

# Can the Phenomenon of Automobile Electrification be transformed into the Development Direction of the Automobile Industry?

-- Chinese-German Business Logic Competition behind Changing Consumer Trends from Test Drive and Test Ride Comparisons of Fuel and Electric Vehicles

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**Abstract:** Internationale Automobil-Ausstellung Show in 2023 just came to an end. In April, 2024, German Federal Chancellor Scholz led a huge business delegation to visit China (China Digital Space, 2024) Germany, which has always been proud of the automobile industry and technology, has caused a heated discussion about the development direction of the automobile industry from professional automobile media to online self-media[2]. As an international student studying advanced business management expertise in Germany, the author is curious about this changes. In particular, the latest media reports show that Apple has given up pushing forward the car-building project for nearly 10 years. Subsequently, Källenius, Chairman and CEO of Mercedes-Benz Group, also said that Mercedes-Benz would no longer adhere to the original goal of fully turning to electric vehicle sales in major markets by 2030. Previously, Mercedes-Benz's pursuit of motorization was fanatical. In 2021, Mercedes-Benz proposed an all-electric strategy. The goal is that the sales of all-electric and plug-in hybrid vehicles will reach 50% by 2025. Starting from 2030, Mercedes-Benz will be basically transform into an all-electric vehicle. These developments once again aroused the author's interest in whether motorization will become the development direction of the automobile industry. Hegel, a German philosopher, once pointed out in Science of Logic that existence is a phenomenon but it is not an illusion. Illusion corresponds more to existence, and phenomenon is higher than existence with richer connotation, because phenomenon contains its own reflection and reflection of other things, and phenomenon itself also has its own internal stability contradiction. Germany is a country of rational speculation, and the appearance of any phenomenon will not affect the Germans' thinking and exploration of its essence. Similarly, from the perspective of subjective feeling and rational analysis, this paper will try to discuss the change of German automobile consumption trends from the perspective of commercial marketing, and then prove the inherent logic of some industry behind the trend. With interest in learning and thinking, the author tried to drive a fuel-powered car and an electric car by himself. One is a German Mercedes-Benz GLC 300 manufactured and sold in China. This car is very popular among middle class consumers in China. Another model that I test drive is the M9, which was launched in the fourth quarter of 2023. It was jointly developed by Huawei, a network intelligent terminals supplier in China, Energy storage battery maker called Ningde Times and Seres Veicles. According to the report of China's mainstream media, China National Radio Network, on March 19,2024, the media once again held the top five positions of luxury brands with a weekly sales volume of 86,000 vehicles, and tried out two models. Another market factor is that the sales price of these two models are in the range of 500 thousand to 600 thousand RMB.

**Keywords:** Germany Industry 4.0, China Internet+ Business Model, Electric car.

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## 1. Brand Value is a Bonus for the Influence and Expansion of the Automobile Market?

Mercedes-Benz is undoubtedly the leading luxury brand in the automobile consumption market in China, and is the benchmark of automobile technology and automobile culture. Its hedging rate has been firmly at the top of the automobile sales list in China. The question circle is a new brand designed and produced by China's research and development of new network intelligent terminals, energy storage battery manufacturers and traditional non-mainstream automobile manufacturers. The brand value and influence are far less than those of Mercedes-Benz, and the value preservation rate is no doubt less than that of Mercedes-Benz.

What the salesmen of Mercedes-Benz introduced most was not the configuration, parameters and performance of this car, but the history and culture of Mercedes-Benz and the fashion

of design appearance, which almost revolved around the formation and influence of brand power, and did not involve the product power of this car, which had no obvious advantages compared with similar models of other brands. This can be seen from the sales comparison. We can draw a preliminary conclusion that the influence and expansion of brand value on the product market is becoming more and more limited.

## 2. Is Motorization a Decisive Factor for Consumers to Choose to Buy?

The Mercedes-Benz GLC is the peak of the traditional fuel plus 48V electric light mixing system, with excellent manufacturing process and fashionable design. Compared with the models of Mercedes-Benz, it left a deep impression on people.

Approaching the problem circle, the M9 is more a science fiction toy than an SUV. From appearance, interior to

configuration, it is full of science and technology elements. The manufacturing process of M9 vehicle is also excellent. The intelligent OTA intelligent driving system around the Internet of Things refreshes the driving experience, providing consumers with all the demands and expectations for intelligent driving so far. Only the consumers can't think of it, and there are no problems that the industry can't do, including all-aluminum body, air suspension and other configurations that were only available in luxury cars with only 1 million yuan in the past, achieving an ultra-low wind resistance of 0.264 Cd (AITO, 2024). The drive is electrically driven, so that the environmental detection and reaction of the intelligent driver can be realized simultaneously, and all intelligent functions can be realized with sufficient electric power, which is a condition that the technical limitations of the traditional fuel-fired automobile can not achieve [1].

