIDELITY INVESTMENTS AND HEDGE-FUND MANAGER P. SCHOENFELD ASSET MANAGEMENT, bought shares of the combined company at a discounted price. Milton waxed lyrical on his vision following the successful IPO.

"We want to fully vertically integrate the whole supply chain where we cover the fuel, the service, the warranty, the maintenance, the truck," Milton said. "And by doing that, we are going to make five times as much revenue as our competitors do per truck we sell. Those kind of numbers are going to disrupt the entire world."

A week after the IPO, NIKOLA's stock was trading at $73 a share and the company had a market capitalization of $27 billion based on 360 million outstanding shares. That was almost ten times higher than its market cap less than a year earlier. At its peak on the 9th of June 2020, the stock price reached $79.73. New deals

8. VectorIQ, which was formed to invest in smart transportation industry, went public in May 2018 by offering 20 million units at $10 each. Nikola added to its board Stephen Girsky, CEO of VectoIQ and former vice chairman of General Motors Corp.

were being revealed one after the other. On the 10th of August, NIKOLA announced it had received an order for 2,500 electric garbage trucks from REPUBLIC SERVICES to add to its current 18,000 fleet of waste removal vehicles. On the 8th of September, GM said that it was going to make a $2 billion investment in NIKOLA and receive an 11% equity stake of the company. NIKOLA was going to sell 47,698,545 shares of its common stock to GM HOLDINGS. The stocks were valued at $2 billion based on the average price per share of $41.93, according to a September 8th NIKOLA filing with the Securities and Exchange Commission.

As it turns out, this was not to be a cash handout. GM's 11% equity stake in NIKOLA was part of a $700 million payment to GM for GM to manufacturer NIKOLA's *Badger* pickup. The truck would feature GM's new Ultium battery technology which it uses in the electric *Cadillac* and *Chevy* models that GM will roll out in the next few years. While the new pickup would be NIKOLA-badged, GM would get 80% of the emission credits associated with the vehicle with an option on the other 20%. This would offset GM's emissions of its petrol- and diesel-powered pickups and SUVs. The bottom line is that GM's investment is fully covered by what it estimates to be $4 billion in benefits. The deal was scheduled to close at the end of September. Then the bottom dropped out.

On the 10th of September, HINDENBURG RESEARCH, a firm run by Nate Anderson, released a report alleging that NIKOLA is "an intricate fraud".[9] HINDENBURG disclosed that it held a short position on the NIKOLA stock, meaning that if the stock declines in value, HINDENBURG profits. Nevertheless, the case made by HINDENBURG was strong. It claimed that NIKOLA has "promoted proprietary technology that didn't exist, claimed it was on the verge of a battery breakthrough and a revolution in hydrogen production for fuel-cell purposes and showcased a non-functional semi-truck prototype," known as a 'pusher' in the auto industry.

On the 20th of September, Milton stepped down as down as Executive Chairman of the company. The U.S. Security and Exchange Commission (SEC) and the Department of Justice opened investigations into NIKOLA's business. NIKOLA's stock price began to retreat from its all-time high on June 9th. By July 30th it was down to $29 a share. It spiked up to $50 when the GM deal was announced and then started retreating after the HINDEENBURG report was released. It was down to $17.88 on the 29th of September, the day before the deal with GM was due to close. That deadline came and went.

NIKOLA's *Badger* pickup truck would be manufactured by GM under the deal announced on the 8th of September. On the 1st of October, the company said that it would not hold the planned *Nikola World* event in Arizona, where the *Badger* was meant to make its debut. NIKOLA cited ongoing coronavirus pandemic restrictions in the state.

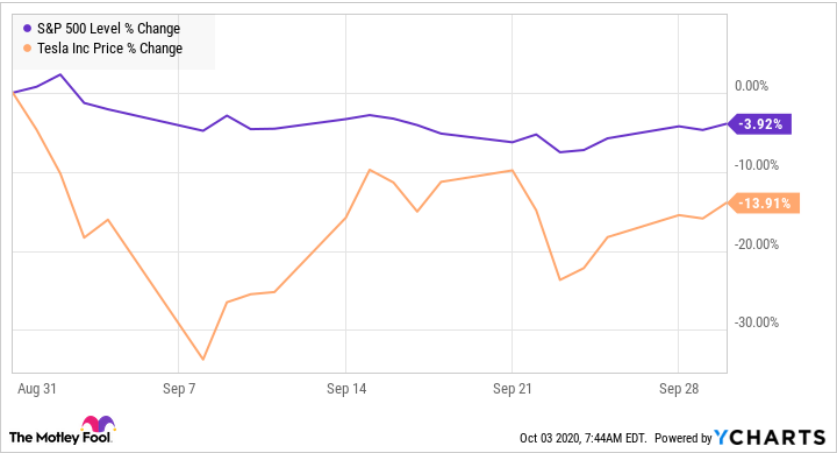
9. *Nikola: How to Parlay an Ocean of Lies into a Partnership with the Largest Auto OEM in America;* Published on September 10, 2020

https://hindenburgresearch.com/nikola/

After allegations of fraud, Milton's departure and the major drop in share price, one might think that GM should simply walk away. It hasn't. The parties are still negotiating. Does GM want to get a larger share of the company? What if the company really is a pumped up dream of its founder? Mary Barra, GM's CEO, says that her due diligencers have done a thorough job of due diligencing. Given what has been revealed already about NIKOLA, that seems to be a hard pill to swallow. According to the SEC filing, the subscription agreement "may be terminated by either of the company or GM HOLDINGS if the closing has not occurred by December 3, 2020." There will probably be a lot of long meetings in GM's boardroom up to that date. One question its board members could be asking themselves and Ms. Barra: "If we think that what NIKOLA says it has done is so great, why didn't we do it ourselves?"

