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### The December 2021 Issue in Brief

#### Germany's Automotive Industry in Transition

Germany invented the internal combustion engine, but the United States and Great Britain were the heart and soul of the automotive industry through the 1950s and into the 1960s. German car companies, like all of Germany's industries, were in a shambles following WWII. That is when the process of rebuilding would start. It was part of what was called the Miracle on the Rhine. With the determined cooperation of the West German government under the leadership of Konrad Adenauer's Christian Democratic Union party, the unions and businesses, they created the German Model. With this Model, Germany became the largest exporter in the world between 2003 and 2008, and today is third behind China and the U.S. VW, DAIMLER and BMW are numbers 2, 3 and 8 among the largest companies in revenues in the EU. In 2018, VW, along with all of its brands, officially became the largest car company in the world, selling 10.83 million vehicles in all markets. With the election of a new government, combined with climate change forces that favor solutions from China, the German Model and the fate of the German automotive industry is now in question. Will it retain the position of being the heart of the automotive industry? I do not believe so. Read why.

### Dispatch Central

**Preface** - Ladies and gentlemen: place your bets. Is it going to be TESLA and RIVIAN who will be the car makers of the future, eventually putting GM, FORD and TOYOTA into the scrapheap of history, or will they, like the electric and steam car companies of the early 20<sup>th</sup> century fade from memory?

**Rivian's IPO** was a huge success. As soon as I had completed writing down the numbers they had doubled. Why? Because people want to make a killing, and if Tesla could go from nothing to over ten Franklins, why not Rivian?

**BEV, ICE, and alternative vehicle news** is filled with tidbits that you can use at your next cocktail party. Someone in the group says she just bought an electric car with zero emissions, and you tell her she will have to drive the car for 42,000 miles just to compensate for the 70% more CO<sub>2</sub> emissions it took to produce the car. Put that in your martini and drink it.

#### Musings of a Dispatcher: Not Your Father's Volvo

China's trendsetters have made their preferences known, and they have dissed VOLVOS. They say they are not sexy enough. Hmmm. That's not news for anyone who has been buying cars for more time than trendsetters in China. I say if you want bling, buy your father's TESLA, one of those XPENG TESLA look-alikes, or an old OLDSMOBILE Toronado.

## Germany's Automotive Industry in Transition



From September 1902, DAIMLER-MOTOREN-GESELLSCHAFT (DMG) has held the patent for the **MERCEDES** brand name. All that is missing is a characteristic trademark. In 1909, the sons of Gottlieb Daimler, Paul and Adolf, recall that their father had previously used a star for a symbol. He had drawn it on a postcard. The DMG Board of Management follow accepted this design and in June 1909 registered both a three-pointed and four-pointed star as trademarks. Both logos are legally protected, but it is the three-pointed star that is ultimately used and a three-dimensional star adorns the front radiator of vehicles from 1910 onwards. With the merging of both companies in June 1926, a new brand name is created, which combines the essential elements of the previous emblems.



### ***Will it remain at the auto industry's heart***

*Germany's automotive industry is important for the country's economy, the welfare of a large number of its citizens and for the prestige of the nation. It is also very important for Europe as a whole. VW, DAIMLER and BMW had total 2020 revenue of €476 billion and hold respectively positions 2, 3 and 8 amongst the largest companies in the EU. For every fifty people living in Germany, one is working directly for its automobile manufacturers, which also includes OPEL, now part of STELLANTIS, and FORD, which has two large manufacturing facilities in the country. TESLA will add up to another 12,000 jobs after it starts operations in the country by the end of 2021. Today, the future position of the German automotive industry is being put to the test by electrification and competition from companies in China as well as upstart TESLA which have exploited electrification to bypass internal combustion engine cars on which the German companies have built their well-deserved reputations for safety, comfort and performance. Can Germany's car industry meet this challenge and retain its position as the premier automotive country, or will it follow along the paths of England, France, Italy, Sweden, and the U.S., that have seen their countries' car industries diminished in both size and importance or sold to foreign companies?*

THERE WAS A national election in Germany on the 26<sup>th</sup> of September. Angela Merkel, who had been the Chancellor of Germany since 2005, had decided she would not run for reelection to a fifth term as Chancellor, and announced that decision in October 2018. Normally, lame duck politicians are sidelined and ignored, but Chancellor Merkel kept the wheels of her government running while her party tried to find someone who could replace her and win the next election. As it turned out, they did find a replacement, but not a winner. Her party, the CHRISTIAN DEMOCRAT

UNION (CDU), came in a close second to the SOCIAL DEMOCRATIC PARTY (SPD). The GREEN party sailed into third place, securing its position in what will be a three-party coalition.

SPD and CDU have formed the government together after the past two elections. SPD's leader, Olaf Scholz, who will become the new Chancellor, was the previous government's Minister of Finance. But this time, SPD and CDU did not have enough votes together to get over the 50% required minimum threshold to form a government. If they wanted to rule together again, they would have had to convince either the liberal FREE DEMOCRATIC PARTY (FDP) or the GREENS to join them. SPD decided to leave CDU as a partner and ask both FDP and the GREENS to form a government, and that is what will happen.

### *These election results will have consequences for the automotive industry*

As it attempts to move in the direction being set by the European Commission on phasing out internal combustion engines in favor of battery electric vehicles, the German automotive industry is trying to avoid huge penalties for exceeding the emissions requirements that can only be met by fully-BEV companies like TESLA.<sup>1</sup> Merkel's CDU party is the conservative, business-friendly party, and during the past sixteen years, it has urged moderation in making the transition from ICE to BEV, as well as protecting its important automotive industry from other oversteps by the Commission, such as with the EU eCall mandate and trying to push through a DSRC-based V2X solution. In July, Germany along with France stated that it does not support the European Commission's proposal to phase out ICE sales by 2035.

The CDU has also kept the coal fires burning in the electricity generation plants while it has agreed to shut down the country's nuclear capacity.<sup>2</sup> During the first half of 2021, coal, natural gas and nuclear energy comprised 56% of the total electricity fed into the German electricity grid, up from 48% during the same period in 2020. Coal represented 27% of the total, up from 21%. Nuclear was steady at 12%, and natural gas—which is mostly coming from Russia—rose from 13% to 14%. Wind power dropped to its lowest level (22%) since 2018 as a result of less wind. Solar dropped from 10% to 9% as a result of fewer sunny days.

A German government comprised of SPD in a coalition with the GREEN party and FDP will most likely follow a very different set of policies than those that have prevailed during the past sixteen

1. The EU regulations require the average CO<sub>2</sub> emissions of new cars to fall to 95 g/km by 2021, from a previous mandatory level agreed in 2009 of 130 g/km for the fleet average in 2015. The most recent figures show that the level of CO<sub>2</sub> emissions of cars was just slightly below 120 g/km in 2018. Since the 2021 deadline will look into the 2020 performance of the average fleet with a two-year phasing (95% of the fleet in 2020, 100% in 2021), car makers face a huge challenge: cutting emissions by -20% between 2019 and 2020. For comparison, before this, it took the industry ten years to achieve a -25% decrease.

Car makers can only achieve the new targets with an increasing share of lower CO<sub>2</sub> emission powertrains (non-ICE). Battery-operated electric vehicles (BEV) produce no CO<sub>2</sub> emissions (estimated emissions of other APVs: 104g/km for mild hybrids, 86g/km for hybrid electric vehicles (HEV) and 48g/km for plug-in hybrid electric vehicles (PHEV)).

Assuming car makers will do whatever is necessary to benefit from the "super credit" system offered by the new regulations for 2021, the market share of new electric vehicles should exceed 25% to comply with the European regulations – regardless of the combinations of gasoline and diesel car market shares.

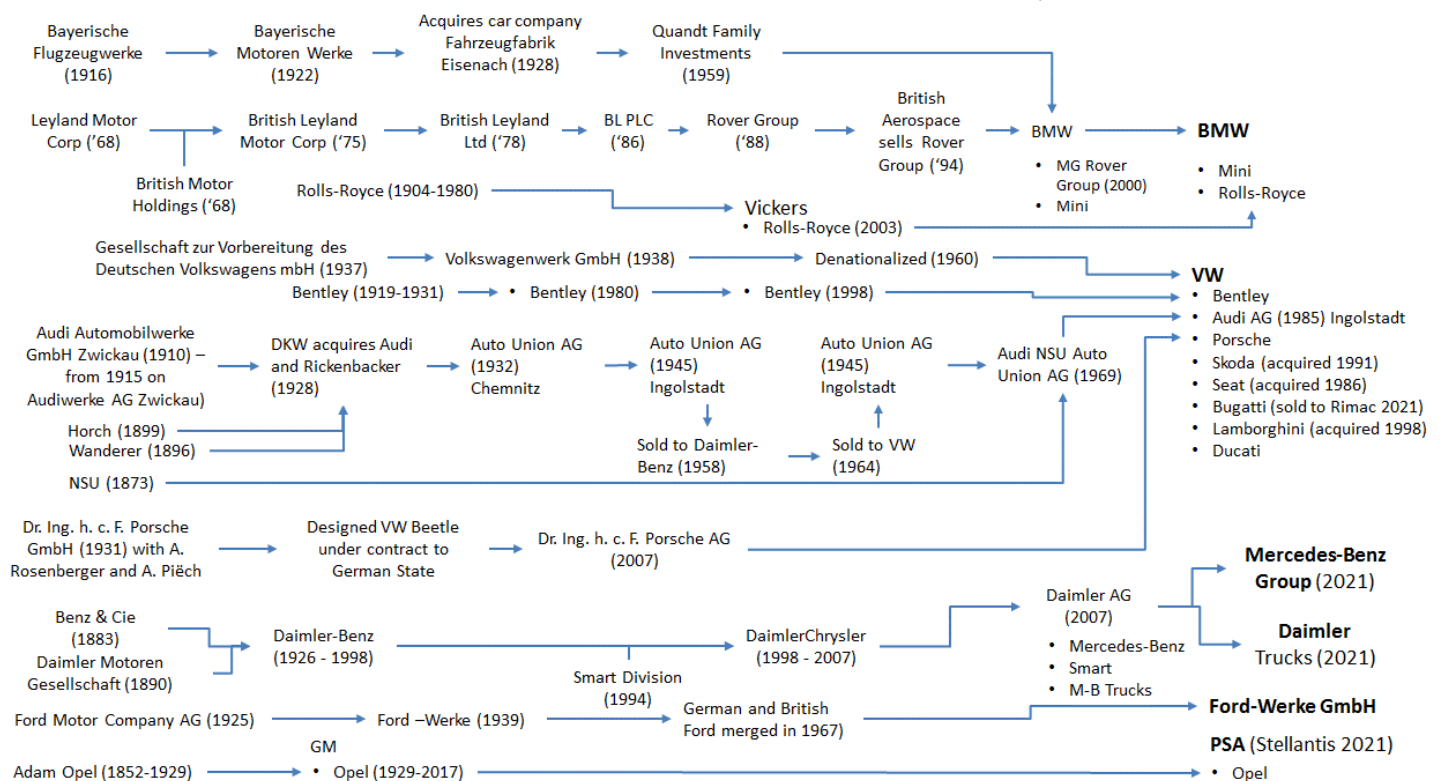
2. When SPD and the Greens won the elections in 1998, the government reached a "nuclear consensus" with the big utilities. They agreed to limit the lifespan of nuclear power stations to 32 years. In theory, the last one would have had to close in 2022. New nuclear power plants were banned altogether. The agreement became law in 2002 (Atomgesetz). CDU objected to the agreement, calling it a "destruction of national property" that would be revoked if the CDU came to power, which happened in 2009, extending the phase out by 8 years. But after the Fukushima, Japan incident, the Merkel government decided in June 2011 to shut down eight nuclear plants and limit the operation of the remaining nine to 2022.

