Telematics Industry Insights by Michael L. Sena THE DISPATCHER

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THE DISPATCHER

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The U.S. and EU Can Still Save Their Car Industries



The current state of the car industries in the United States and European countries within the EU is the result of many different and seemingly unrelated events stretching back over fifty years. These events, which were principally politically instigated, have placed the Western car companies, along with all their suppliers and service providers, in a precarious position. Can—or should—anything be done about it? What does the incarceration of car industry executives have to do with Tesla selling 367,000 cars in 2019, 50% more than in 2018? And what do both of these facts have to do with the U.S. and the EU governments unwittingly reducing the competitiveness of their automotive companies compared to their competitors in China that are receiving maximum financial and political support? I will describe the connections, how we arrived at where we are today and where we are headed unless Western vehicle manufacturers' and politicians take concerted, coordinated and effective action. It's not too late—yet.

THE YEAR 2019 was a chaotic one for the automotive industry, although it might be considered just a continuation of what has become the new normal. On the last day of the year, Carlos Ghosn confirmed he had arrived in his "home country" of Lebanon, fleeing what he called "injustice and political persecution" in Japan. He said he would now be able to prove his innocence of charges filed against him at the end of 2018 by one of his former employers, NISSAN MOTOR COMPANY. He claimed that the continued delay in bringing his case to trial, during which time he was not allowed to see or communicate with his wife and family, was intended to deprive him of justice and to punish him without due process.

"I did not flee justice; I fled injustice and political persecution. I was trapped in a hostage legal system and my freedom was taken away from me," said Ghosn.

According to Ghosn, there is much more to his detention than his possible overpayment or use of company money for private matters (which he strenuously denies). He was about to attempt to merge NISSAN with RENAULT under notso-favorable terms for NISSAN. RENAULT wanted to be strengthened; NISSAN did not want to be weakened. Both companies, like the rest of the car and truck industries in Europe, North America, Japan and Korea, were under pressure which, in the near term, had been caused by the collapse of sales for diesel cars.

Dieselgate was the climax not the commencement

Until *Dieselgate*, saying the word 'criminal' in the same breath as 'automotive executive' was unthinkable. The executive might be unabashed like Lee Iaccoca, flamboyant like P.G. Gyllehammar or a bit out of control like Elon Musk, but criminal? No. Leveling fines against a company for its negligence or for monopolistic practices has occurred in the U.S. and Europe, and the CEO might have had to fall on his sword and resign as a result. But doing time? Getting thrown into the slammer? Exchanging black pinstripes for orange overalls? No! No! However, with business-critical politicians (Margrethe Verstager of the EU and U.S. Senator Bernie Sanders come to mind) and environmental interest groups bashing corporations in general, and automotive companies in particular, as the primary cause of global warming, it feels like the chances of committing a crime if you are working for a car company are increasing every day.

The stakes for playing in the automotive industry game in Europe and North America have been raised to a level that it appears are neither reasonable nor sustainable. The U.S. Congress and the European Parliament, as well as certain U.S. State legislatures and European country parliaments, have passed laws that regulate the type and amount of emissions that vehicles may emit, and they have also legislated minimum fuel efficiencies.¹ They have instituted both financial incentives and disincentives for vehicle purchasers, essentially determining which vehicles consumers should purchase, particularly favoring battery electric vehicles.²

Unwittingly, and with all the best intentions, governments in Europe and North America are destroying the industry that helped to secure their countries' wealth and progress. All jobs that will be created in erecting wind turbines and installing solar panels will not make up for the jobs lost in the car and truck industry when China is ready to deliver all the platforms for all battery electric vehicles (BEVs). CHINA INC. is doing everything it can to build a vital domestic BEV industry so that it can be ready to expand into the rest of the world, just as it has done with high-speed trains and nuclear power plants. All that will be left for the legacy car companies—if they are indeed still in business in five years—is to add the body and the interior furnishings.

As the stakes have increased, so has the pressure to stay in the game by any means available, as they said in *Old English*, 'By hook or by crook'.

1. The Clean Air Act empowers the EPA to regulate air pollution from motor vehicles. To promote uniformity, the law generally bars states from regulating car emissions. But when the Clean Air Act was passed, California was already developing laws and standards to address its unique air pollution problems. So Congress carved out an exemption. As long as California's standards protect public health and welfare at least as strictly as federal law, and are necessary "to meet compelling and extraordinary conditions," the law requires the EPA to grant California a waiver so it can continue to apply its own regulations.

https://theconversa-

tion.com/why-california-gets-towrite-its-own-auto-emissionsstandards-5-questions-answered-94379

2. The adoption and deployment of zero emission vehicles in Norway has been driven by policy, and actively supported by the government since the 1990s. All-electric cars and vans were exempt from all non-recurring vehicle fees, including purchase taxes, and 25% VAT on purchase, making electric car purchase price competitive with conventional cars. A tax reduction for plug-in hybrids went into effect starting in July 2013. Local authorities were granted the right to decide whether electric cars can park for free and use public transport lanes.