Tesla and its market value

ON OCTOBER 9TH, TESLA's opening stock price was $438.44, up over 2% from its previous day's close. This is ten times what the stock was worth just one year ago. Before its stock split five-for-one at the end of August 2020, its price was over $2,200. At its peak on the 31st of August, TESLA had a market capitalization of $465.2 billion. That was more than the combined market capitalization of the next five automotive companies on the list: TOYOTA, VW, DAIMLER, BMW and GM. TESLA sold 210,000 vehicles in 2019 and might stretch its sales in 2020 to 500,000. The combined 2019 sales of the five companies trailing TESLA in market cap were 25.5 million. Yes, go figure.



TESLA's share price fell by over 30% in a week as the stock split euphoria dissipated and the S&P 500 index decided not to include it on its index. The stock price has been rising and falling with each new bit of news. It went down on the 2nd of October when TESLA announced it had delivered a record number of vehicles during

the 3rd quarter (139,000) but analysts (who are these people?) were disappointed because they expected it to be more.

Stock prices, and therefore market capitalization, are based on supply and demand. If a company has fewer shares than buyers, the share price goes up. There are a lot of people who made a bundle on their TESLA stock bet, and there are still a lot of people who want to hop on what they see as the TESLA gravy train. It took VOLVO CARS 89 years to sell 500,000; TESLA will do it in 17 years.

The fate of any company can change quickly, and if the change is a negative one, it will affect the stock price. TESLA investors, stock buyers and consumers have been ignoring the news of Autopilot-induced crashes and car fires for years. They have thus far ignored reports that TESLA quality is less than stellar. The most recent JD Power report ranks TESLA last in its *Initial Quality Study*.[10] They will probably ignore the latest indication that TESLA has not learned an important lesson about the car industry: You might be able to update software after you have delivered bugs to customers, but you can't tighten screws when the car is moving.

I just read that the new *Tesla Model Y* had its all-glass roof fly off.[11] A family in California had just picked up their new car and were out on a highway when the incident occurred. The family drove the car, now a convertible, back to the dealer who offered to fix it for free. The family decided to buy another car, a *LEXUS*.

But maybe TESLA will turn a problem into a selling point. They can offer fly off roofs as a completely unique feature. While the car is being driven at normal highway speed, it can automatically release its glass roof and convert to a convertible. Like one of SPACEX's reusable rockets, the ejected glass roof can be transported over-the-air to the breakdown lane for retrieval at a later time. I would not be surprised to read that Elon Musk has applied for a patent on the *Automatic Roof Release Method and Function* as well as the term 'Autoconvertible'.

Polestar 2 and Volvo XC40 Recharge

IF YOU ARE the CEO of a new car company and you are introducing just your second car, you do not want to receive the kind of negative attention from the press that the *Polestar 2* has received this past week in its ostensible home market. If you are involved in a new industry, like battery electric vehicles, one that is trying to convince consumers that your product is better than the one that has been dominant for the past one hundred years, you do not

10. JD Power scored Tesla vehicles the worst among 32 major brands in its annual quality study released in June 2020. It's the first time that Tesla's cars have been ranked by the influential customer survey now in its 34th year. https://www.theverge.com/2020/6/25/21302804/tesla-ranks-last-on-influential-jd-power-quality-survey

11. https://www.fr24news.com/a/2020/10/all-new-tesla-model-y-loses-its-roof-on-the-us-highway.html

If you doubt the veracity of the glass roof fly-off story, see: https://insideevs.com/news/447795/top-less-tesla-model-y-roof-driver-story/

Here is the POLESTAR 2 *at the 2019 Geneva International Motor Show*

want to read that experts believe problems with one company extend to product of all companies.[12]

POLESTAR, an automotive company jointly owned by VOLVO CAR GROUP and its parent ZHEJIANG GEELY HOLDING GROUP, has two models. *POLESTAR 1*, introduced in 2017, is a plug-in hybrid manufactured in Sweden. *POLESTAR 2,* introduced in 2020, is a battery electric vehicle manufactured in China. *POLESTAR 2* shares the CMA (Compact Modular Architecture) platform with VOLVO's *XC40* and the *LYNK & CO 01* and *02*.