years, one which followed more strictly the German industrial model that was put in place following the end of World War II. It is this model which made Germany the largest exporter in the world between 2003 and 2008. Today, Germany is third behind China and the United States, but that is still extraordinary given the competition from Japan, Korea and other members of the G20. Let's look at how the German automotive industry arrived at where it is today and what a change in government will likely mean for its future.

## Starting over from square one after WWII

Even though Germany is credited with being the birthplace of the automobile, the German automobile industry did not really get started until after the end of World War II. In 1939, GM OPEL was the largest car manufacturer in Europe for the fourth year in a row with sales of around 100,000 vehicles per year. Before the 1929 stock market crash, GM's annual U.S. sales alone were well over a million.<sup>3</sup> GM acquired ADAM OPEL in 1929 and became the largest car manufacturer in Germany. FORD had set up operations in the country in 1925, building on the success of the *Model T*, which by 1924 comprised one-half of all cars in the world.

3. In 1929, there were 27 million cars in the U.S. That was 78% of all the cars in the world. The U.S. produced more than 5.3 million cars and sold about 4.5 million (1.9 million sold by General Motors), compared with France's production of 211,000 and Britain's 182,000. <https://www.scaruffi.com/politics/cars.html>



## The Evolution of the German Automotive Industry



*The lowly VW Beetle is the start of something really big*

VW was established in May 1937 by the GERMAN NATIONAL SOCIALIST PARTY as GESELLSCHAFT ZUR VORBEREITUNG DES DEUTSCHEN VOLKSWAGENS MBH, simplified later that year to VOLKSWAGENWERK (THE PEOPLE'S CAR COMPANY). Production quickly shifted to military vehicles during the War. At the end of the War, with VW's Wolfsburg manufacturing facilities in the British Occupied Zone, management of production was in the hands of the British Military.

*When Major Ivan Hirst arrived in Wolfsburg – the home of Volkswagen cars – he was less than impressed with what he found. The streets were overgrown and potholed. The small population lived in barracks. And the Volkswagen factory was even worse.*

*"A disgusting smell hung over the whole property," Hirst later recalled. "All the drainage systems had been damaged in Allied bombing and hadn't been repaired. The toilets were broken and completely unhygienic. It was awful!"*

*It was August 1945 and Hirst – a 29-year-old major in the British Army – had been assigned the task of dismantling the factory by his military superiors. Germany was to have no industry worthy of the name, allied commanders had decided. But Hirst saw enough potential in the town and its sole source of income to try and save the plant. He had himself worked as an engineer during the war and had been impressed by the Volkswagen cars that Allied troops had captured from the Germans. So he found the best remaining version of the car left over from the Nazi period, painted it in camouflage, and presented it to his superiors as the solution to their urgent need to replace vehicles damaged during the war. The military hierarchy agreed and on August 22 work began on a contract for 20,000 Volkswagen, plus 500 trailers and 500 military vehicles.*

*"That saved Volkswagen," Hirst said years later.*

In 1960, the German government sold 60% of VW's stock to the public, effectively denationalizing it. Twelve years later, the VW Beetle surpassed the longstanding worldwide production record of 15 million vehicles, set by FORD MOTOR COMPANY's *Model T* between 1908 and 1927. In 2018, VW, along with all of its brands, officially became the largest car company in the world, selling 10.83 million vehicles in all markets. VOLKSWAGEN is the founding and namesake member of the VOLKSWAGEN GROUP, in charge of multiple car and truck brands, including AUDI, SEAT, PORSCHE, LAMBORGHINI, BENTLEY, BUGATTI, SCANIA, MAN, and ŠKODA.

The 18th of September 2015 is a date that will live in infamy for VOLKSWAGEN. It was the day the U.S. ENVIRONMENTAL PROTECTION



*Volkswagen Logo Evolution  
(1937-2019)*

AGENCY said that since 2008, VW had been installing engine control unit (ECU) software in its VW and Audi vehicles intended to circumvent environmental regulations of NO<sub>x</sub> emissions in violation of the *Clean Air Act*. The software detects when the cars are being tested and when they are being driven. When they are being tested, the software enables the ECU emission controls so that the vehicle passes the test. When the cars are being driven, the emission control software is shut off so that the engine achieves higher fuel economy and better performance, but the result is up to 40 times more pollution allowed under the law.

What followed—and it continues today—was a series of indictments of VW and Audi managers right up to then-CEO Martin Winterkorn, sentences to jail for some, and payments of billions of dollars/euros in fines in the U.S. and Europe. VW's labor unions agreed to reduce the workforce by 30,000 workers between 2016 and 2021 to defray the costs of the fines. Linked to this, and as an attempt to pay retribution, VW announced it would become the world leader in electric cars, producing 1 million VW electric cars by 2025, and 3 million for the entire group.

#### *BMW: From the Ultimate Driving Machine to Mobility Services*

BMW began automobile construction in 1928 following its acquisition of FAHRZEUGFABRIK EISENACH. It transitioned to an armaments and airplane engine company during the 1930s and throughout the War. Following the end of the War, BMW's plants were dismantled and intact machines were shipped to Allied countries as reparations. In 1959, DAIMLER-BENZ attempted to acquire an economically weak BMW, but small shareholders and BMW workers rejected the offer. The Quandt family had acquired 30% of the company's shares by 1954. When the DAIMLER-BENZ's offer was rejected, the Quandts increased their shares to 50%, and the fortunes of BMW turned for the better. The government provided financial assistance and the company was restructured under Herbert Quandt's management. The *BMW 700* was responsible for starting the company's journey toward becoming one of the world's best automobile producers.<sup>4</sup>

In 1994, BMW opened its first plant in Spartanburg, South Carolina. It was specially designed to build the *BMW Z3 Roadster*, which was exported all over the world. Today, the X3, X4, X5 and X6 models are all manufactured in Spartanburg. Acquisition of the ROVER GROUP in 1994 was intended to expand BMW's range of models. *Land Rover*, *Rover*, *MG*, *Triumph* and *Mini* were part of the purchase, but the effort failed. All but *Mini* were sold in 2000



4. The BMW 700 was a small rear-engine car which was produced by BMW in various models from August 1959 to November 1965. It was the first BMW automobile with a monocoque (unibody) frame. The 700 was a sales success at a time when BMW was close to financial ruin. The 700 was also successful in its class in motor-sport, both in its stock form and as the basis of a racing special called the 700RS. More than 188,000 were sold before production ended in November 1965. Upon discontinuing the 700, BMW left the economy car market.

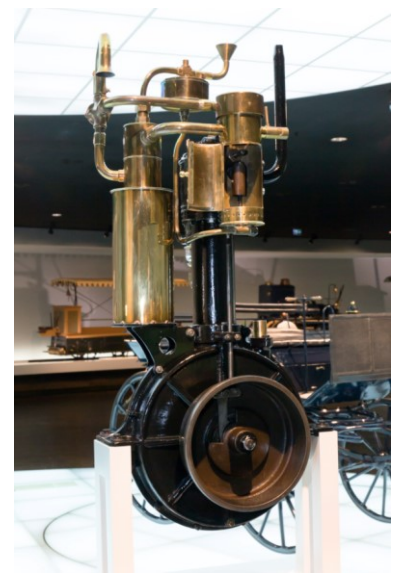
and a completely redesigned *Mini* was launched in 2001 as the first premium vehicle in the small-car segment. Nine years after setting up production in the U.S., it was time to establish a presence in China. In 2003, BMW and a Chinese partner formed BMW BRILLIANCE AUTOMOTIVE LTD. The plant in Shenyang opened in May 2004.

BMW has been the leader, along with MERCEDES-BENZ, RENAULT, and VOLVO, in in-vehicle navigation and connected services. All of these companies were founding members of the ADASIS Forum and similar industry standards organizations. In 2001, BMW established the *INSTITUTE FOR MOBILITY RESEARCH (IFMO)*, which studies key developments in the fields of demographics, business, transport policy, technology and energy to assess their impacts on mobility development. It was also among the first companies in Europe to electrify. BMW's first hybrid BMW was the 2010 BMW ActiveHybrid 7, and BMW's first electric car was the BMW i3 city car, which was released in 2013. After many years of establishing a reputation for sporting rear-wheel drive cars, BMW's first front-wheel drive car was the 2014 BMW 2 Series Active Tourer multi-purpose vehicle (MPV).