Dieselgate (also known as Emissionsgate or the VW Emissions Scandal) changed how both the authorities and private citizens viewed automotive executives. *Dieselgate* refers to a humiliating, self-inflicted injury incurred by VOLKSWAGEN GROUP companies when it was discovered on the 18th of September 2015 by the U.S. Environmental Protection Agency that VW brands had installed so-called 'defeat devices' in hundreds of thousands of 2.0-litre diesel engine vehicles in the United States dating back to 2009. The defeat device was used to circumvent testing for pollutants in the diesel vehicles' engines. For example, the VW Jetta TDI Clean Diesel, which was advertised as getting 42 miles per gallon fuel economy, was cited by the EPA in its violation notice as producing emissions levels of nitrous oxide that were "up to 40 times the standard" between 2009 and 2015. The "standard" was not really a standard but a specific limit that had been set by the U.S. Congress forty years earlier and periodically increased over time. I will explain further on.

The defeat device—used in the Volkswagen, Porsche, Audi, Seat and Skoda brands—helped make the cars meet the exhaust pollution "standard" when monitored in tests, but under normal driving conditions the cars' emissions exceeded the limits. VW admitted that approximately eleven million diesel vehicles worldwide, including 8.5 million in Europe, and 600,000 in the United States, had been fitted with the defeat device.³ Martin Winterkorn, CEO of VW since 1 January 2007, resigned shortly after the scandal broke. He denied any knowledge of the scam. His replacement, Matthias Müller, held the position for two-and-a-half years when Herbert Diess replaced him. It was while Müller was CEO, in March 2017, that VW pleaded guilty in the U.S. to charges of fraud and agreed to pay \$4.3 billion in penalties. Nine VW Group executives, including Winterkorn and Rupert Stadler, CEO of Audi, were charged with various types of crimes. Two of the executives were sentenced to prison. Winterkorn has been indicted and is looking at a possible prison term of up to twenty-five years.

What's going on? It's really not so complicated. When the stakes are raised in any competitive arena, either with the potential of spectacular profits for the winners or catastrophic losses for the losers, the competitors feel compelled to pull out all the stops and to pull no punches.⁴ If you don't meet the legal requirements established by the authorities—no matter how unrealistic you feel those requirements are—either you don't sell your products or services because they have a poor consumer rating, or you are

3. If you are interested in understanding the technical details of why VW used the defeat device and exactly how it worked, this video will satisfy your curiosity: https://www.mnn.com/greentech/transportation/blogs/hereshow-vws-diesel-defeat-devicesworked

4. The expression, pulling one's punches, comes from boxing. It means to hit less hard than than you can, either because you are being paid to throw (lose) the fight or because you are so much better than your opponent you are trying to avoid unnecessarily injuring him. If you are not pulling your punches you are fighting as hard as you can to win.

fined. If you are the CEO and your company's sales collapse or your profits are eaten up by fines, you are out of a job and so are many of the people working in your company.

In spite of the fact that almost everyone owns a car in the U.S. and EU, and most people use their cars to get to wherever they have to travel; that almost all freight is transported by truck; that all emergency services are delivered by motorized vehicles; that many people are extremely sensitive to the cost of buying and owning a car but still need to own one or more to solve their own and their family's life puzzles—in spite of all this, politicians have passed law after law that increase the cost of buying and owning a car and operating a business that is based on truck transport. They have done this in good conscience (I'm giving them the benefit of the doubt) to increase the safety of vehicles, reduce their harmful emissions and improve fuel economy. They have achieved all of these noble goals, but at a cost.

Unfortunately, for both the companies that had to meet the requirements and the consumers that have had to ultimately pay the higher costs, politicians passing the laws and setting the penalties did not consider the long-term implications for their countries on the impact their decisions would have on employment possibilities and the future competitiveness of their economies. They did not sufficiently (if at all) study the alternatives before taking action.⁵

The higher the bar, the fewer who can jump over it

In the U.S., the *Corporate Average Fuel Economy (CAFE)* regulation was introduced in 1975. I'll get to why it was introduced a bit later, but the effect was to force car makers to improve the fuel usage from under 18 miles per gallon (mpg), which is where it was in 1975, to around 40 mpg by 2017. For those car makers that exceeded the limits in a given year, a fine was levied for every one mpg over the limit. In 2017, the fine was \$55 per vehicle. For example, DAIMLER paid a total of \$30.3 million penalties in 2006 for violating the limit by 2.2 mpg.⁶

In 2009, the EU established mandatory emission reduction targets for new cars that went into effect in 2015. The target limit was 130 grams of CO_2 per kilometer for each company's entire EU fleet. This corresponded to a fuel consumption of around 5.6 litres/100 km (50.5 mpg) for petrol and 4.9 l/100 km (57.7 mpg) for diesel. On 17 April 2019, the European Parliament and the Council 5. The effects can be compared to what has happened with the globalization of supply chains and the splitting of manufacturing from design, marketing and sales. It was not only because the costs for production increased that producers were forced to source parts, manufacturing and even assembly in low-cost countries. It was also due to the race to lowest prices led by Walmart. Specialized parts that have been invented to help meet emissions requirements, such as catalytic converters, contain metals such as rhodium (currently selling for \$10,000 per ounce), that can be found in a limited number of countries and add both cost and complexity to the car manufacturing process.