The newspaper articles were about POLESTAR's announced recall of all its 2,200 cars sold globally beginning this past summer. Approximately 600 of them were sold in Sweden.[13] Owners have been told to take their cars directly to their dealers. The reason is that there is a problem with the vehicles' software that causes them to stop in the middle of a drive. It doesn't matter how fast or slowly the car is travelling when the motor simply stops working.

All new models have teething problems, and it would be unusual if a company's first all battery electric vehicle did not experience both hardware and software difficulties. What struck me, however, was POLESTAR's response. The company's communications manager said: "It is never nice to have to recall a car, and it's not something we want to do. But we are happy that we have now found the problem so that we can fix it as quickly as possible." That's encouraging. He continued: "The problem is a bug in the car's software, something that is easily fixed." Interesting. Why wasn't it found and fixed before a couple of thousand customers had to experience its negative effects if it was so easily fixed?

POLESTAR says that if its over-the-air software updating had been operational, the problem could have been fixed without the owners having to be troubled with returning to their dealers. However, their OTA delivery system was not working when cars started to be delivered, and "rather than delaying those deliveries, which would have caused negative press, we decided to go ahead without OTA and promise that the OTA function would be ready by the end of 2020," said the company's spokesperson.

Computer software and hardware companies—the companies that POLESTAR and TESLA are trying to emulate—are used to treating their customers like beta testers. We have become inured to computer screens that suddenly freeze or turn blank. We have gotten used to waiting for minutes while our computers tell us not to turn them off while the software updates are downloaded. If

12. On the 5th, 8th and 9th of October 2020, articles appeared in Sweden's three major daily newspapers, *DAGENS INDUSTRI*, *DAGENS NYHETER.* and *SVENSKA DAGBLADET*.

13. Customers in North America are not affected because there have been no *POLESTAR 2* deliveries into that market. Norway had the most deliveries with 843. China, oddly, had only 30 Polestars sold in spite of the fact that the car is made there. Did Chinese consumers know something that they didn't share with other markets, or is the car just too expensive to be sold there?

POLESTAR had done what they should have done, which is test their cars thoroughly, they would have found the problem before they dumped it on the laps of their brand new customers. Someone dishing out $80,000 or more for a car should not have to put up with his car stopping dead in its tracks. What made the matter even worse, according to the newspaper articles, is the attitude of the *POLESTAR* customer service personnel who, according to Jonas Fröberg, automotive editor for DN, needed some sensitivity training.

VOLVO's *XC40 RECHARGE* will follow its *POLESTAR 2* cousin. This is Volvo's first all-electric car, and it will hit the showrooms in late 2020. It will cost about $4,000 more on the base price and have a range that is around 40 miles less. Will it have completed the full range of testing that the *POLESTAR 2* obviously did not go through? There's an old saying: *You only get one chance to make a good first impression*. In the world of computers, there aren't that many choices of operating systems or even laptops, so consumers have just had to put up with lousy quality and continuous bug fixes. In the world of cars, customers have many, many choices. Using OTA as a crutch is not the best way to recover from a bad first impression, especially if the crutch is not ready to be used.

Dealers remind Volvo who owns the pitch

IN THE OCTOBER 2020 issue of *THE DISPATCHER* I wrote about VOLVO CARS purchasing Sweden's second largest dealership in order to gain greater control over the delivery chain for its online sales and *Care by Volvo* subscription service (see page 8, *OEM Buys Dealer*). It took less than a month for one of its dealers in Sweden, SVENSK VOLVO- OCH RENAULTHANDEL, to respond to the VOLVO CARS gambit. They announced their own subscription program and called it *Rulla*. The irony in the name is most likely not lost on VOLVO's management. The word *Volvo* is Latin for 'I roll'. The word *rulla* is Swedish for 'roll'.

VOLVO has stated that by 2025, one-half of its car sales revenue will come from its subscription service. This will put a major dent in the income of its dealers. Janola Gustafson, Managing Director for SVENSK VOLVO- OCH RENAULTHANDEL (SVRH), says that he felt that VOLVO gave a clear indication a year ago that it was about to "break the successful cooperation the dealers and VOLVO have had" and this has led to both disagreements and irritation. As a result, the fifty dealers that are part of SVRH have decided that they will introduce their own subscription and car sharing service to compete with VOLVO's service called **M**. At the same time, he

Is sell now next for YOUR NOW?

*In February 2019, DAIMLER and BMW merged their mobility services businesses and created five business units: Reach Now (mobility as a service app), Charge Now (electric charging points), Park Now (parking payment), Free Now (ride hailing and scooters) and Share Now (car sharing). Beginning on 1 January 2020, they created an umbrella organization called **YOUR NOW** to manage these five businesses, and pared them down to just three, Free Now, Share Now and Charge Now.*

According to BLOOMBERG, DAIMLER and BMW have recently announced that they are "exploring a sale of their jointly owned parking app business, Park Now. The companies are working with advisory firm ROTHSCHILD & CO. on the potential divestment. They are hoping to get "several hundred million euros" from the sale. At the same time, the Free Now service has attracted interest from UBER TECHNOLOGIES.