#### *Daimler and Benz: Half a century of intrigue before the start*

What occurs during the first fifty years of Daimler/Benz history is the stuff of novels and movies. The main actors are Gottlieb Daimler, Wilhelm Maybach, and Karl Benz, all born in the Kingdom of Württemberg in the southwestern part of the country before it became unified in 1871. A fourth actor is Bertha Ringer Benz, wife of Karl Benz, who was born in the neighboring Grand Duchy of Baden. Daimler and Maybach met when they were 31 and 19 respectively and became lifelong collaborators and friends. Benz, with Bertha's moral and financial support, and Daimler, with Maybach's technical assistance, formed their separate companies, respectively in 1883 and 1890. They both worked on developing motor cars.

On the 29th of January 1886, Carl Benz submitted a patent application for his "vehicle with gas engine operation" to the IMPERIAL PATENT OFFICE. The patent specification for DRP 37435 is recognized today as the "birth certificate" of the automobile and bears the name "Patent-Motorwagen" ("Patent Motor Car") for the world's first automobile. On the 5<sup>th</sup> of August 1888, 39-year-old Bertha Benz performed what is probably the first automobile marketing promotion when she drove from Mannheim to Pforzheim with her two sons, Richard and Eugen, thirteen and fifteen



***The 1885 Daimler-Maybach Grandfather Clock Engine***

*In 1885 German engineer, industrial designer and industrialist Gottlieb Daimler invented the internal combustion engine, and with his business partner the engine designer and industrialist Wilhelm Maybach fitted this to a two-wheeler—the first internal combustion motorcycle. In 1886 Daimler and Maybach fitted the engine to a stagecoach and a boat. Daimler baptized it the 'Grandfather Clock' engine (Standuhr) because of its resemblance to an old pendulum clock.*

years old, in a Model III. Without telling her husband and without permission of the authorities, she became the first person to drive an automobile a significant distance. Before her journey, which covered a total of 106 kilometers one way, motorized drives were merely very short trials, returning to the point of origin, made with mechanics leading and following the vehicle. Fru Benz said afterward that the purpose of her drive was to visit her mother, but she was really out to prove to her husband that the automobile in which they both had heavily invested would become a financial success once it was shown to be useful to the general public. It worked.

Gottlieb Daimler died in 1900 and left his friend Wilhelm Maybach to run DMG, which he did until 1907. Karl retired from BENZ & CIE in 1912 and turned over its management to his two sons. In 1924, DMG and BENZ & CIE entered into a joint venture in order to increase their competitiveness, coordinating designs, production techniques, purchasing, sales, and advertising. Joint marketing of the *Mercedes*<sup>5</sup> and *Benz* brands were handled by the newly founded MERCEDES-BENZ AUTOMOBIL GMBH. In 1926, the two companies merged, establishing DAIMLER-BENZ AG. The new company presented the first Daimler-Benz cars under the *Mercedes-Benz* brand name at the 1926 *BERLIN MOTOR SHOW*.

DAIMLER-BENZ began creating trucks and aircraft engines for the German military in 1936. The production of civilian cars in DAIMLER-BENZ production facilities virtually stopped by 1942. The *Potsdam Agreement* of 1945 required the complete demilitarization of the German state, and this required the breakdown of all military operations as well as the payment of reparations for damages. Companies like DAIMLER-BENZ that had been requisitioned by the German government were included in the demilitarization process because they had produced armaments during the war. Production was not resumed in DAIMLER-BENZ plants until 1947.

By 1954, DAIMLER-BENZ had production facilities around the world, its sales reached pre-War levels of over \$250 million, and it had broken into the important U.S. market with its 300SL (for 'Super Light') *Gullwing*. It was Max Hoffman, the Austrian importer of luxury cars based in New York City, who promoted the SL to his dealers across America. From that point on, in the U.S. and eventually the rest of the world, owners of MERCEDES-BENZ vehicles associated themselves with the company's logo: they could afford to reach for the stars. Except for a nine-year period at the end of the 20<sup>th</sup> century and the beginning of the 21<sup>st</sup>, when the DAIMLER



5. "In 1900 a car was produced by Daimler-Motoren-Gesellschaft (DMG) on the initiative of Emil Jellinek, which clearly deviated from the carriage design principle which had prevailed until that time. Emil Jellinek, a successful businessman, was an enthusiastic motorist and acquired his first Daimler car in 1897. In the following years, he became active as a Daimler automobile dealer. In April 1900, he triggered the development of a completely new automobile with a light, high-performance engine, long wheelbase and low center of gravity. He named the newly developed model 'Mercedes' after his daughter, who was ten at the time. Jellinek spurred Maybach, the "King of Design Engineers", on to top-class achievements once again.

"Jellinek had already entered a Daimler car in the Nice Week in March 1899, under his pseudonym 'Mercedes'. The name was used as a product or brand designation for the first time in April 1900 for the new engine, and then a few months later for the new car.

"The first "Mercedes" with all its innovative engineering details meant the final move away from the formerly used carriage design and is regarded today as the first modern automobile."

<https://mercedes-benz-publicarchive.com/marsClassic/en/in-stance/ko/Mercedes-35-hp-1900--1902.xhtml?oid=5901&reId=1001>



**1954 Mercedes-Benz  
300SL Gull Wing**



board of directors risked everything on a bet that CHRYSLER CORPORATION would bring something to their company that they did not already have, and quality suffered, customers have gotten what they paid (dearly) for. There are no traces of the DAIMLERCHRYSLER period anywhere. It's as if it never existed.

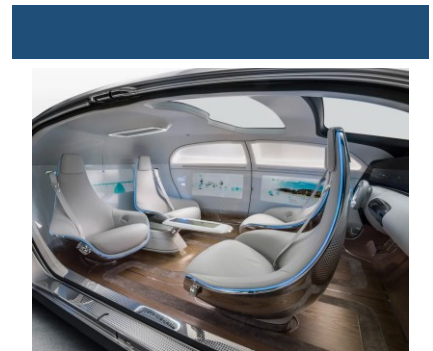
MERCEDES-BENZ presented its vision for a car that drives itself at the 2015 CES. It called its concept car the *F015 Luxury in Motion*. Daimler's CEO at the time, Dieter Zetsche, described it as a 'cocoon on wheels'. If this vehicle is ever delivered to customers, the ersatz wood floor and plastic interior finishes will likely be replaced with more luxurious-looking materials. Its days of trying to deliver a car for every pocketbook are behind it. Even its lowest priced A-Class models can be equipped with the most advanced safety and infotainment features, and that is what the company wants to sell.

*Who would have thought they would be where they are today*

VW, BMW and MERCEDES-BENZ are all at a very special place today. They have not been taken over by foreign owners or forced into mergers from which they could not extricate themselves. They are profitable and their cars are prized and sold all around the world. All of their brands are on the upper side of the quality and safety ratings. No one would disagree with the statement that they did not accomplish these feats totally on their own. They had the help of the government of the country in which they are all located. They would not be where they are today if they had been founded in, say, Italy or France or the U.K. What has made the difference so far is the good fortune of being German companies. Will it continue?

### **The German *Wirtschaftswunder***

Otherwise known as the *Miracle on the Rhine*, the *German Model* explains in large part how German industry in general, and its automotive industry in particular, became so successful. The term *German Model* is used in economics to describe post-World War II West Germany's means of using innovative industrial relations, vocational training, and closer relationships between the financial and industrial sectors to cultivate economic prosperity.<sup>6</sup> The *German Model* includes both macroeconomic and microeconomic factors, as explained by A.G. Calvo:<sup>7</sup> *"From a macroeconomic viewpoint, the German model involves a preference for current account surpluses, low inflation, well-balanced fiscal accounts, low levels of public debt relative to GDP, and a generous welfare state. From a microeconomic perspective, the basic features of the*



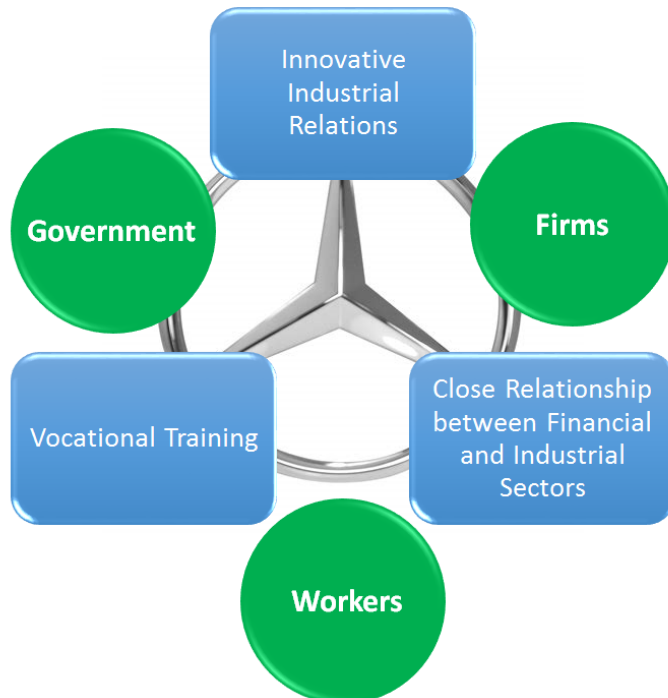
*The interior of the  
F015 Luxury in Motion*

6. Hall, Peter A. *The Fate of the German Model* in *The German Model as Seen by Its Neighbours*. Brigitte Unger, Editor. <https://www.socialeurope.eu/wp-content/uploads/2015/04/German-Model.pdf>

[https://scholar.harvard.edu/files/hall/files/hall2015\\_germanmodel.pdf](https://scholar.harvard.edu/files/hall/files/hall2015_germanmodel.pdf)

7. Calvo, Angela Garcia. *Can and Should the German Model be Exported to Other Countries? An Institutional Perspective in the German Model as Seen by Its Neighbours*. Brigitte Unger, Editor.