If the GLC 300 is designed for experienced drivers, then the M9 is designed for all drivers (including experienced and inexperienced drivers, passengers of all ages, men, women and children) for safe travel, convenient driving, fun travel and economic enjoyment. The driving cost of 100 kilometers is about one third of GLC.

Since the implementation of Industry 4.0 in Germany, German automobile manufacturers have been continuously improving the intelligence level of traditional fuel-fired automobiles, leading the technology of fuel-fired automobiles to a new generation of intelligence that is interconnected with everything else. They also successfully tried to electrify cars (Monye et al. 2023). Mercedes-Benz launched a full range of electric vehicles, covering S, E, C, B and A levels; BMW also introduced a full range of electric vehicles; Audi has launched the e - iron series of electric vehicles and Volkswagen has launched the ID series of electric vehicles [4]. But the proportion of production and sales volume is not high. There are different opinions on the reasons, including macro factors such as industrial policy changes and geopolitical conflicts, as well as factors such as insufficient charging infrastructure, innovation and technology. However, it is an indisputable fact that the German automobile industry has begun to act.

With the expansion of China's electric vehicle sales in Europe, it will bring shocks and opportunity to the whole German automobile industry chain. The impact is that the market share of traditional fuel-fired vehicles will be eroded, and the good news is that the German automobile industry chain has provided a greater market opportunity to export and supply parts and some intelligent control chips to China's electric vehicle manufacturers. According to the data released by the German Federal Bureau of Statistics on January 31, 2022, German exports to China amounted to 95.2 billion euros, up 10% year-on-year, with automobiles and spare parts accounting for nearly a quarter. These data reflect the status quo of the international competitiveness of German automobile industry and the latest trend of German automobile consumption demand. This is a market change that any industrialist, businessman and business management professional who is concerned about the German automobile consumption market can not ignore. It is still necessary to continue to observe and study whether the logic behind the market change can become an essential factor affecting the development direction of Germany's automobile industry.

### **3. The Competition of Business Thinking Logic is behind the Electrification of Automobiles**

The author thinks that the business thinking behind the motorization of German and Chinese automobiles has completely opposite logic.

The starting point of automotive electrification in Germany is based on the environmental protection strategy of carbon emission reduction, rather than the commercial strategy. German automobile industry has profound technical background and exquisite manufacturing technology, especially with the blessing of Industry 4.0 strategy, both BBA traditional luxury brand and Volkswagen brand have shown strong market competitiveness and influence in leading automobile R&D. Therefore, the electrification of their car is more like an environmental moral responsibility (Ban et al. 2019) rather than a market-driven. In a word, the business thinking logic of German automobile motorization is a conscious action of gradual transformation in the industrial 4.0 strategy by virtue of its strong automobile R&D strength [3]. This kind of thinking logic takes its own technical strength of fuel-fired vehicles as the necessary condition, digitization, information and intelligence as the sufficient condition, energy diversification as the driving force, brand value as the guidance, and continuously enhances the market adaptability to meet the challenges from China electric vehicles. Figuratively speaking, German automobileization is to explore a road for its future development on the basis of the success of the German automobile industry.

The starting point of China's automobileization is based on the advantages of the rapid development of Internet commerce and battery manufacturing technology. It integrates the traditional automobile industry chain in reverse, and embeds intelligent driving, which represents the characteristics of the Internet artificial intelligence era, into the process of motorization, making automobile driving not only more convenient, safer and smarter, but also more comfortable, more humanized and more fun to ride. Under the condition that China's manufacturing capacity of fuel-fired vehicles is generally not as good as that of Germany, China's motorization is a process of taking advantage of Internet technology and market scale to find a new way and constantly try and make mistakes to find the best path for the development of China's automobile industry.

The success of German automobile industry is not only a favorable condition for the electrification of German automobiles, but also a burden for the self-revolution of German automobiles. Mercedes - Benz, for example, launched its first electric car series in 2023, which is expected to lead a new trend of luxury travel in the future. It's a pity that its sales in the China automobile market are not very good. The reason of intuitive observation is related to pricing and configuration, and low cost performance is the pain point of EQS consumption. Although the Mercedes-Benz-Benzoto car stepped in electrification earlier, and related technologies have accumulated to some extent, EQS still has the risk of uncertain market acceptance for Mercedes-Benz's mature classic luxury fuel vehicle market. In terms of pricing strategy and consumers choice, EQS will not impact the market share of classic fuel vehicles, nor it will squeeze the profit space of classic fuel vehicles. The market maintenance of the classic fuel vehicle series has objectively formed a strategic burden

for the research and development of a subversive innovative vehicle series, and it lacks the courage of self-revolution in the process of launching innovative electric vehicle series.