These are tough times for automakers. In December 2019, when the future looked rosy for the car business, DAIMLER reported that the mobility services businesses of YOUR NOW "continue to show dynamic growth and increased the number of customers by 44% since the beginning of 2019 to almost 90 million." (https://www.daimler.com/investors/reports-news/financial-news/20191218-your-now.html)

Less than a year later, both DAIMLER and BMW are trying to save their main business of making and selling cars. The electric charging business seems to be the only one of the formerly five businesses that they feel supports their current efforts.

Whether it's because more people are driving their own cars to avoid public transport, or they are not motivated to be free-wheeling mobility users, mobility services for cosmopolitans is looking less attractive these days.

tones down the conflict with VOLVO, stating that he does not feel that the introduction of the new service will affect his dealers' relationship with VOLVO.

Initially, the service will be available in selected cities in Sweden. Like VOLVO's offering, cars will be picked up and returned to the same 'station', which is one of the dealers. VOLVO CARS' press spokesperson answered a question from the reporter writing about the new SVRH service thusly: *"The way that consumers buy and use cars is changing, and it is natural that our dealers adapt to those changes. Volvo Cars sees competition as an incentive for us to be even better (at what we do), and we firmly believe that M's exclusive premium mobility service is an attractive offering for customers in urban areas who do not want to own their own car."*

I believe VOLVO can expect to see more competition from their dealers, both in Sweden and in other markets where it is introducing its subscription and car sharing services. Who will win? Sweden's iconic pop group, ABBA, won the 1974 *Eurovision Song Contest* with their timeless song *Waterloo*, and its lyrics aptly describe the clash between the OEM and its dealers:

> *My my*
> *I tried to hold you back, but you were stronger*
> *Oh yeah*
> *And now it seems my only chance is giving up the fight*

Will the unavoidable final battle between VOLVO and its dealers be VOLVO's Waterloo, or will Håkan 'Wellington' Samuelsson, VOLVO's CEO, be leading VOLVO's forces to victory? We shall watch this playing out in the months and years to come.[14]

14. It may not be Håkan Samuelsson at the helm of VOLVO CARS even if the planned merger with GEELY AUTOMOTIVE does not go through as planned. If Samuelsson can deliver a sales increase in 2020 in spite of COVID-19, he may decide it time to say *"Tack för mig och hejdå"*.

What happens after the 3rd of November 2020

IT IS THE 16th of October 2020 as I write. Exactly four years ago, in October 2016, I was in the cafeteria of the SWEDISH TRAFFIC ADMINISTRATION in Borlänge eating lunch with colleagues during a break from our meetings. As the only person at the table who could vote in the upcoming presidential election, they asked me for my views on the prospects of the two candidates. They reminded me that approximately a year before, sitting in the same cafeteria, I assured them that Mr. Trump would not be nominated as the Republican Party's candidate because he was neither a true Republican nor did he represent the views of the majority of that party. I was wrong on both counts, but not because he had altered his positions but because the members of the Republican Party changed theirs to match his.

Now that he was the candidate, they asked, could he be elected President? Yes, I said, there was a strong chance that he could win. I said that if he won it would be because his opponent, Hillary Rodham Clinton, had not run on a platform that addressed two principal concerns of many Americans: 1) the loss of jobs resulting from loss of competitiveness in many areas due to the retreat of American businesses in the face of China's overwhelming cost and supply chain advantages; and, 2) the growing income and opportunity disparity between the cosmopolitan elite and the rest of Americans resulting from increased globalization, which the left-behinds attributed (wrongly) to left-leaning Democrats when the real culprits were the money behind the Republicans.

Trump's campaign slogan, Make America Great Again, hammered away at those two issues. The fact that Hillary Rodham Clinton was not that popular as a feminist or anti-feminist, as a socialist (Bernie Sanders did not endorse her wholeheartedly) or an anti-socialist robbed her of a large number of Democratic votes. She won a moral victory by (miraculously) taking the popular vote, but she lost too many key states, thereby losing the Electoral College vote and the Presidency. Joe Biden should have been the candidate. He had everything that Hillary Clinton lacked to be elected against Trump.

If Mrs. Clinton had become President, it is fairly certain that there would be Wi-Fi-based vehicle-to-vehicle systems being installed in vehicles sold in the U.S. today. It is highly likely that there would be more than simply 'guidance' on self-driving and driverless vehicles. It is unlikely that there would have been a White House-led crusade against China, particularly with increased tariffs on automobiles. The U.S. would still be part of the Paris Agreement (UNFCCC), fuel economy regulations would have been stricter rather than looser and there would most probably have been at least one major transportation infrastructure project instead of none.

If the current President is re-elected, we are likely to see more of the same that we have seen during these past four years. You may like some of what he has or has not done. There are many who like the fact that he did not force the Wi-Fi-based communications technology on the car industry. There are many who like the fact that he has pushed back strongly on China becoming, in its own terms, the Factory for the World. Many may not like the fact that transport in general and intelligent transport in particular have

been at the bottom of this President's agenda and will likely stay there if he is re-elected.