*German Model are a strong system of higher education and vocational training, consensual labour agreements, local banks with specialized business knowledge, and a dense and high-quality network of institutions devoted to industrial innovation’.*



#### *Industrial relations*

Under the *German Model*, unions are organized at the industry level and co-exist with works councils at both the plant and company levels. These unions negotiate wage determination with employers' associations. The strength of this setup is the cooperation among unions and management councils. It also gives the workforce a large measure of job security and a voice in management decisions, and this makes it easier for companies to gain their trust and cooperation. This is unique among Western countries, which have been marked by either substantial weakening of union powers (such as in the United States and United Kingdom) over the last twenty years, or consistent union conflict (such as in France and Italy, where unions have remained strong).

#### *Consensus building*

In a similar way as with relations between unions and employers, the *German Model* attempts to harmonize relations between governmental regulatory bodies and businesses and, to the extent possible considering antitrust laws, between individual companies, in order to prevent harmful competition. This is considered an outgrowth of the non-confrontational culture of postwar Germany in which finding commonality has often been the main goal.

#### **German Alliance for Secure and Standardized Data Exchange**

On the 15<sup>th</sup> of May, the German association **Catena-X Automotive Network e.V** was founded. 'e.V.' stands for 'eingetragener Verein', and means 'registered association' operated for its members as a non-profit organization. The founding members are ARENA2036, BASF SE, **BMW AG**, Deutsche Telekom AG, the German Aerospace Center e. V., German Edge Cloud GmbH & Co, Henkel AG & Co. KGaA, ISTOS GmbH, **Mercedes-Benz AG**, Robert Bosch GmbH, SAP SE, Schaeffler AG, Siemens AG, SupplyOn AG, ZF Friedrichshafen AG, **Volkswagen AG** and the Fraunhofer-Gesellschaft e.V. Oliver Ganser from BMW Group is Chairman of the Board, and VW and Mercedes-Benz are Board members.

#### **Vision**

We share the vision of a continuous data exchange for all contributors along the automotive value chain. A goal, we will only be able to achieve together. We offer the network and the technology for one of the central challenges of the automotive industry as we believe that innovation emerges from collaboration. With a powerful and holistic system, we ensure the economic viability of all network partners – from small and medium-sized enterprises (SME) to corporate groups. Europe-wide.

#### **What it will do**

The Catena-X Automotive Network strives to create the conditions for the rapid and successful development of an open ecosystem for the efficient and secure exchange of information between companies in the automotive industry. The goal of the Catena-X Automotive Network is to create standardized data and information flows along the entire automotive value chain. The focus is on benefits and added value for each participant in the network while maintaining data sovereignty in accordance with the standards of the European Union (GAIA-X).

<https://catena-x.net/en#faq>

Cross-shareholding in firms is common, and there are established organizations for collaborative research and development projects.

### *Vocational education and training*

There is a very heavy emphasis in Germany on apprenticeships for skilled positions. Apprentices are taught by experts, not teachers with a general level of subject expertise. This is probably the most important part of the *German Model*. There are dual educational tracks, one for vocational education and training and one for academic education. Upon completing the vocational education track, one receives a certificate of qualification. This certificate is required for employment in a large number of occupations. As a result of this dual track system, there is a lower percentage of university students in Germany compared to other Western countries, and a low percentage of unqualified individuals entering the workforce requiring on-the-job training.

The result of these, according to Peter Hall, is “a form of stakeholder capitalism in which firms are responsive to the concerns of their employees and other firms as well as shareholders, and hence, more resistant than their British and American counterparts to an exclusive focus on the price of the company’s shares”. What is the status of the *German Model*? See sidebar.

But now, after sixteen years, during which time Angela Merkel and her CDU party have been in charge of Germany’s government, the day of reckoning has arrived. It is not only a time for a transition from Mrs. Merkel’s firm hold on the rudder of the ship of state, but for a transition from a period when decisions that are critical to the country’s future should have been taken, but weren’t.

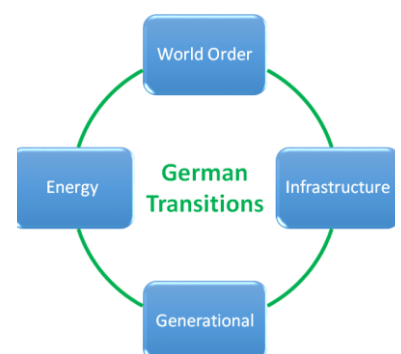
### **Purring luxury car or rusting jalopy**

*The Mess Merkel leaves behind* was the title of the first **Leaders** articles in *THE ECONOMIST* SEPTEMBER 25TH 2021 issue, and there was a **Special Report** in the same issue which elaborated on the theme. In the sixteen years that Mrs. Merkel was Germany’s chancellor, I never saw a critical word spoken about her in *THE ECONOMIST*, but now the editors of the newspaper were unloading all of their guns. Were they holding back all these years for fear of reprisal, wondered a German reader in the following week’s issue. “It’s about time you spoke up,” said another. “Germany looks like a purring luxury car; pop the bonnet, though, and the signs of neglect are plain to see,” writes the **Leaders’** author. What are the

### ***The Status of the German Model***

An October 2017 report by IZA-INSTITUTE OF LABOR ECONOMICS authored by Michael Oberfichtner and Claus Schnabel addressed the present state of the German Model. It is titled *The German Model of Industrial Relation: (Where) Does It Still Exist?* By using a large, representative data set and charting variations in the main pillars of industrial relations over the last twenty years, the authors intended to determine whether and where the German model of industrial relations is still alive. The two most important pillars of the German model are collective bargaining agreements and separate worker co-determination at the workplace. The authors concluded that today, the German model resembles a Swiss cheese: rather solid from the outside, but many holes inside. The holes are small and medium-sized establishments, which predominantly have neither a collective agreement nor a works council. Although in 2015 almost 60% of employees are covered by collective bargaining and 47% by a works council, both have fallen substantially since 1996. Growing international competition favors flexible decision-making. The German model system may simply be exhausted.

<https://ftp.iza.org/dp11064.pdf>



problems that *THE ECONOMIST* identified? First, Germany's public sector has failed to invest adequately or wisely in infrastructure, neither the physical nor the digital kind. Whether the penny-pinching was a result of Mrs. Merkel's own frugality (she was brought up in East Germany, with a father who was a Lutheran minister and a mother who was a school teacher) or whether it was simply the fiscal conservativeness of her party, the country has missed opportunities as a result. During her first mandate period, in 2009, the government adopted a constitutional amendment that makes it illegal to operate with more than a very small deficit. So while interest rates have been almost non-existent and borrowing for important infrastructure projects could have been almost painless, Germany has demurred.

Second, the country has failed to reform its pension system. Since 2007, the number of pension recipients has increased by more than 1 million and is now over one quarter of the population. Spending on pensions now absorbs over 30% of the total annual budget. It is 23% in the U.S. Four out of five Germans believe their state pensions will not be sufficient for them to live on when they retire. It will be up to the next government to tackle this issue.

Third, Germany's climate policy has been anything but a strategy. Speeding up the closing down of its nuclear energy industry while trying to stretch out the life of its critically important coal industry, while at the same time pushing the rest of the EU to accept its support for Russia's new gas pipeline, *Nord Stream 2*, seemed to everyone except the party in power as counter-intuitive. It has not gone unnoticed in some circles that the *Nord Stream 2* pipeline enters Germany in Mrs. Merkel home constituency.

Finally, there is the issue of Germany's investments in its own defense and defending world order. Until 2017, the U.S. had been reluctant to push Germany on its lack of paying its fair share to NATO, which is pegged at 2% of GDP. It became a *cause célèbre* for the previous U.S. President, but Germany is still paying only 1.54%. Under Mrs. Merkel's period as chancellor, it appears she has been more eager to defer to Vladimir Putin on political issues and Chinese rulers on economic ones.

*Which is it, Herb, cars or bikes?*

The former government said it wanted to have 14 million electric vehicles (preferably all battery electric vehicles, but plug-in electric hybrids could be part of the mix, it said) registered in Germany by 2030. There are just over 1 million today. How will it accomplish



this feat without jeopardizing the jobs of a very large portion of its workers? A survey performed by the union representing car workers, IG METALL, found that 42% of German car workers fear for their future. The *German Model* will undergo a severe stress test. Either there will be big payouts for the lost jobs, as has been the case with coal, or the entire *Model* will collapse.

VW CEO Herbert Diess has been chipping away at the industrial relations cornerstone of the *Model* and making unions very nervous with his warning about job losses resulting from electrification and his talks about the future of cities without cars. “Biking is fun, healthy and good for the environment,” he tweeted recently. He was promoting a project allowing VW’s workers at the Wolfsburg factory to ride their bikes on the premises, rather than having to leave them outside the gates like those who drive must do.

“Do you want to sell cars or bikes?” one critic of the statement asked.

Diess has been doing a lot of pushing against the employee/employer cooperation pillar. He had to be shamed into attending a worker’s council meeting which he said was in a scheduling conflict with a trip to the U.S. to meet with investors. He has linked executives’ bonus payments to VW’s share price, a major break from the *Model*. VW and Diess seem to be adopting TESLA’s confrontational position with respect to workers and unions, and trying to curry favor with Chinese companies as partners.