6. You might wonder where the money from these fines ends up. I did, so I investigated. See the sidebar on the next page.

adopted *Regulation (EU) 2019/631* setting a CO₂ emission performance standard of 95 grams of CO₂/km for new passenger cars and for new light commercial vehicles (vans) in the EU starting on 1 January 2020. This is a 37% increase which will translate into 4 l/100km (69.2 mpg) for petrol and 3.6 l/100km (99.8 mpg) for diesel.

On what basis did they set these goals? Some people call it 'The Science', even though they might not know exactly what that 'science' comprises. European car manufacturers promised the EU in 1995 to voluntarily reduce average CO₂ emissions of new cars to 140 g/km by 2008. This was when average CO₂ emissions were 186 g/km. That reduction meant an annual rate of reduction of 2.1%. Ten years later, in 2005, it became clear that the manufacturers were not going meet that voluntary commitment (because it was difficult and costly), so in 2007 the European Commission announced the mandatory regulation that was formally adopted in 2009, after many rounds of technical discussions as well as some political bargaining. The CO₂ target, 130 g/km by 2015, represented a lower annual rate of reduction than under the voluntary agreement: 1.7% per year. But in 2013, as a result of pressure from climate activists, EU policy makers set a new CO₂ target of 95 g/km to come into effect by 2021. That target entailed an annual CO₂ reduction rate after 2015 of 5.1%, much greater than both the manufacturers' early voluntary commitment and the first EU cars' CO₂ regulation.⁷ Is it any wonder why the car companies are rushing to build BEVs?

The U.S. and the EU have kept raising the bar on emissions and fuel economy, egged on by climate scientists and activists who see motorized road transport in the industrialized world as low-hanging fruit. They have raised the bar to what most in the automotive industry would say are unrealistically unreachable heights, while China and India keep belching CO₂ into the atmosphere from coal-fired electricity plants, effectively nullifying any savings from cutting emissions from vehicles in the U.S. and EU.

When did we set up the bar? What happened in the period up to 2009 that caused VW GROUP executives and staff to do what they did, to decide to cheat? I'm not looking for excuses, just motives. To understand where we are today and where we were in 2009, we need to go further back in time. <u>Two events</u> occurred in the early 1970s that set the stage for what has transpired during the past fifty years. The first was *Earth Day*, which took place on the 22nd of April 1970. The second was the first **oil embargo** that

Where the Fines Go

Where does the money collected by the governments in fines actually end up? In the U.S., it ends up in the U.S. Treasury General Fund and is simply part of the money used for federal expenses. In the EU, it goes into the central budget to help pay for moving the government between Brussels and Strasbourg once every month (which costs €150 million per year), among other things. What governments are doing today with these fines is transferring money from the car companies into the valuation of TESLA and into coffers of battery producers in China, South Korea and Japan. It's as if a thief put their hand in your pocket, took out the money you were planning on using to buy dinner for your family, and gave it to someone else who used it to buy dinner for his family. In the longer term, the transfer is from the pockets of everyone working in the U.S. and European automobile industries and into the pockets of companies in China that will be able to deliver the highest value vehicle component, the BEV platform, as well as finished vehicles, to Western countries at lower costs.

7. <u>https://theicct.org/sites/de-</u> fault/files/publications/Role of EU-CO2 Standard_20180212.pdf



played out during October 1973. The impetus for *Earth Day* was the 1969 Santa Barbara oil spill. On the 28th of January 1969, an oil well drilled by UNION OIL PLATFORM A off the coast of Santa Barbara, California, blew out. More than three million gallons of oil spilled, killing thousands of seabirds, dolphins, seals, and sea lions. As a reaction to this disaster, activists were mobilized to push for environmental regulation, environmental education, and a massive demonstration to increase environmental awareness.

Rachel Carson had warned us about pesticides in her 1962 book <u>Silent Spring</u>, and links between asbestos and health hazards were coming to light around this time. Now, oil was singled out for its environmental dangers. In 1976, Stephen Schneider was the first person to predict global warming due to carbon dioxide in his book, **The Genesis Strategy**. *Greenpeace* was founded in 1971, campaigning on climate change, deforestation, over fishing, commercial whaling, genetic engineering and anti-nuclear issues. U.S. President Richard Nixon (yes, that President) proposed the establishment of the Environmental Protection Agency (EPA) on July 9, 1970 and it began operation on December 2, 1970, after Nixon signed an executive order authorizing it. The order establishing the EPA was ratified by committee hearings in the House and Senate. The agency still exists and is led by its Administrator, who is appointed by the President and approved by Congress.