If former Joe Biden wins the U.S. Presidential election, the country will re-join the Paris Accord. He has said that. He will likely appoint a Secretary of Transportation who will resurrect everything the previous administration had on its transport agenda. A Biden-led administration will re-institute stricter environmental regulations that were weakened by the current President's executive orders. If the Democratic Party also gains control of the Senate, which is a strong possibility, it will go further on climate regulations than what had started during the Obama administration, and it will devote significant resources to building and re-building the public transportation infrastructure.

Joe Biden has given only hints of what he will do with China. He has indicated that he understands that China has now positioned itself as a rival and that handing over more control of everything from surgical gloves to electric cars is definitely not in America's interest. How he will redress the now asymmetrical industrial and commercial relationship between the two countries is still an open question. He has said nothing about how he will approach the issue of unequal automobile tariffs between the U.S. and Europe, but he will likely be more interested in negotiating with European countries, America's most important allies, than posturing and berating them as the current President has done.

On the 20th of January 2021, the person sworn in on the steps of the U.S. Capitol will either return after the inauguration ceremony to the office he occupied during the previous four years, or he will watch his predecessor with his entire entourage board a helicopter and take off from the White House lawn for destinations unknown.

The Other Button: It's More Than Meets the Eye

That button needs to work like a charm

TRULY CONNECTED CARS have at least two assistance buttons that are visible and within easy reach of the driver. One is referred to as the SOS button[15]. It is generally red with SOS in big white letters and is the button that supplements the car's automatic crash notification (ACN) system. When triggered by a crash, the ACN system sends a message to an emergency response center, either directly as with European eCall, or via a third party service provider. The SOS button is used when there is no crash detected and for other types of medical or police emergencies.

The 'other' button is for non-life-threatening events, ranging from requiring help with changing a flat tire to having a question about why a vehicle warning light is lit to needing someone to talk to about an existential crisis in one's life. *GM OnStar* learned quickly that lonely drivers find solace in a late-night conversation with one of their comforting operators who is only a button push away. On VOLVOS, the **OTHER BUTTON** is labelled *OnCall*; on SUBARUS it's the "i" button; on VWs it is a *wrench* symbol on the button.

I have been working with these buttons for the past twenty-five years, beginning with VOLVO, and with the service infrastructures that are behind them for thirty-five. What I have found is that the time, effort and resources that an OEM puts into ensuring that the systems take full advantage of the technology, and that the service network functions as faultlessly as humanly possible, reveals more about the OEM's true brand values than anything else it can do. What about putting in all of those advanced safety features like forward collision warning, lane departure warning and automatic emergency braking? What about electrification? Yes, of course, these are important, but they do not take the total commitment of every part of an OEM's business, from R&D to engineering, from factory to showroom, from sales and marketing to service and parts to make them work.

That commitment has to start with the top management. If the only thing the CEO cares about is what symbol or text is on the button, the rest of the organization's interest will remain at surface level. If the reason for putting in the

15. S.O.S. is the acronym for *Si Opus Sit*, Latin for 'if there is a need'.

button is that the competition has it, the people who are charged with putting the button in the vehicle will not have the full cooperation of all the departments that need to contribute to its successful operation. Priorities work from the top down, and if your boss's boss hasn't told her that her bonus or continued employment is based on making connectivity work according to an agreed company policy, she won't be answering your e-mails when you ask for budget or decisions.

You might wonder why I am bothering to take up this issue now. Surely all of the car companies have already installed their buttons and cast their processes in concrete. Many have, but there are still some major stragglers in certain markets, like Toyota in Europe. On top of that, there are a growing number of new companies appearing over the horizon that have not yet approached the ***OTHER BUTTON*** *issue. Also, it's never too late to try to correct the mistakes that were made when the early adopters developed their solutions. Those mistakes are many.*

Reinforce or extend your brand values

Let's start with the business basics: What should happen when someone in the vehicle presses the **OTHER BUTTON**? Dumb question, you might think. You should be connected to someone who can help you with whatever you need, right? *It's a long, long way to Tipperary if you are stuck in Leicester Square*, as the song goes. Do you want to leave the use of the button open-ended? In other words, do you want the customer to be able to ask for anything and then decide how to respond, or do you want to limit the customers' expectations by defining in the sales literature, in the user manual and in print and media advertisements what the customer can request? If you put a wrench on the button, the customer might think twice about pushing it if he wants directions to the best pizza joint in a town he is visiting. But if you want to answer pizza parlor questions from the customer, then a wrench is the wrong visual message. If the label is *OnCall*, as with VOLVO CARS' *Volvo On Call*, the customer's expectations might be much higher than just being able to request roadside assistance.

This is the most difficult decision to make and it is often the one that receives the least attention at the start. Why? Because the folks who are running car companies got to where they are by letting engineers and designers do their jobs and coming in once there is something to look at and giving it their blessing or telling the engineers to go back to the drawing boards. Just like the rest of the car, the connected car job is handed over to the engineers

It's a Push Button

Search on the word 'button' and you find information about the device that fastens one piece of cloth to another. The 'button' we are referring to in this article is a 'push button' or 'pushbutton'. Merriam-Webster says the first known use of the word 'pushbutton' as a noun was in 1874, although no example is given. One of the earliest confirmed uses of the word is for a car engine starter in 1911. Before this, starting a gasoline-powered car involved inserting a hand crank in a shaft in the front or rear of the car, depending on where the engine was located. The crank had to be turned manually, required physical strength and involved a degree of luck. If you were unlucky, like Byron Carter, founder of CARTERCAR, which was eventually acquired by GENERAL MOTORS, the crank kicked back and injured you. In Carter's case, the crank slipped out of the shaft, hit him in the face and caused his death.