If Gordon Wagner became the global design director in 2008, it brought about the turning point and progress of Mercedes-Benz, mainly reflected in the expansion of the consumer group from the successful people to the social elite to the middle-income families and young fashion groups, which became the legend of traditional industrial manufacturing (Wirtschaft et al. 2015), then Mercedes-Benz is now facing the general trend that artificial intelligence is widely used in driving and cycling experiences, and the transformation of electric vehicles is at an important juncture of difficult choices [5].

On the other hand, China's automobile electrification, China's automobile manufacturing enterprises and Internet enterprises related to intelligent driving have no comparative advantages compared with German automobile enterprises, which has instead become the competitiveness of China's automobile electrification in the rapid rise. Huawei, for example, as the technical leader in intelligent driving solutions for electric vehicles in China, does not manufacture vehicles. It provides intelligent driving solutions for car manufacturers through three ways of cooperation. Although Huawei's three modes of cooperation reflect the downward gradient of increasing participation, Tier 1 mode and Inside mode are not successful from the feedback effect of automobile sales market. The total sales volume of Arcfox in 2023 was 8,004 vehicles, the sales volume of Avatr 12 in December 2023 was 1820 vehicles, and the annual sales volume of Chery Luxeed S7 sold was less than 1000 vehicles. Only the Huawei Smart Selection Cooperation has been successful. It can be seen from this that success can only be achieved when a company like Huawei has a complete and advanced intelligent driving system, obtains the right to speak in the research and development of electric vehicles, dominates the design, reversely integrates the supply chain of Seres Vehicles Company, standardizes the technical standards of vehicle models, unifies the design language, transforms the manufacturing process, completely and seamlessly embeds Huawei's intelligent driving system into a series of vehicle models, and integrates the sales of vehicles into Huawei's sales network to realize the complementarity of advantages. At the same time, Huawei's technical goals in the range of automobile models have not been fully realized due to the general deficiencies in the experience, technology, quality control and supply chain management of China automobile

manufacturing industry, especially electric automobile manufacturing enterprises.

If Industry 4.0 is the inevitable choice for industrial manufacturing to face the positive development in the Internet intelligence era, then Internet Plus is the reverse reorganization of industrial manufacturing resources in the Internet intelligence era, including the extension of supply chain and product value chains, preparation of technical conditions for the arrival of artificial intelligence era, and creation of application scenes. If there is a competitive relationship between China and Germany in the process of car electrification, it is better to say that there is a competition of business thinking logic between China and Germany.

## 4. Conclusion

Industry 4.0 and internet plus strategy are interdependent and complementary in business practice, and there is no difference between advantages and disadvantages. The key is to adapt to the reality of enterprises. Industry 4.0 focuses on intelligent manufacturing and promotes the transformation of the industry to intelligence; Internet plus has integrated traditional resources to promote industrial upgrading. Mercedes-Benz and Huawei, as models of their respective strategies, are both facing the challenge of innovation.

## References

- [1] Huawei (2024, May 25). AITO. Q M9-SERES Huawei Joint Design. AITO. <https://aito.auto/model/m9/>
- [2] China Digital Space (2024, May 23). Germany Chancellor Angela Scholz will visit China. [https://www.gov.cn/yaowen/liebiao/202404/content\\_6944901.htm](https://www.gov.cn/yaowen/liebiao/202404/content_6944901.htm)
- [3] Ban, M. et al. (2019) 'Battery swapping: An aggressive approach to transportation electrification', IEEE Electrification Magazine, 7(3), pp. 44–54. doi:10.1109/mele.2019.2925762.
- [4] Monye, S.I. et al. (2023) 'Impact of industry (4.0) in automobile industry', E3S Web of Conferences, 430, p. 01222. doi:10.1051/e3sconf/202343001222.
- [5] Wirtschaft, H.A. in der, Appel, H. and Wirtschaft, R. in der (2015), "autos bewegen mich in Jeder Hinsicht", FAZ.NET. Available at: <https://www.faz.net/aktuell/gesellschaft/autos-bewegen-mich-in-jeder-hinsicht-13745368.html> (Accessed: 15 April 2024).