Diess has made a big thing about being a ‘good frenemy’ of Elon Musk, and Musk is acting true to form in his dealings with the German government, the workers’ unions and the local community in the vicinity of TESLA’s new gigafactory that Musk deigned to locate in Grünheide, near Berlin. Musk has not even faked an interest in following the *German Model* in any of his dealings, especially with respect to having a worker’s council and collective bargaining agreements.<sup>8</sup>

#### *Having your cake and eating it too*

Daimler’s Ola Källenius, a 53-year-old Swede, started his career as a trainee at MERCEDES-BENZ in 1993. Two years ago he became the company’s CEO. He is the first non-German to hold this position. He is not an engineer; his educational training is in finance and management. He has apparently done an admirable job in all of the positions he has held, and he clearly has the backing of the management board of which he was part prior to being named as

8. <https://www.businessinsider.com/tesla-gigafactory-berlin-union-battle-ig-metall-2021-4?op=1&r=US&IR=T>

Zetsche's successor. But his major task will be to oversee the company's transition from a car company that is among those with the highest CO<sub>2</sub> emissions for new cars in Europe, and has paid similar fines to VW for its diesel car emissions, to a company with the goal of having a completely electric fleet by the end of this decade "where market conditions allow it".<sup>9</sup>

In a show of extreme unsolidarity with the *German Model*, a few German cities (e.g., Berlin, Hamburg, Stuttgart, and Darmstadt) have banned diesel vehicles in their centers, and the GREEN party has proposed substantial rises in diesel and petrol fuel taxes, as they have successfully done in Sweden. The German government says it wants no more ICE vehicles sold after 2035, and it tied financial support during the CORONA-19 pandemic to commitments to its climate policies. Källenius is hopeful that the new government will be supportive of both emissions-reduction initiatives and strengthening the automotive industry's future competitiveness. He has said the key to getting the market to move to electric is to build out the charging network and build out green energy, but he also warns that simply forcing a change to electric without consideration for its effects on the automotive industry will lead to trouble. "If the government wants us to lead the climate efforts, it has to ensure that we continue to be financially strong, particularly in comparison with the American and Chinese industries," says Källenius.

Olaf Scholz said in an interview leading up to the election: "Our great challenge is that we remain a car nation that is successful at making electric vehicles instead."<sup>10</sup> He did not finish the sentence. It would be "... instead of the internal combustion engine vehicles that have made us successful". In other words, he wants Germans to have their cake and eat it too, or as the saying goes in German, he wants Germans to be able to dance at two weddings at the same time. Hard to do. Both the GREENS and SPD want to make it 15 million electric vehicles on German roads by 2030, not just 14 million. But what is their plan to do it? The third partner in the three-way coalition, FDP, has accused the climate activists of waging an ideologically motivated culture war against the car. Now they will be sitting in the same government and will have to make policy.

Angela Merkel's party leading up to the election did not offer either petrolheads or green zealots anything more for the future than what they have had in the past, and neither did the three

9. Quotes from Ola Källenius are from an article that appeared in DAGENS INDUSTRI on the 15th of September 2021. He was interviewed at the Munich Motor Show by Di automotive reporter Karin Olander.

10. <https://www.theguardian.com/world/2021/sep/20/electric-vehicles-divide-opinion-as-car-loving-germany-goes-to-polls>

parties that will form the new government. There is no clear policy for making the transition to selling all electric cars in a little more than ten years' time, other than more of the same: more incentives in the form of purchase rebates for electric cars and higher fuel taxes, and more promises to build out the infrastructure. This election was not a mandate on the climate. It was a mandate on sixteen years of CDU. If it had been focused on the future of cars and the automotive industry, it is not likely that SPD and the GREENS would be forming the new government. Their views are certainly not representative of the majority of Germans. In a survey conducted in February of this year by *LEASEPLAN MOBILITY INSIGHTS REPORT*, it was found that six out of ten people in Germany said the fear of limited range was the reason for not choosing an electric vehicle.<sup>11</sup> Germany has the lowest positive attitude toward electric vehicles among all European countries, and the second highest negative attitude (Austria is most negative). 58% of Germans, the highest in the survey, say their next vehicle will most probably not be electric, and only 18% said they most probably would buy electric. And for those who are buying electric, being positive toward electric cars is not the same thing as being positive toward German electric cars, especially BEVs.<sup>12</sup>

### **The *German Model* being pulled in four directions**

Stability and growth were the highest priorities in the post-World War II world. Countries, their industries and the lives of their citizens had to be rebuilt. That task fell to the great grandparents and great great grandparents of the teenagers demonstrating today for immediate action on climate change. They want to have a future, which is exactly why rebuilding the world seventy years ago was so important. "We must do this for future generations." In Germany, the *German Model* was implemented by the parents and grandparents of those in my generation, and the *Model* has been applied by them and their children since then. They burned coal and oil and gas to rebuild and create the *Miracle on the Rhine*.

We all still want stability, but it is now unclear if we all want growth if growth must be accompanied by climate change. The highest priority has changed in those countries which were most successful at achieving growth, particularly democracies like Germany. Those teenagers who are demonstrating have everything they could possibly need in order to have fulfilling lives, but they are convinced that the climate in which they will live their lives will not allow them to enjoy everything earlier generations provided for them. Their generation is on the horns of a dilemma. Do

11. <https://www.heise.de/downloads/18/3/0/6/2/5/5/7/Download-Studie-Mobility-Insight-Report-EV-Sustainability.pdf>

12. In 2021, VW sold 6,959 BEVs in Germany, but TESLA sold 4,466, RENAULT 3,381, and HYUNDAI 2588. VW, Audi, BMW, and MERCEDES-BENZ did do well in the plug-in hybrid category, which satisfy the Germans' issue with range anxiety, but this is not what the government is pushing <https://insideevs.com/news/520508/germany-plugin-sales-june-2021/>



they put their faith in the *Model* that has been so successful for them and their country, which means supporting their industries and having faith that what has worked thus far will continue to work in the future, including reversing global warming? Or do they abandon the old ways and try find a new approach to how things get done in their country, and if so, what should that approach be?

When you add up the votes in the recent election, it is clear that the people of Germany have voted for the latter. However, unlike in the old days when the people pretty much knew what they would be getting, that is not the case today. The three parties that will form a new government will each pull in their own direction: SPD in a socialist direction, FDP in a liberal, capitalist direction, and the GREENS in a climate first direction.<sup>13</sup> By abandoning, or at least relaxing adherence to the *German Model*, which is what the electorate has either consciously or unconsciously done, they have allowed a fourth force into the country, one that has no ties to or respect for the *Model*: foreign competitors to the German automotive industry, in particular TESLA and the Chinese electric car companies.

The German car companies are showing no interest in opening up their club to them. BMW CEO Oliver Zipse recently treated TESLA to criticism that would never be leveled at one his German—or even European—competitors.<sup>14</sup> He said: *“Where we differ is our standard on quality and reliability. We have different aspirations on customer satisfaction. Tesla isn’t quite part of the premium segment. They are growing very strongly via price reductions. We would not do that since you have got to last the distance.”*

“Last the distance.” How far is it to the end? How long will it take to get there? Who will be there when we arrive? At the end of the 1940s, when the rebuilding process for Germany’s automotive industry was beginning, there were no guarantees that any of the companies would be around seventy years later. Today, BMW, VW and MERCEDES-BENZ factories are not lying in ruins as they were back then, but these companies are not in the same strong position at the end of 2021 as they were just a few short years ago, and uncertainty about how the new government will treat them during the coming mandate period is showing. Their actions, like talking up the benefits of bicycles and talking down TESLA, indicate nervousness rather than confidence. They do not show the self-assurance of the 1967 VW logo on the Bus.

13. FDP say they will not increase taxes, while the SPD and Greens want a wealth tax and higher income taxes for the rich. All say they want to speed up climate protection, but they have very different views on the balance between market mechanisms and regulation. The Greens were able to negotiate the closing of all coal mines by 2030, eight years sooner than had been agreed by the previous government.

14. Zipse was speaking at a conference organized by the business paper *HANDELSBLATT* on the 10<sup>th</sup> of November. This was reported in *AUTOMOTIVE NEWS EUROPE* on the same day.



*The oversized VW logo on the Volkswagen Type 2 (known officially, depending on body type, as the Transporter, Kombi or Microbus, or, informally, as the Bus), spoke volumes for where the company was going and where it was going to take you.*



### *Back to where we started*

Will Germany's automotive industry remain at the auto industry's heart? I would like to say yes, but I believe the answer is no. I would like to say yes because the German car makers have done a superb job of developing safe, dependable, beautifully styled, wonderfully engineered, and simply fun to drive motor cars. They picked up the banners that had been dropped by the U.S. and the U.K. and carried them much further than one might think would have been possible. They met challenges from a revived U.S., a determined South Korea, and an unrelenting Japan, and their cars just continued to get better. Retaining its top position and staying at the heart of the auto industry was never solely in its own hands. That is the point I have tried to make. It depended on the people of Germany.

But now they are facing a surging China, governments that are rushing electrification, and a no-growth environmental movement that has captured political power. The continuation of the German auto industry's central positions depends on children wanting to grow up and work for the car companies to make the best cars, and those children are demonstrating at the country's motor shows and demanding that cars be removed from Germany's streets. Its continuation depends on consumers in their home market providing a solid base for the companies to be able to sell globally, and those consumers are showing signs that their loyalty is to stopping global warming, not driving German cars on the Autobahn without speed limits, and if a TESLA or HYUNDAI or anything from China does the job, then that's what they'll buy—if they buy anything at all. Its continuation depends on companies and workers, with the help of government, cooperating to keep costs low to stay competitive with countries where all costs are controlled by the government (even though they would like you to believe they are not), and to keep product quality at the highest levels to ensure that consumers will choose the best, most dependable, products, not the cheapest.

The will to continue this cooperation that was so important to the German auto industry's success now seems to have run out of energy. Just like the CDU, the political party that is responsible for starting and guiding the German Model for most of the past seventy years, lost its spark. Much can happen in four years, and maybe there will be a national awakening before the next election that the German Model is worth keeping. We shall see. Time will tell.