Carter's friend, Henry Leland, founder of CADILLAC, decided to do something to prevent such accidents and asked Charles Kettering of DAYTON ENGINEERING LABORATORIES COMPANY to come up with a mechanical starter. "We had the idea right from the start that with the right kind of battery, it ought to be possible to design a mechanism that would turn the engine over with electric power," said Kettering. He delivered the electric starter in 1911. By 1915, 98% of cars used the electric starter with a button placed on the dashboard or the floor. The exception was FORD.

In 1949, CHRYSLER replaced the electric starter button with a key starter. It was for safety reasons since the button could be pushed by a child. The key prevailed until the button starter returned in 1998 when MERCEDES-BENZ introduced 'Keyless Go" building on the key fob. Back to the button.

to choose the suppliers of all the components needed in the vehicle, and to the HMI team to design the button and determine how it will fit into the real estate around the driver, before the important business decisions are made. Most often, by the time the correct business decisions are made, software and hardware have been frozen. Here are the questions that should be answered from the outset, starting with the most important.[16]

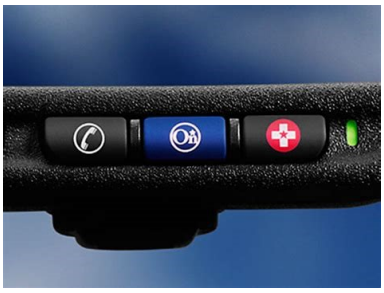
Do you want to reinforce your brand values or change them?

In 1995, consumers did not think of safety and security as the principal brand value of GM, but these features were the major selling points for VOLVO (it definitely wasn't design). BMW was then a car for people who liked to drive, and BMW promoted sleek design and road handling. Safety was not in its sales vocabulary nor in its DNA. With the original *OnStar*, GM intended to extend its brand into the safety sphere and promoted help in case of an emergency with its SOS button. Pushing the button initiated a phone call with the vehicle's location packed into a data message. Because the calls were taken by *OnStar's* own operators, the operators could make transfers to either the public safety answering points if there was a crash or a medical emergency or to the roadside assistance providers. But the *OnStar* button remained a mystery for most owners, especially since there was a third button that provided for making normal voice calls.[17]

Volvo On Call reinforced the brand's strongest selling points, which were safety and security, with both the SOS and *OnCall* buttons. Like *OnStar*, it had one call center where both button pushes arrived, but unlike *OnStar* it engaged its roadside assistance providers in every country to deliver both services. This made it much easier for the call center to contact the local police and emergency authorities, which is the main reason why VOLVO was able to roll out *Volvo On Call* all around the world and *OnStar* had to build specialist call centers in every country or region before it could offer services.

BMW Assist was the start of BMW's push into infotainment with connected navigation and communications. Its system, which was among the first on the market in the late 1990s, was not promoted as a safety system, but BMW offered crash notification, roadside assistance and stolen vehicle tracking to supplement its infotainment functions. It seemed to this observer like these non-infotainment services were an afterthought, neither serving to reinforce nor extend the brand values.

16. There are OEMs that have chosen not to offer a push button service, either because they cannot really afford to do so or they do not feel that providing it would be consistent with their brand values. That's also an option. Make it a conscious decision.



17. When OnStar was introduced in the mid-1990s, hands-free calling in cars was a new phenomenon. Not everyone had a mobile phone and a roaming account. OnStar offered the customer a dialing service. The customer pushed the Phone button and told the operator what number to dial. Quaint. Almost like the original phones when a person picked up the phone's earpiece, cranked the handle to make a connection, spoke into the mouthpiece, and asked the operator to connect her to Mabel Smith.

Will the button be active for the life of the vehicle?

Among modern life's irritations is pressing a button and having nothing happen. You think something is broken or that a battery that operates the button (e.g., on a remote control) is dead. If there is a button in the car, it should do something when you push it. Some companies believe that it is perfectly fine to deactivate the service if they deliver a message stating that you haven't done something you should have done, like activating it or paying a fee. A customer will not like to receive such messages when he's got a flat tire at midnight on a country road. He will remember the OEM's cold-heartedness when he decides to purchase his next car.

Before the EU and Russia decided that they needed to regulate eCall, it was possible in every country to offer the opportunity for using the SOS button as a dual purpose emergency service button. This is still possible in all other major markets where the **OTHER BUTTON** can be reserved for non-emergencies, like general information or pizza tips, or you can simply eliminate that extra button altogether if you don't want to offer information services. This, unfortunately does not work in the EU and Russia, and with more countries now deciding to follow the lead of these two regions, combining medical emergencies that are addressed by public service answering points and vehicle emergencies covered by roadside assistance providers is gradually being made impossible.