The 1973 oil embargo was staged by the Organization of Arab Petroleum Exporting Countries (OAPEC) in retaliation for certain countries, particularly the United States, supporting Israel monetarily following the surprise attack of Israel by Egypt and Syria on the 6th of October 1973. By December, production had been cut by 25%. OAPEC demanded a complete Israeli withdrawal from all territories beyond the 1949 Armistice border. To make a long story short, Israel defeated the invaders and did not retreat to the 1949 border. But the oil price increased from \$3/barrel to \$12/barrel by the time the embargo ended in March, 1974, equivalent to a rise in today's money from \$17 to \$61. At the time, imported oil accounted for almost 80% of U.S. consumption, up from a time in 1950 when the U.S. provided two-thirds of the entire world's oil needs. This extreme shift was due to the U.S. following similar policies as those that have decimated its industrial production capacity: becoming totally reliant on cheaper sources.

There were two major and long-term effects of this first oil embargo. First, the OPEC countries (OAPEC plus non-Arab countries, like Venezuela), particularly the Arab countries and especially



Extent of the Santa Barbara oil spill on the ocean surface on February 5, 1969, showing the northward and southward extremes of observed oil during the year.

Major Impacts of the 1973 Oil Embargo in the U.S.

- In 1974, a national maximum speed limit of 55 mph (88 km/h) was imposed through the Emergency Highway Energy Conservation Act.
- In 1975, the development of the Strategic Petroleum Reserve began.
- In 1977, the cabinet-level Department of Energy was created.
- In 1978, the National Energy Act was passed, legislating the reduction of annual growth in energy demand, reduction of oil imports, reduction of gasoline consumption, improvement of energy use in homes, offices, schools and hospitals, increased coal production (!) and increased use of solar energy.
- Year-round daylight saving time from January 6, 1974 until October 27, 1975.
- In 1976, Congress created the Weatherization Assistance Program to help low-income homeowners and renters reduce demand for heating and cooling through better insulation.
- Advertising campaigns, like "Don't Be Fuelish", and nudges to turn out the lights, turn down the heat and wear more sweaters.

Saudi Arabia, had a financial windfall to use for religious and political purposes, the effects of which have been felt ever since. Second, the U.S. decided it had to do something about its dependence on foreign sources of oil. One thing was to improve fuel economy of motorized transport, and <u>this is when the CAFE was</u> <u>opened</u>. The Corporate Average Fuel Economy (CAFE) regulations were first enacted by the United States Congress in 1975 as <u>a direct result of the 1973–74 Arab Oil Embargo</u>, to improve the average fuel economy of cars and light trucks produced for sale in the United States so that the U.S. would eventually have a minimum or no dependence on foreign oil supplies. It was <u>not</u> in order to reduce harmful emissions. **This is an important point.**

During the thirty-five years between the first oil embargo and 2008, much had happened. There had been more wars in the Middle East and more oil embargos. The government of Iran changed, hostages were taken in the U.S. embassy and hostile relations were cemented between Iran and the U.S., which continue to this day. September 11, 2001 happened. China was invited into the World Trade Organization (WTO) at the end of 2001. In 2008, the inflation adjusted price of a barrel of crude oil was \$107.05. It had only ever been higher in 1980 when it was \$114.93. In April and June 2009 respectively, CHRYSLER and GM filed for Chapter 11 bankruptcy.

By 2008, the car industries in the U.S. and Europe were clearly between a rock and a hard place. They had to meet both emissions and fuel goals set by the government, and they had to do this with products based on the intellectual property (i.e., technology, business processes, supply chains, financial management and more) they had built up and invested in over decades. Toyota was the only company that had the resources and the foresight to invest in an alternative type of product, the hybrid electric vehicle, which was first offered in 1997. The one bright light was the new market developing in China. Since China followed the European emissions categories, the U.S. and European car manufacturers would not find a safe harbor for higher-emission cars, but at least they could sell more of what they had to offer.

Musk showed China how it could win

At the 2008 Summer Olympics held in Beijing, China's star was clearly in ascendency: its athletes won the most gold medals, a first. In 2008, China became the largest producer nation/region of automobiles at the same time as the global financial crisis hit. China's plan was to do in the automotive sector what it had done **Steam to Diesel Engines**



https://www.bressing-Image: ham.co.uk/blog/posts/2017/why-did-<u>diesel-replace-steam-power.aspx</u> Steam trains were replaced by diesel locomotives in the 1950s in what was called 'dieselisation'. The diesel engine has an impressively high thermal efficiency - with modern diesel engines achieving 45% efficiency compared to a steam engine's 10%. They were thus able achieve greater distances between refueling stops. This combined with the absence of water stops and reduced inspection and repair costs resulted in greatly reduced overall running costs. The switch was speeded up the need to cut costs following the economic depression of the 1930's.