**Water Power - How the Industrial Revolution Began**

## ***In the end, investors must place their bets***

AS MY READERS know, *THE ECONOMIST* is an important source of news for me. I read it back to front each week, and especially appreciate its in-depth *Special reports*, like the one in the October 30<sup>th</sup> issue titled *Stabilising the climate*. It had something that is directly related to the companies mentioned in this issue's articles, namely, is what these companies are doing of long-term interest to investors. The article in the *Special report* is 'Energy choices shape economies—and could reshape them'. I especially like it because it uses an historical example to explain what is happening today with energy: Why did fossil fuels triumph over water power? Here are a few excerpts from the article.

*"The school-book version of Britain's Industrial Revolution is that the steam engine drove it by providing more power than previously possible. By the end of the 19<sup>th</sup> century that was true. But to explain the rapid take-up of coal in the late-18<sup>th</sup> and early-19<sup>th</sup> century only in terms of steam power is to put cart before horsepower. Steam triumphed when there was still lots of untapped hydropower. Even in the 1830s industry was not taking out more than 10% of the water energy that was available in the English Midlands. Although watermills were an old technology, they were open to improvement by modern entrepreneurs. And unlike steam engines, they rarely exploded.*

*What set steam apart were several advantages which appealed to investors. The most important was the ability to build new steam-powered mills close to old ones in towns which already had textile industries, so long as a supply of coal was nearby. The owner of a new mill could get workers from old ones without having to move them to some faraway river. The large industrial cities which this produced also encouraged the flow of ideas and skills that made it quicker and easier to improve steam. Watt's development of the condenser did not just improve one particular mill and steam engine. It made all subsequent steam engines better. What is more, however good water wheels might have become, they were never going to drive locomotives or ships, as steam had begun to do.*

*Coal-powered machinery may not have initiated the Industrial Revolution (it was water that did that), let alone created the new attitudes to capital, growth and investment which underlay it. But it universalized what began as something peculiarly British and parochial. It allowed industry to be moved—indeed, when boilers and pistons were attached properly to appropriate wheels or propellers, to move itself—around the world. And as sustaining further growth required ever more energy, it was later joined by other fossil fuels, notably oil and gas.*

Hydroelectric power has not disappeared, but it isn't directly driving machines; it's driving turbines to generate electricity. If you are among those who classify hydroelectric power as a renewable energy source (a club in which I am not a member), then it is interesting to note that hydropower accounts for 70% of global electricity production from renewable sources. But it definitely is not top of the list of investments recommended for high returns. Solar and wind are the darlings of investors. But imagine what would have happened if electricity had not been invented and we got stuck on steam. Hydropower would have disappeared completely. Now imagine if the internal combustion engine didn't make it out of the lab and electric- and steam-driven engines continued to compete for investments. What happens to TESLA's stock, which is now trading at just over a \$1,000/share (it was up to \$1,239 on the 4<sup>th</sup> of November!) if the U.S. decides that it will stop financing its rival's military buildup by banning the sale of all battery electric cars using lithium-ion batteries or any other material on which its rival holds a monopoly. Or, what happens if the country that currently has the monopoly decides not to sell batteries or allow the sale of any of the raw materials that are used to make batteries?

Steam trains got the chance to pull coal cars when the price of oats that fed the horses became prohibitively high due to the wars in which Britain was engaged. Anybody who owned stock in a steam engine company did very well at that point. But if that company tried to buck the ICE trend and continue to build steam trucks, like SENTINEL and FODEN, the paper was eventually worthless.

THE ECONOMIST is not in the story telling business. Neither am I, although I often try to deliver my message by telling a story. We are in the advice business. Some of my readers run companies, and some invest in them. My advice is to keep a close watch over the political news, especially in the South West Pacific Ocean, and if you are investing in an energy choice of today, remember that there can be an energy choice of tomorrow waiting in the wings.



*A 1926 Foden Steam Lorry*

## ***Rivian makes a big IPO splash***

ONE MUST ASK: Is it worth it? RIVIAN AUTOMOTIVE, an electric pick-up truck and SUV maker, began trading on the NASDAQ stock exchange on Wednesday, the 10<sup>th</sup> of November. Its opening share price was \$78. Just to have some perspective on this, TESLA's share price is around \$1,000, FORD and AMAZON, two pre-IPO investors in RIVIAN, have share prices of \$19.50 and \$3,525.15 respectively, and VOLVO CAR's share price after two weeks on the Stockholm exchange is \$8.68, up from its initial price of \$6.80.

I wrote about Rivian in the May 2019 issue of [The Dispatcher](#).<sup>15</sup> It's based in Normal, Illinois, founded by a then-twenty-five-year-old with a Ph.D. in mechanical engineering, Robert "RJ" Scaringe. He started the company in 2009 in his home state of Florida with a mortgage on his house, a loan from his father-in-law and an idea that he could build a fuel-efficient ICE car, but eventually decided to focus on building a BEV. He moved the company to Michigan and then to Illinois in a former MITSUBISHI MOTORS plant.

It was the \$700 million AMAZON investment in 2019 that got interest going with Rivian. (If you didn't read the footnote above, do so now please.) That \$700 million investment is now worth \$17 billion to AMAZON. FORD came in as an investor also in 2019 with \$500 million. It said at the time that it would develop BEV pickups based on the RIVIAN platform, but there has been little discussion about that possibility since LINCOLN canceled plans to build a SUV based on RIVIAN's technology. FORD has now confirmed it will build its own BEV version of its popular F150 pick-up without RIVIAN. FORD's share in RIVIAN is now worth \$10 billion. Not bad. Scaringe's piece of the pie is worth just \$1.5 billion. He owns 1.7% of RIVIAN and he has 9% of the voting shares. However, if the stock prices reaches \$295 and he sticks it out until 2030, he will be very, very wealthy.

Back to the question: Is it worth it? GM CEO Mary Barra thinks so. She said after the first day of trading that RIVIAN's valuation proves that GM is "so undervalued".<sup>16</sup> RIVIAN lost \$994 million in its first six months of 2021 with a staff of nearly 10,000. It will really need the money it has obtained in the IPO. In its regulatory filings it says it expects to spend an additional \$8 billion by the end of 2023. It is already looking for another location for a factory in Illinois or maybe Georgia where it could produce 300,000 vehicles. It has plans for pumping out 1 million vehicles by 2030. Amazon's



15. I wrote about the SUV version: "I like the design. Looks like a good fishing car, and British Racing Green to boot." There is an electric pickup truck, R1T, and a SUV, R1S. They made their debut at the 2018 LA Auto Show. I said further: "So what does Rivian have that is of interest to Amazon? Maybe it will use electric-powered vans for last mile deliveries in cities that do not allow emission-emitting vehicles. \$700 million is spare change to Amazon, and if an investment gives it access to good technology—which it appears that Rivian has—it's worth it to Amazon to get in early." I said on the Ford investment: Ford will develop BEV pickups based on the Rivian platform. "This looks like one of the better moves Ford has made in quite some time." As it now turns out, Ford will not use Rivian technology for its pickups.

16. GM was close to making an investment in Rivian, but then backed out. That opened the door for Ford. Rivian founder R.J. Scaringe, in an interview with Bloomberg, shed light on why talks ultimately soured. A tie-up with GM could have meant Rivian was unable to pursue other deals with various companies, whether they are rival automakers or not. GM likely would have locked Rivian into an exclusive deal. That would have meant Rivian could not produce a vehicle branded with Amazon's name. Ford placed no such restrictions.



100,000 order of electric vans, of which the first 10,000 are supposed to be on the road in 2022, is the primary fuel stoking the RIVIAN fire. Without that order, it is unlikely there would have been an IPO.

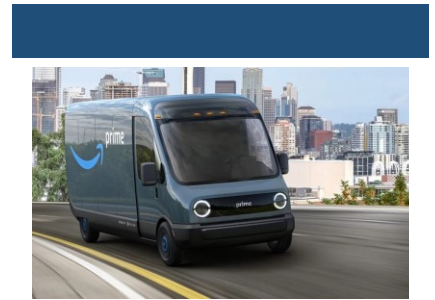
RIVIAN will not be the only company producing commercial vehicles based on a BEV skateboard. As mentioned, FORD will be there as will GM with an electric Silverado. TESLA has its *Cybertruck* is waiting for the right moment to emerge. There is another American company called CANOO, a British company called ARRIVAL, and Israeli company called REE. One difference in a comparison with all these companies except for Tesla is that Rivian's cars will be on the road soon.

However, it's one thing to say that you can produce a car. It's quite another to have a car that is truly roadworthy. In the September 2021 issue of [The Dispatcher](#) the lead article was: *Not So Easy to Pop a Top Hat on a BEV Skateboard*. We are going to have to wait until RIVIAN's cars have hit the pavement—hopefully in test mode rather than with consumers as beta testers, as TESLA has been doing—to see whether its cars meet all the requirements of a modern automobile, with all the advanced driver assistance functionality in today's vehicles. Then we shall see. Hopefully, for its investors this will not be another NIKOLA, which went public through a SPAC on the 4<sup>th</sup> of June 2020. On the 14<sup>th</sup> of June its share price was up to \$65.90. It is currently at \$13.98. It was below \$10 for a while. It has turned out that the vehicle Nikola could actually make was not the vehicle that it said it could make.