If you cannot find a business case for keeping the services behind the **OTHER BUTTON** active for as long as the vehicle is on the road, at least consider giving the customer the possibility to obtain the needed services on a pay-per-use basis or signing the customer up for a temporary, limited-term membership in your **OTHER BUTTON CLUB** so that he is not left out in the rain.

Will the button be usable by follow-on owners?

If the button is active for the life of the vehicle then it means it should be usable by those who purchase the vehicle from the first owner and follow-on owners, not just the first owner. This has major implications for whether a vehicle must undergo a transfer of connected services registration when it is sold and how such a process could be executed. It may seem contradictory, but a lifetime **OTHER BUTTON** will work either if there is no customer registration required or if the vehicle cannot be driven unless the current owner/user is required to register. You can purchase a TESLA second-hand directly from an owner, but unless you register with the company and open an account you will not be able to use any

of its connected functions, like over-the-air updates, and you will not be able to use its charging network. VOLVO requires an owner to register for its mobile app in order to use one of its most popular functions, programmable remote heater start.

Start with making the decision on lifetime use by multiple owners and then developing the business case for how it will be financed. Which approach—every owner registering or every owner having access without registering—best fits with your brand?

Will the customer have to pay for the services?

Some companies offer free use of the services behind the **OTHER BUTTON** for a period of time, such as during the warranty period, and then a monthly or annual payment. Others offer an extension of the service after the free period if you use their authorized repair and maintenance services. If the service is restricted to roadside assistance, and you are offering this free to customers during the warranty period, as most OEMs do, then putting it behind the **OTHER BUTTON** is logical. If you offer general information and travel tips, which you don't provide otherwise, then you have another business decision. If you are paying for services and the customer isn't, your costs of operation will increase. However, if you can tie the costs to a source of income, as is the case with towing a car to your own workshop network rather than having the car towed to an independent workshop, you can solve the equation.

The selling point of the **OTHER BUTTON** is faster service in those cases when assistance is needed, particularly roadside assistance. The competitor is the customer's telephone connecting to his membership travel club, such as the AUTOMOBILE ASSOCIATION in the UK or AAA in the U.S., where membership brings a range of benefits, from lower insurance prices to rebates on hotel stays and car rentals. Make it a costly proposition for the customer and he will choose the alternatives.

Will the services be available only in the customer's home country?

When GM *OnStar* came to Europe in the late 1990s, it brought its U.S. technical and business solution. At the time, *OnStar* did not work in Canada or Mexico. In Europe, it required that the customer insert a local SIM-card that connected to a country call center which provided services for only that country. For many years, *OnStar* worked only in GM Europe's home country, Germany. It was not a highly sought-after feature, especially since it came

with a price tag for the customer. All systems need to work seamlessly across country borders.

In a post-Covid-19 world, more people will drive just to stay safe, and they will need to be covered by roadside assistance and other travel services. I am told by the few people I know who have taken flights recently that the airports are empty, and spending a few days on a train between Stockholm and southern Italy is not on the agenda. People will drive to attend a meeting that they might have taken a cheap flight or a train to, and they will appreciate having coverage.

Do you want to deliver services to the vehicle?

The **OTHER BUTTON** is viewed as a one-way communicating device, from the vehicle to a call center. But the button can be used to order services to the vehicle, such as the geographic location of that pizza parlor I have been talking about. (Hungry yet?) It can be sent to the navigation system and used for routing. Another service is requesting a readout of digital trouble codes and the sending of software updates over-the-air. Such services require that someone at the end of the button push is capable of delivering such services, or that the initial call-taker can hand over the call to someone who is. These services also require more sophisticated data integrations of the OEMs customer and vehicle data management systems and more systems integration in the vehicle. Both of these integrations will cost time and money, and they must be done perfectly. There can be no shortcuts. They must be perfectly specified, executed by people who know what they are doing (i.e., no amateur, low-ball bidders who have never done it before) and, most importantly, they must be **TESTED, TESTED AND TESTED AGAIN** before releasing them to customers.

Do you want to collect data on the customer and or the vehicle?

BIG DATA became a big topic in the connected vehicle space when, in 2011, *OnStar* stated that it reserved the right to use and sell customer data that it collects from the on-board system, even after the customer stops subscribing to the service. A *CNN Money* article at the time (September 26, 2011) carried the title: *OnStar's 'brazen' data tracking comes under fire*. GM's terms and conditions at the time granted it the right to "collect a variety of information about the driver's use of the car, including the car's location and speed and whether or not a mobile device like a Bluetooth-enabled phone is connected to the car's systems." It also reserved the right to sell "anonymized" information collected