in the electronics assembly and many other sectors, to force U.S. and European companies to form joint ventures with its domestic companies, obtain the know-how to design and build products that could first be sold in the China market and then to put all their collective efforts and money in Chinese-only companies to compete globally. Besides the obvious example of HUAWEI, two other examples of this are high-speed rail and nuclear power plants.⁸

China's automobile industry had mainly Soviet origins. Plants were built and auto designs were licensed from the USSR in the 1950s. For the first thirty years of the country's existence, car production did not exceed 100,000-to-200,000 vehicles per year. Then, in the early 1990s, things began to change quickly. Joint ventures were started with U.S. and European brands. The first joint venture between a Chinese auto manufacturer and a Western OEM was between BAIC and AMERICAN MOTORS in 1983 for producing the *AMC Jeep* in China. FAW and VW formed a JV in 1990. SHANGHAI GM was founded in 1997.

China's annual automobile production capacity first exceeded one million in 1992. By 2000, China was producing over two million vehicles. It was after China's entry into the World Trade Organization (WTO) in 2001 that growth accelerated further. Between 2002 and 2007, China's national automobile market grew by an average of 21%, or one million vehicles year-on-year. In 2009, China produced 13.79 million automobiles, surpassing the United States as the world's largest automobile producer by volume. In 2010, both sales and production topped 18 million units, with 13.76 million passenger cars delivered, in each case the largest by any nation in history.

In spite of the extraordinary growth of the domestic car market, and in spite of its JVs with Western OEMs, China has not been able to develop into an exporter of its domestic models. As the Chinese found out, cars and trucks are much more complex than either trains or nuclear power plants.⁹ Try as they might, they have been unable to break into the European or U.S. markets with their cars, and it is not because of tariffs or unfair treatment at the hands of the certification authorities. But resourcefulness and perseverance are plentiful in Zhōngguó, the middle kingdom, and TESLA has showed them how they can succeed in another way. 8. *THE ECONOMIST*, January 4th 2020. During the past 20 years, China has built nuclear power plants faster than any other country, using technology that was transferred to it by Framatome, a French company, in 1996. By the end of 2018, China had 29,000 kilometers of highspeed track, two-thirds of the global total. China is now exporting its know-how in both industries to the rest of the world.

9. With cars, strength of the brand is much more important compared to trains and nuclear plants where specifications and price are critical to a buying decision. A survey by Autolist in 2018 found that 35% of U.S. consumers would not even consider buying Chinese brands and 37% were not sure. Why? respondents cited reliability (24 percent), safety (21 percent), and lack of an established dealer and service network (15 percent). Naturally, owners of Korean vehicles are the most likely to switch to a Chinese model, while owners of American cars are the least likely. https://www.mo-

tor1.com/news/258635/americans-buy-chinese-cars-survey/ **It's the skateboard, guys**.¹⁰ TESLA was founded in 2003 in Silicon Valley by a couple of engineers (Martin Eberhard and Marc Tarpenning, not Elon Musk) who thought they could build an affordable battery electric vehicle. It was operating on the fringe and in the background for the first five years of its existence with a little sports car. Musk took part in funding the company and removed both of the founders by 2008. It was then the company's strategy began to take shape. You can read about TESLA's strategy in the November issue of *THE DISPATCHER*.¹¹ The point is that BEVs finally began to gain traction. Investors opened their wallets and politicians began offering incentives to buy BEVs. Since only TESLA had gotten the formula right for its buyers, it was TESLA that benefitted. Between 2008 and 2019, its sales rose from basically zero to 367,500 of models S, X and 3 in 2019.¹²

10. Jason Torchinsky https://jalopnik.com/why-teslaneeds-to-sell-the-model-3-without-a-body-1767589269

11.

http://www.michaellsena.com/wp -content/uploads/2018/10/The-Dispatcher November-2018.pdf

12. See Musings: The Will to Charge in: http://www.michaellsena.com/wp -content/uploads/2019/11/The-Dispatcher November-2019.pdf



Let's be fair to the underdogs. TESLA showed the world you can build an electric car that people would actually buy—if you gave them free charging stations and free mobile connectivity (both of which TESLA initially provided to its customers) and governments gave the buyers rebates at the time of sale, lower excise taxes, free parking, zero tolls, freedom to drive in the high occupancy lanes with only a driver. Anything else? If you are a traditional car company, you are competing against zero emissions (at the tailpipe) and all of the side benefits. In Norway, until all of the perks were removed, it didn't make sense to buy anything but a BEV and particularly a TESLA. The stakes are raised even higher. "It's unfair!" says VW. "Diesels are better, more efficient, more powerful, and cleaner. We can prove it." And then you are caught cheating.