## **BEV, ICE, and alternative vehicle news**

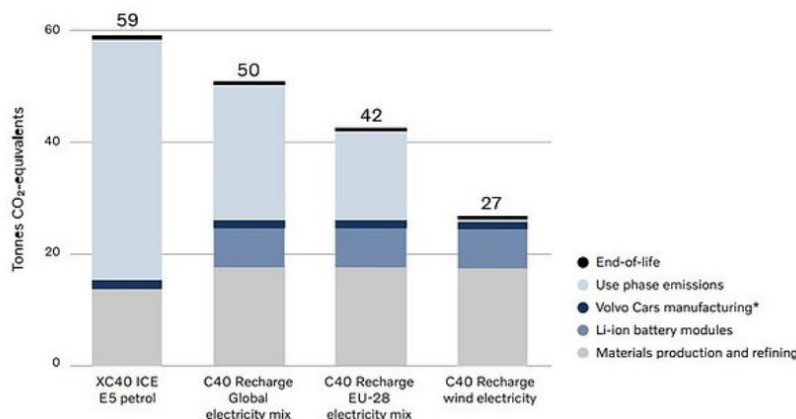
### *A BEV maker delivers the facts*

VOLVO CARS DECIDED that it was time for it to deliver a message to all the people gathered in Glasgow for COP26 who are deciding for the rest of us what we can and cannot do in the future. It completed an analysis of the amount of CO<sup>2</sup> its 2022 C40 Recharge BEV would emit under different electric production scenarios. First, it states categorically that the carbon-intensive production of the BEV battery, steel and the addition of aluminum in its C40 Recharge generates 70% more CO<sub>2</sub> emissions than the petrol version of the same car. The non-BEV version has a total carbon footprint of 59 tons during a lifetime of 200,000 kilometers. The reports says that using the current global average electricity mix of fossil (60%) and renewables (40%), it would take 70,000 kilometers, or nine years of average driving, to offset those higher production emissions, and after 200,000 the total CO<sub>2</sub> for the BEV



*The Amazon Van that might not have been if Rivian had taken GM's cash.*

would be 50 tons. That is 9 tons less than the ICE version. This can be reduced from 70,000 to 30,000 kilometers if the car is charged with electricity produced from 100% renewable sources, and it would then generate 27 tons of CO<sub>2</sub> over 200,000 kilometers of



\* Volvo Cars manufacturing includes both factories as well as inbound and outbound logistics.

Figure 11. Carbon footprint for C40 Recharge and XC40 ICE, with different electricity mixes.

Results are shown in tonnes CO<sub>2</sub>-equivalents per functional unit (200,000km total distance, rounded values).

driving, or approximately one-half the ICE version. That is not ZERO.

Remember, Volvo Cars has stated that its entire new car lineup will be BEVs or plug-in electric hybrids by 2030, so it is not using this report to justify keeping ICE cars—which I believe it would really like to do, and probably will do under a different brand in those markets where BEVs are not possible. It says it has written the report to make it clear to those who are making decisions for the rest of us what the real story is with battery electric vehicles, especially in those countries or parts of countries where the majority of electricity is produced with emission-producing energy, such as China.

### BEVs will continue to have competitors

JAPAN WILL NOT concede. You have to admire them. I am reminded of the words in the Rudyard Kipling Poem, *If*.<sup>17</sup> TOYOTA, SUBARU, and MAZDA are going to continue to explore non-battery electric options for fueling internal combustion engine vehicles. They are determined to keep ICE vehicles on the road and move toward carbon neutrality. The three automakers are joined by motorcycle makers KAWASAKI HEAVY INDUSTRIES and YAMAHA MOTOR.

The five companies will concentrate on carbon-neutral fuels and continue to explore hydrogen engines. Toyota and its CEO, Akio Toyoda, grandson of Toyota founder Kiichiro Toyoda, are con-

### 17. If, by Rudyard Kipling

*If you can keep your head when all about you  
Are losing theirs and blaming it on you;  
If you can trust yourself when all men doubt you,  
But make allowance for their doubting too;  
If you can wait and not be tired of waiting,  
Or, being lied about, don't deal in lies,  
Or, being hated, don't give way to hating,  
And yet don't look too good, nor talk too wise;*

*If you can dream---(it continues)*

vinced that technological breakthroughs can give internal combustion engines a new lease on life, saving both jobs and protecting the environment. BEVs are not the only way, nor are they the best way, say team of five.

*We'd all be driving electric today, if only...*

"If ifs ands were pots and pans, all the world would be shiny." That was one of my mother's favorite sayings. A recent study by two Swedish doctoral students in economic history published in *NATURE ENERGY*<sup>18</sup> presents the hypothesis that the reason electric cars lost the first race to the internal combustion engine was that the electric network was not sufficiently built out beyond the edges of cities to deliver electricity to enough places where cars would need to be charged. If it had been, they reason, we could all have been driving battery electric vehicles for the past one hundred and twenty years.

Their research applies to the U.S. because that is where there is enough statistical data to make a study possible. They found a catalog with more than 36,000 different models of cars that were on the U.S. market between 1895 and 1942. Included in the catalog are prices, model features, horsepower, number of passengers, range for the electric cars, and where and by whom the cars were manufactured. They combined this information with statistical data on the buildout of the electric network (not charging stations, but where there was electric service that could be used to charge batteries), where there were roads, where there were gasoline stations, and the economic conditions among the population in different parts of the countries to determine whether people could afford to purchase a car.

In 1900, 4,192 passenger cars and taxis were manufactured in the U.S. Only 22% of those cars were internal combustion vehicles. 38% were battery electric cars and 40% ran on steam. Did you read the first article in Dispatch Central? Yes, steam. Ten years later, ten times more ICE cars were produced compared to BEV cars, and there were more than ten times more BEVs produced than steamers.

It was not the electric vehicle technology that was the cause of the decline in BEVs. Due to the lightness of the chassis and the progress that had been made on battery technology, BEVs had a range of around 90 miles (144 kilometers). A forty-five mile trip one way in the early 1900s brought you to no-man's land, so that range was more than sufficient for anyone. The main problem for electric

18. <https://www.nature.com/articles/s41560-021-00902-w>

cars was that there were plenty of people who could afford a car, but who didn't have electricity. We tend to forget these little details. Electricity was not accessible to a large number of people until the 1930s, and it wasn't until after WWII that it was almost everywhere. Thomas Edison opened his Pearl Street Power Station in New York City in 1882. It was the world's first central power plant and could power all of 5,000 lights. It used DC power, not AC which became common after Nikola Tesla invented the electric alternator.

Apparently, according to the researchers, there was no strong government support for building out the electric distribution network to reach all households. That didn't come until FD Roosevelt, the New Deal and the big projects like the Tennessee Valley Authority. There were no hand-outs to either ICE or BEV makers to try to lead the market in one direction or the other. ICE-makers and their supply chain simply out-performed the BEV-makers and their supply chain. There was, of course, the invention of the electric motor starter in 1912 for internal combustion engine vehicles which caused battery technology to stagnate and ICE cars to be started without having to enlist a professional weightlifter to turn the crank. Batteries did not have to store huge amounts of energy; they just needed to get the car started and then they could be topped up along the way, so battery development waned.

So here we are, back in 1900. Over 95% of cars being sold today are still ICE-based, BEVs are under 5% but growing quickly, the number of hydrogen cars is miniscule, and alternative fuels research is just getting started. Pundits and punters say that all we have to do is build out the charging network and, abracadabra, all ICE frogs would turn into BEV princesses. Oh yes, we should pay everyone to buy the BEVs and build out the charging network, then the world would be all shiny and new. If only we could get rid of the billion-plus ICE frogs that are already playing in the ponds.

### *Ensuring the survival of ICE intellectual property*

IT FEELS LIKE we are back in the Dark Ages when knowledge built up during Greek and Roman times had to be protected from the vandals and the barbarians. Books were gathered into monasteries and put into chains so they could not be purloined. Today, as the car industry rushes headlong into lithium-ion batteries and electric motors powering cars, over one hundred and twenty-five years of internal combustion engine development is in danger of





being lost. Besides the fearsome five in Japan who are fighting to keep ICE on the planet, VW Group has decided to use SKODA as its equivalent of the monastery.

VW thinks there still be markets, like Russia, Latin America, India, Africa and Southeast Asia, where low-cost ICE vehicles will be needed for quite some time. It has given SKODA the role of coordinator for the new MQB-A0<sup>19</sup> Global Platform developed for these markets. It expects that sales of cars in these markets will grow by 58% to 7.5 million over the next 10 years, then by another million the five years following, reaching 8.5 million by 2036. The first cars on the MQB-A0 platform are due to launch in 2025. Hybridization will be built in, but it will not be possible to convert the platform to full electric. For Europe and China, SKODA and VW will use another ICE platform, the MQB27.

*Yes Toto, Kansas will still have ICE cars when we get back there*

There is a big difference between new car sales and how many cars are on the road. IHS MARKIT projects that electric vehicles (including battery, plug-in hybrid and fuel cell electric) will comprise 60-80% of all new car sales in 2050. That increased market share (from 2.2% of new car sales in 2020, according to IHS MARKIT data) will be driven by greater scale in manufacturing, as well as the continued improvement of batteries. IHS MARKIT now projects that the average cost of lithium-ion cell cost will fall below \$100 per kilowatt hour by 2023. At the moment the average cost of a lithium-ion battery pack is about \$140 per kilowatt hour. It was \$1,100 in 2010.

“Nevertheless, gasoline-powered vehicles will still comprise **two thirds of the 1.9 billion cars on the road in 2050** owing to the time it takes for the fleet to turn over. The average age of vehicles on the road in the United States is nearly 12 years.” This is according to Daniel Yergin, Ph.D., Vice Chairman, IHS MARKIT.

“At least for now, the demand for electric vehicles is largely coming not from consumers, but from governments whose evolving policies are shaped by climate concerns as well as by urban pollution and congestion,” Yergin observes in The New Map, his recent book.<sup>20</sup>

19. Modularer Querbaukasten, translating from German to "Modular Transversal Toolkit" or "Modular Transverse Matrix".

20. <https://www.autoconnected-car.com/2020/10/80-of-vehicles-sold-in-2050-will-be-electric-in-the-new-map/>



# Musings of a Dispatcher: Not Your Father's Volvo



21. DAGENS INDUSTRI, 29 October 2021

## China's trendsetters prefer sex appeal

THE DAY AFTER Volvo made its reappearance on the Stockholm Stock Exchange after a twenty-one year hiatus, amidst all the articles congratulating the company's management on the successful IPO, a small headline offered a dissenting view: *Young Chinese ignore Volvo Cars – They lack sex appeal.*<sup>21</sup>

I smiled when I read this. It's funny, actually, on a number of levels, but people in China will miss the humor. Chinese consumers have been buying cars for less than twenty years. They have compressed the history of the motor car, which began in the late 19<sup>th</sup> century in the United States and Europe, into two short decades, and the first of those two was mostly prelude. Younger buyers in China are only just beginning to experience the feeling of wanting to do something different from their elders, to choose a different lifestyle, a different field of work, and a different type of car. When it comes to cars, new generations of Americans, Britons, Germans and Swedes have been doing it for the past century.