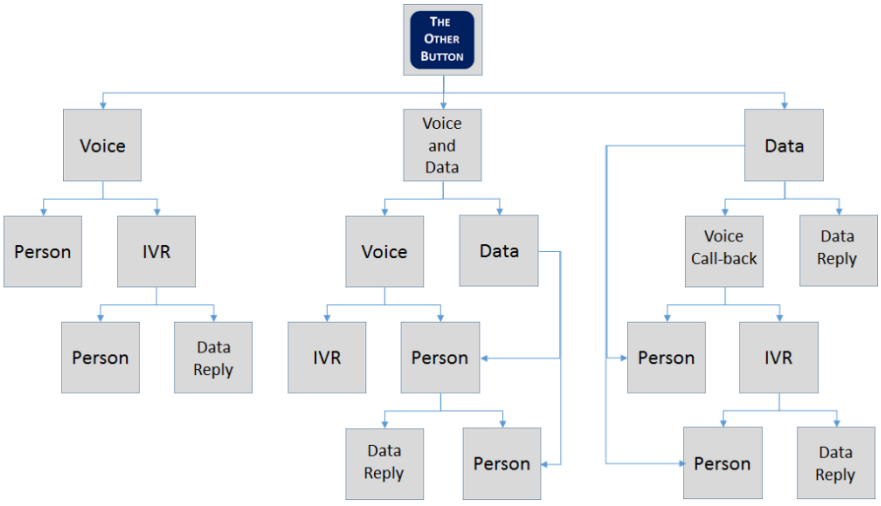
from vehicles to outside companies. “Anonymized” data, *OnStar* claims, is “aggregated and cannot be traced back to any individual vehicle or person.”

This was all before privacy laws came into effect inside the EU and in other jurisdictions. With the draconian fines that can be levied on your business if you are found to be collecting data that is defined as out of bounds by the General Data Protection Regulation or the California Consumer Privacy Act, you will pay heavily. Don’t take the chance. Hire expert legal advisors to provide you with the rules so that your engineers, IT staff and your service infrastructure team can apply them.

Who are you connecting to and how are you making that connection?

There are many technical issues that need to be addressed. For example, you will need to choose a mobile network operator or operators to deliver connectivity in all the markets where you will sell your cars. You will need to either choose a company to receive and send the data messages (e.g., WirelessCar) or you will need to develop the capability in-house (as BMW has done). I have focused in this article on the business decisions. However, there is one business issue that is very much tied to the technical solutions, and that is how the message behind the button is delivered.

Is it a voice call, a data message or both? Most connected vehicle systems employ both. Even so, there are many different paths a voice or data message can take, as the diagram below shows.



If you are sending data and either directly or eventually connecting to a person, the data and the voice need to end up in the same place. If you are only offering the equivalent of a phone call with no data sent from the vehicle, you will have limited possibilities for helping the customer. Don’t waste time putting that phone call

behind the **OTHER BUTTON**. Some companies, like BMW initially, thought it was really clever to send just a data message from the vehicle to a server that determined where the vehicle was located and where it was registered and could then send back to the vehicle the proper telephone number to call. Unfortunately, if that initial data message does not get through, the driver is SOL, as they say in Boston.[18] You really don't want your customers to be in that situation. They won't appreciate your cleverness. Take the time and make the effort to direct the phone calls and data messages to where they need to go in the most secure and fastest manner.

18. You won't find the definition of the acronym SOL in Merriam-Webster's dictionary. It's s*** out'a luck.

When help is needed, it is no time for amateur hour

Whatever you decide, you must do it well if the service is going to support and enhance your brand. A poorly thought out and executed service—whether it's recommending pizza places or getting a battery electric vehicle back on the road after it mysteriously discharged while the family was enjoying an afternoon of cross-country skiing in the woods—will do more damage to your brand than if you don't have any **OTHER BUTTON** at all. You need to have competent professionals delivering the services you are offering. When snow is falling and the sun is setting in the wilderness, it is no time for amateur, do-it-all call-takers whom you have instructed to 'surprise and delight' your customers.[19] The stranded family has already been dealt a surprise, and they will be delighted when they are back on the road and heading for home. In this example, 'from button push to back on the road' needs to happen in the shortest possible time without a lot IVR nonsense (Press 1 if you want pizza; Press 2 if…) and transferring from one operator to another. Ideally, when you require roadside assistance and you push the **OTHER BUTTON**, you are connected directly to a human roadside assistance operator.

19. In a recent article in *DAGENS NYHETER* (3 October 2020) about software problems with Polestar 2, the automotive journalist wrote: *"When cars become 'computers on wheels', there are problems. The question is how big. And how manufacturers tackle these and meet customers. Reports of cool young customer service representatives sounding like public relations consultants with attitude problems are worrying."*

Regulation is exactly what we don't need

There are currently no laws or regulations for the **OTHER BUTTON** in every car in any market as there are for the **SOS BUTTON** in the EU and Russia. Regulation would require standardization of the systems and the service delivery infrastructure, and that would be an impossible task unless every OEM agreed to deliver the same services at the same level, just like with the EU eCall or ERA-GLONASS versions of **SOS**. A Fiat 500 is not a Porsche. Renault is not BMW. The people who buy Fiat 500's are not the people who buy Porsches, and Renault is not in BMW's business. Standardizing the **OTHER BUTTON** would effectively be legislating a single car.

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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