However TESLA got there, the result was that a start-up company with no history in the automotive business was suddenly competing with companies that had been fine-tuning their technology and their business processes for a century or more. Tesla was developing new models at what seemed to be the speed of light. <u>A</u> penny dropped in Beijing sometime around 2013 when they got Two cars, one skateboard. The one on the left, the so-called Cybertruck, looks like a skateboard ramp. The one on the right, the X, is sort of tuna-shaped. But underneath, they are the same, like the VW Beetles below.



the *Musk Message*: It's the battery pack where the value is in electric cars, not in the drivetrain as in ICE cars. Most car companies develop platforms on which they place different bodies and integrate different components. VW is a master of this art, but the battery pack represents up to 50% of the cost of an electric car, much more than any component in an ICE vehicle, as shown in the graph below. So if you can develop an economical method of producing the battery pack, and become a supplier of that component to any company that can manage the other parts, you can in theory cap-



<u>ture 50% of the value of every vehicle</u>. TESLA is doing this for itself. VW is copying TESLA in every way. CHINA INC. is backing its favorite sons, including startups NIO and WM MOTOR as well BYD, SAIC and GEELY.

Michael Fries, et al. An Overview of Costs for Vehicle Components, Fuels, Greenhouse Gas Emissions and Total Cost of Ownership - Update 2017.

China has a plan; the West doesn't

China has set a goal to have 25% of new cars sold in 2025 in China to be battery electric vehicles. Today they account for 'only' 7%, but that is 1.5 million vehicles, almost one-half of the total new cars sales in Germany. China is expecting the majority of those sales will be made by its domestic suppliers. One of those companies is WM MOTOR TECHNOLOGY CO. The name WM stands for the German word Weltmeister, meaning 'world champion', which indicates its ambition. In Chinese script, its name is Weima, or 'powerful horse'. It was founded and is run by Freeman Shen. He was VP of ZHEJIANG GEELY HOLDING CO. LTD and was the person responsible for managing the Volvo Cars acquisition in 2010. He ran Volvo Cars China between 2010 and 2013. He went off to Boston to complete an Advanced Management Program at HARVARD BUSINESS SCHOOL, honing his financial skills, before getting things started at WM MOTOR. Before GEELY, Mr. Shen had been a VP of FIAT GROUP CHINA, CEO of FIAT POWERTRAIN TECHNOLOGIES CHINA and founder and first president of BORGWARNER CHINA. He knows the car business.



Ever heard of a car company called CANOO? Neither had I. It's a threeyear-old company based in Los Angeles. It will outsource the manufacturing of its battery electric vehicles and purchase its vehicles' components, including the 'skateboard' on which the body is placed. It says it will only offer its cars on a subscription basis.

Mr. Shen gave an interview to *THE ECONOMIST* for a *Technology Quarterly* special on technology in China. ¹³ He says in the interview that trying to compete with the likes of DAIMLER and BMW is hopeless. "You would have to invest billions of dollars for another twenty years, and maybe then we would be getting close to the Germans," he declared. He said that WM Motor intends to bypass ICE and deliver the highest value component for its own cars and to both the domestic Chinese car makers and to car companies that do not have—or do not want to have—the resources to build their own.

"It would be a complete reversal of the situation today, where Chinese car companies need Western firms to supply the most valuable components. China's huge market for EVs is creating a supply chain that startups like WM and self-inventing incumbents like VW will rely on. That may end up being an advantage for the Chinese industry on a global scale."

WM has assembled a team of (Chinese) managers from companies like Google, VOLVO CARS, Chinese car maker CHERY among others. Shen claims that the company's seed money, "several hundred million yuan", came from the founding team and mostly himself. It secured \$1.5 billion in funding eight months after it began operations. According to Shen, the principal investor is a leading fund in China who "are not really interested in announcing the deal."¹⁴ WM appears to be principally focused on perfecting the process of building the skateboard, with car production as a way of doing the perfecting, and then providing this to other car makers, both domestic and foreign. In other words, capturing the lion's share of the value.

Why will they succeed? Because they are close to the electric car supply chain, especially batteries, they have preferred access to all the required raw materials and they can deliver a high quality product at the lowest cost. WM will have plenty of competition from all of GEELY'S brands, from SAIC, CHERY, BYD, NIO and others, but all of these companies will all have the full backing of CHINA INC.

What the Western car executives figured out long before any financial analyst, and certainly before any politician, is that electrification is an existential threat which raises the stakes even higher. It's not that the Western car companies can't move to electrification within a reasonably short period. VW and VOLVO have shown that it is possible. It is that all of their proprietary 13. Technology Quarterly: Electric leapfrog. THE ECONOMIST. January 4th 2020.

14. https://www.chinamoneynetwork.com/2017/10/09/ev-startwm-motor-aims-bring-new-mobility-solution In an article in South China Morn-Post ing (https://www.scmp.com/business/companies/article/2141886/chinas-wm-motorbets-factory-expansion-push-getahead-electric) it was stated that investments have come from state-owned metals giant China Minmetals Corp, Envision Energy, Tencent and Baidu and financial investors, including China Structural Reform Fund Corp and Sequoia Capital China.

know-how, trade secrets, supply chain management expertise and all of the knowledge they have accumulated during the past one hundred years will become completely worthless if China delivers electric skateboards to anyone who can build a body, set up an Internet sales network and take credit card payments.