The ad for the *NEW OLDSMOBILE* in the late 1980s summed it up perfectly. ***"This is not your father's Oldsmobile."*** Here's what the ad implied: *Your father and your grandfather may have been diehard Oldsmobile loyalists, and you may have avoided buying an Oldsmobile like you would avoid the plague because you don't want to be seen as an old fuddy-duddy like your father and grandfather, but now we have made an Oldsmobile that drives like a BMW, sounds like a Jaguar, and has the flair of a Ferrari. If you close your eyes when you get into it and keep them closed while you drive, you will think you are in one of those cool cars, but you are actually in an Olds.* The ad didn't turn the tide for *OLDSMOBILE*, and in 2004, GM discontinued the brand.

By the time this ad appeared, I had already bought nine of the fifteen cars I have owned to-date. Only one of the brands was among those cars my father had bought. He owned three *Chevys*, three *Dodges*, and a *Buick*. Of my fifteen cars, only three were American-made: a 1974 U.S. Post Office *Willys Jeep* (used); a 1977 *AMERICAN MOTORS*

*Jeep Cherokee* (new); and a 1982 *Chevy Citation* (used, second car). There was no chance I was going to buy what was on offer in the U.S. when I bought my first car in 1967, which was a 1961 *VW Beetle*. The *Olds Toronado* (pictured right) might have been considered sexy by a subset of young American buyers, but I did not choose to be part of that cohort.

Few in my cohort in the 1970s (college education, advanced degree, professional, living in Northeast or on West Coast) bought American cars. No one would suggest that the *VW Beetle* had ‘sex appeal’, but it was among the cars that we did buy. Depending on what we could afford, we also bought *Saabs*, *Volvos*, or British sports cars. **These cars were ‘not our fathers’ Olds’.** My first new car was a 1971 *British Ford Cortina*. We bought these cars because they were different, not because they were good or ‘sexy’. It wasn’t until the Japanese cars started arriving on American shores that good and different were combined with economical, and the U.S. car industry felt the full impact of imports. The 1973 oil embargo made fuel efficiency a criteria for choosing a car, and the smaller, more fuel-efficient Japanese cars had their breakthrough. By 1977, imported cars passed 2 million out of a total just over 10 million.<sup>22</sup> By 1986, imports had reached an all-time-high of 4.1 million units. Those imports weren’t being bought by our fathers and grandfathers. They were still buying OLDSMOBILES and CHEVYS and BUICKS, FORDS, DODGES, CHRYSLERS, and CADILLACS. Those imports were being bought by the new generation, the Baby Boomers, the fuddy-duddies of today.

### Volvo was not created to be sexy

Plato posited that the original version of an object, an event, or an institution is its natural and ideal state, and that from the time of its creation it deteriorates, sort of like us. I don’t like a lot of what Plato had to say, but I think he was on to something here. In the case of objects of art, which were a depiction of reality, he postulated they were inferior to that reality. The first version of a VOLVO was given form by a portrait painter named Helmer MasOlle. Neither of the company’s founders, Assar Gabrielsson or Gustaf Larson, were competent draftsmen, so they commissioned Helmer to bring their vision to life. Its Swedish ash and red beech frame wrapped in Swedish steel was meant to give Swedes their own car, their first, for bad roads and a tough climate—although, half of the first batch produced in 1927 were topless, perhaps the only tip of the hat to a sexy reference. *Jakob*<sup>23</sup> was its nickname;



1967 Oldsmobile Toronado

22. <https://www.ny-times.com/1977/10/06/archives/170000-foreign-cars-sold-in-september-in-usa-rise-of-156-reach-20.html>



The Volvo ÖV4 (*Jakob*)

Ö stands for Öppen (Open)

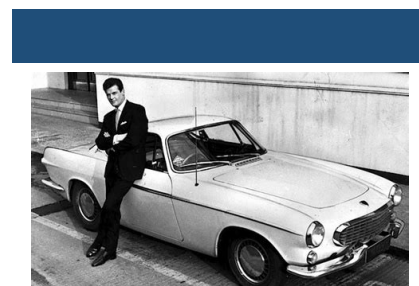
V stands for Vagn (wagon or car)

4 stands for four cylinder

23. Why ‘Jakob’ and not Gustaf or Assar? Because the first Volvo rolled off the assembly line on the 25th of July, which is the ‘names day’ for Jakob.

ÖV4 was its official name. From that day forward, no one has seriously mentioned ‘sexy’ and ‘Volvo’ in the same sentence, except, perhaps, for a few odd ducks that the company sprinkled into Volvo’s lineup along the way, like the *Volvo P1800* in *The Saint*, a 1960s TV series starring Roger Moore.

The origin story for VOLVOS is that they are sensible, sturdy, boxy, rectangular, and plodding, not zippy, curvy or futuristic, and certainly not sexy. It was the car of choice for liberal intellectuals on the northeast and northwest coasts and the upper Midwest, descendants of Puritan Yankeedom who liked what was practical.<sup>24</sup> It was not for conservative intellectuals like William F. Buckley, Jr. who rode around in the back of a CADILLAC limousine. It was a car for high school teachers and college professors, architects and engineers (although the architects might be more prone to buying SAABS, which had a bit more design both inside and out).



24. San Francisco and the upper West Coast was founded by Yankees. “The majority of the Left Coast’s early colonists were Yankees who arrived by sea in the hopes of founding a second New England on the shores of the Pacific.”

Woodard, Colin. *American Nations*. Penguin Group (2011) p.217



Volvo P210 Duett – 1960



Volvo XC90– 2021

In the ‘50s and early ‘60s, VOLVO tried rounding the edges, like on the 1960 *P210 Duett* above. It brought back the box with the *Volvo 140* series in 1966, and we didn’t see curves again for another forty years. Although rounded edges became a permanent feature (for now) starting in the 2010s, the heritage of the 2021 *Volvo XC90* is clear. The farther Volvo takes its cars from the original, the *Jakob*, the less naturally Volvov they are.



Volvo 145 - 1967

*No bling please, we’re Swedish*

Should VOLVO care about Chinese trendsetters, or folks anywhere who think of themselves as influencers? What have these people done in the past to affect sales? Look at the top all-time best-selling cars. There isn’t a sexy one among them. FORD’s *Model T* sold 16.5 million between 1908 and 1927; Russia’s LADA peddled 17.75 million ‘Classics’ between 1970 and 2012; VW flogged 21,529,464 *Beetles* between 1938 and 2003; and TOYOTA has unloaded so far a cool 50 million not-at-all-cool *Corollas* starting in 1966, and they



are still going strong. Europe is VOLVO's largest market, China's in second place and the U.S. in third. Its best years in the U.S. were its boxy ones: 1986 sales were 113,267 and 2004 they were 139,384, an all-time high. Neither the U.S. nor Europe has shown any propensity to buy more VOLVO's when they get more curvy, and there is not enough data from China to make a call either way.

If the Chinese trendsetters think the XPENG is their cup of tea—which is what they say they prefer in the article that got this *Musings* started—rather than the non-sexy VOLVO, then I say: “Go for it, boys and girls! Enjoy it while it's still there.” If you think it looks a lot like a TESLA you are not alone. If you think that both the XPENG and the full TESLA lineup are sexy like OLDSMOBILE *Toronados*, I couldn't agree more. They are not *Model Ts* or *Beetles*, and they certainly are not VOLVOS. **XPENGs and TESLAS are your father's OLDS.**

Until Volvo was taken over by an American car company, it had avoided all of those little steps that could have added a more allure to their cars, like four-wheel drive, cup holders, a SUV or a van, but it didn't. I arrived at the company seven years before the sale, and the first thing I said was: “Why doesn't Volvo do a four-wheel drive SUV, or at least a van for the soccer moms?” The head of product development at the time, Tomas Andersson, looked at me with a firm gaze and replied: “That's not what we do at VOLVO.”

But then came FORD. SUVs with plenty of cup holders and lots of other customer-friendly features followed. At times it has strayed from the ideal, from *Jakob*, even downplaying safety for a period of time in favor style and excitement, but customers were not fooled. They expect longevity and the quirky design. There will always be people who want an *Oldsmobile Toronado*, and they can buy an XPENG or a TESLA or any one of the bling-inspired cars from most of the car companies in operation today. History has shown that there are more people who want or need to buy a *Model T*, a *Beetle*, a *Lada* or a *Toyota Corolla*, and there are plenty of companies that are delivering the equivalents. For those relatively few people who want a sensible car that was originally designed for bad roads and a tough climate, Volvo still delivers one. Whether it continues to do so in the future, or decides to move toward bling, depends on whether there continue to be Tomas Anderssons at the company showing the way. There still are. I can personally vouch for that, but there are also new staff who wonder why VOLVO can't be more like TESLA or XPENG. “Certainly,” they say, “anything they can do we can do better, right?” I say don't go there.



*XPENG's Tesla look-alike*



*The original Volvo ÖV4 logo (above), the symbol for iron and Mars, with which Helmer MasOlle graced the first Volvo, had a substantially longer protrusion than the latest (2021) logo design below. Is management sending a not-so-subtle message that in the next logo version the arrow will be invisible, totally back in its quiver, Mars neutered?*





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

Michael Sena, through his writing, speaking and client work, attempts to bring clarity to an often opaque world of highly automated and connected vehicles. 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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