That's basically what TESLA did. The truly successful OEM in the future will build and distribute both the vehicles and the skateboards. TESLA today is outselling many of the legacy car companies because of its end-to-end capabilities, and it has offered to provide its technology to other companies. BMW and VW are preparing to do go all-in with investments in NORTHVOLT. How likely is it that BYD, CHERY, GEELY, will watch this activity without investing in a battery producer and making its own acquisition of the most promising battery electric platform maker? And what is the likelihood that they would invest in those suppliers outside of China when there are champions inside? Very little. Once they acquire the end-to-end production capacity for the BEV platform, isn't it likely that it will supply this platform to all of the brands that they own, both in China and globally? The next step would be to sell to all companies that feel they have a body design or business model that they can pitch to investors.

The West needs to decriminalize the car business

While all this was happening right in front of their noses, Western politicians were weakening their own vehicle and vehicle-related businesses and treating them like pariahs. Oddly, the vehicle manufacturers' executives except for Musk were taking it without raising their voices, as if the battle had already been lost.¹⁵ Maybe they were just afraid of being fined—or worse. Saving the Western car industry is not yet a lost cause, but it will be soon.

Should it be saved? I, for one, believe it should be for many reasons. For starters, consumers outside of the inner suburbs of cities are not ready, willing or able to start buying into the battery electric vehicle fellowship, even if there were enough charging stations to serve them.¹⁶ They aren't ready to dump their cars in favor of walking, cyclying or e-scootering to wherever they have to go. So much of what societies are built around involve transport, and designing and building the devices that provide that transport creates enormous value for the people living in those societies. Why else would China be putting so much emphasis on creating its own vehicle industry and attempting to make it world dominant? Western countries should not destroy their transport industry because some members of those

15. Elon Musk and his company each had to pay a fine of \$20 million, and Musk had to give up his position as Chairman of the Board of Tesla, following his settlement with the U.S. Securities and Exchange Commission resulting from its charge that he affected the value of Tesla's stock with his Tweet that he was ready to take the firm private.

16. Central city dwellers who are dependent on on-street parking don't have a fixed place to charge their cars, and those who live outside the inner suburbs have longer travel greater distances. In both cases, BEVs are impractical if not downright inconvenient. societies have lost faith in the technology upon which that industry was orignially built, and are able to raise their voices higher than others to claim that it should be destroyed. Once you lose it, it is almost impossible to get it back.

As the excellent special report by AUTOMOTIVE WORLD concludes: "Electric is the future, but careful and deliberate evolution of ICE is how automakers get there. Progressive investment in transferable platform technology that can be shared across both regular ICE models and hybrids will help spread the risk and generate faster returns as model life cycles shrink furhter. Far from being yesterday's technology, the ICE still has an integral role to play in helping automakers secure the ROI they require to prosper in an ultimately all-electric future."

What should the West do? <u>First</u>, there needs to be a consensus among automotive industry owners, the boards of directors of these companies and the companies' executives that they are being put out of business by their own governments. These governments, through the establishment of financial penalties, are channeling money away from essential research and development that would allow their companies to at least compete fairly. These parties must agree to work together to call for a change of direction by their governments, and stand up to the bullying of their opponents (including know-it-all teenagers). If there is not a large degree of unity, politicians will ignore them, just as they have ignored them for the past forty-five years.¹⁷ This will not be an easy task because the narrative has been taken over by those who blame global warming on cars and the people who build them.

If an auto OEM has already decided that its future is to put seats on skateboards, assemble the infotainment components and integrate the ADAS software delivered by the likes of BOSCH and CONTINENTAL, and if it has already decided to turn over the driving to robots and software bought from NVIDIA, CRUISE, ARGO and AU-RORA, then that OEM will not be adding its voice to the call for a change of direction. There needs to be a champion who will lead this effort, someone who believes that it is worth fighting to keep the industry and all the jobs that it provides.¹⁸

Unfortunately, I do not see an obvious candidate to take on the role. VW executives have been neutered. Marchionne is gone, Ghosn and Winterkorn have been taken out of play. Bill Ford, as someone who has a huge stake in the company with his family name, would be a likely candidate, but he never really had his



17. It might be argued that the bailout of GM and Chrysler during the financial crisis was a helping hand. The U.S. government's \$80.7 billion bailout of the auto industry lasted from December 2008 to December 2014. The U.S. Department of the Treasury used funds from the Troubled Asset Relief Program. In the end, it cost taxpayers \$10.2 billion because the federal government was able to sell the shares it held in the companies. The bank bailout cost the government \$700 billion. It's not clear how much if any was returned.

18. A report by NPM, the German national platform for future mobility, produced a report on the impact on German jobs resulting from the move toward electrification of the car fleets. The estimate is that 410,000 jobs will be lost by 2030. That's the equivalent of the populations of Bonn and Wolfsburg (VW's headquarters). heart in the car business. FORD, with its continuing losses and rudderless ship, will probably disappear of its own accord.

<u>Second</u>, the rank and file workers who know what is happening because they can see their jobs going east, need to be empowered and mobilized. Building cars is not the same as igniting a fire in the rain forest of Brazil or shoveling bituminous coal into an electric energy plant in India or China, but politicians are acting like it is. The millions of men and women working in the automotive industry need to do the same thing as the car company executives, and that is to make their voices heard.

Their interests are no longer represented by the unions, especially not in the U.S., where many of the new factories opened by foreign companies are located in so-called 'right-to-work' states where unions are not welcomed. In European countries, where joining a union as a production worker was once a self-evident choice, union membership is now an uncertain option. The highly touted workers councils, where union members sit on company boards, seemed to have resulted in co-option of the representatives. Nevertheless, workers vote, and they have been voting for the wrong parties who do not have their interests at heart. They need to start making it clear that their jobs do matter and it is they who are funding the environmental parties' parties.

<u>Third</u>, building cars and batteries and BEV platforms in places where the vast majority of electricity is generated using high-carbon fuels, such as bituminous coal, must be factored into the cost of those cars. Today, it is not. There needs to be a tax on carbon usage in production. China is burning coal to produce everything. With a carbon tax at the production source, China will not be able to build cheap products using cheap energy to compete against battery packs manufactured in low emissions countries, like Sweden. One of the reasons that this has not been done is that the principal automotive manufacturing country in Europe, Germany, is also generating electricity with coal and is the force behind natural gas coming into Europe from Russia. German politicians must be made to understand that their policies may help their own car producers in the short term, but those companies won't have anyone else in the West to whom they will be able to sell their cars.

<u>Fourth</u>—and this is really going to be a difficult one for the politicians to swallow—slow down the conversion to battery electric vehicles by promoting biodiesel for diesels, hybrids that run on biodiesel fuels and hydrogen fuel cells. <u>It makes ultimate eco-</u> nomic sense for the Chinese government to want to reduce its dependence on buying foreign oil to run cars by burning domestic coal to produce electricity for battery electric vehicles. But the result for global emissions reduction is extremely negative. Governments like the one in Sweden are instituting so-called *bonus-malus* systems in which those who purchase BEVs are rewarded and those who purchase anything else are heavily taxed.¹⁹ The Swedish Green Party wants to go even further and 'out' anyone who buys a SUV by taxing them more heavily and for a longer period of time. All the while, cheap electric vehicles will pour in from Asia as manufacturing jobs in Gothenburg and other cities where components for ICE vehicles are made melt away.

The clock is ticking. Western politicians, pushed by a one-issue interest group, have falsely been focusing on a technology, battery electric, rather than on the goal, reducing overall emissions. As I have shown, governments in the West have been passing laws to achieve one or two policy objectives (i.e., reducing dependence on foreign oil suppliers or lowering emissions from vehicles) without considering the full set of impacts on their societies (e.g., jobs in their own countries, affordable housing, education opportunities, mobility for all of their citizens and the overall global reduction of harmful emissions).²⁰

One thing is certain: Governments <u>should not</u> be in the business of promoting the sale of a specific technology because that almost always ends up with unforeseen and usually negative consequences for the people those governments represent. Nevertheless, that is what they have been doing and are continuing to do with battery electric technology. If it continues, the Western automotive industry and all of its related businesses with all the employment opportunities they provide, will be transferred to the East, to China.

I, for one, do not feel that would be a good thing for the West, or even in the long run for China, if most or all of the value of vehicles is transferred to China and then sold back to Western car companies or directly to consumers. In order for people to be able to afford to buy products, especially ones that cost as much as a car, they need to have incomes. Incomes come from jobs and jobs come from viable and sustainable industries that produce products from labor and capital. Politicians in the West seem to have forgotten this fact, along with where the money to pay their salaries comes from and what they were actually elected to do. 19. Volvo Cars can thank the Green Party in Sweden for a 31.9% reduction in its January sales in Sweden compared to one year ago. That represents a drop in sales of 1700 cars in one month. That could mean 20,400 fewer cars sold in Sweden for the year. The impact on global air quality is beyond miniscule, but the impact on the Swedish economy and its workers is huge.

20. In a typical example of the destructive nature of the 'green' politicians, the *Grüne Liga* in Germany managed to force a halt to work on Tesla's battery and assembly factory in Brandenburg (See The Dispatcher December 2019: Tesla Does the Right Thing with its New Plant). Twelve thousand jobs are at risk in a region where tens of thousands of jobs have already been lost due to the closing of lignite coal mines. One has to question who is funding the activities of these groups if the principal result of their actions is to prevent people from working. The green league has confused money with leaves and its adherents actually believe that money grows on trees. One of Den Gröna politicians, Rasmus Andresen, who is involved in the current budget negotiations, called Sweden a "bunch of cheapskates" because Sweden does not want to pay what the EU is demanding. Rasmus has been a member of the EU Parliament since he turned 23. He definitely does not know where money comes from

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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