Impact of New Energy Vehicles on Traditional Automotive Manufacturers: The Case of BMW

Chang Liu*

College of Social Scinences, University of Birmingham, Birmingham, B15 2TT, United Kingdom

Abstract. This study examines the impact of the rapid development of new energy vehicles on traditional automakers, especially luxury brands such as BMW. As the market for NEVs is expanding rapidly due to increased global environmental awareness and government policy support, traditional automakers are facing fierce competition from emerging electric vehicle companies such as Tesla. BMW has responded positively to the market changes by investing in electrification technologies, launching a series of electric models, and building dedicated production facilities. However, despite the progress BMW has made in the field of new energy vehicles, it still needs to face the challenge of the cost structure of electric vehicles, especially the cost of batteries, which takes up a large proportion of the cost of the entire vehicle. In addition, BMW needs to continuously adjust its pricing strategy and brand positioning to remain competitive in a market that increasingly values environmental protection and technological innovation.

1 Introduction

The automotive industry has rapidly evolved from an internal combustion engine vehicle (ICEV) to a New Energy Vehicle (NEV) because of the increasing environmental degradation, improved technology, and favorable government measures. NEVs, including battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs), are challenging the conventional models of traditional car makers like BMW by changing the market structure [1].

The market for NEVs has been expanding extremely fast in the last few years, and there are several reasons for this. Sales of NEVs have been on the rise from 2015 to 2021, and it is expected that sales of NEVs will be 45 million units per year by 2030, which will be 45% of the total car sales [1]. There is also the fact that lithium-ion battery costs have decreased by almost 89% in the last decade, and the electric drivetrain has become much more efficient [2]. Also, governments across the globe are coming up with policies to curb carbon dioxide emissions, with the European Union's Green Deal and China's NEV mandate being policy drivers that are driving this change [3].

Environmental awareness is the primary reason for NEV use since transport is the leading cause of pollution, contributing to about 23% [4]. This contributes to 8% of the global carbon dioxide emissions, according to Creutzig et al. in 2015 [5]. The NEVs are equipped with the

* Corresponding author: cxl576@student.bham.ac.uk

latest technologies, like high density and longer-range batteries, which are cost efficient [6]. Government incentives such as tax credits, rebates, and subsidies have also come into play to help lower the cost of NEVs and make them cheaper than ICEVs in some markets [3]. This has created a market in which BMW is both an actor and a protagonist and competes with all-electric car manufacturers such as Tesla and newcomers like NIO in the premium and volume segment.

The growing popularity of NEVs presents the following effects on traditional automotive companies' pricing strategies and market segmentation, including BMW. Since NEVs have a unique cost structure compared to ICE vehicles, especially the battery systems, which is a major component of a vehicle's cost [2], auto-makers have to come up with new strategies to price the vehicles in a way that they will be viable in the market and at the same time, profitable to the manufacturers. Also, the rise of pure-play electric vehicle manufacturers like Tesla and NIO has put a lot of pressure on the traditional automobile companies to innovate in technology and provide more premium services and experiences to the customers [3].

The effect of NEVs on the market will change the strategies of traditional car makers as they will have to change their pricing strategy, branding, and innovation of their products to compete with the new entrants [7, 8]. BMW is a century-old company that is well known for manufacturing ICE vehicles and has realized that it is high time to shift towards NEVs, and the company is already in the process of manufacturing NEVs like i3, i4, iX3 and iX. Nevertheless, the company should not hesitate and should keep modifying the business model according to the industry's new tendencies, as the lack of such changes may lead to a high share loss to EV specialists and other more nimble competitors. The thesis posits that NEVs will shake the market structures. The traditional automobile manufacturers will have to modify their pricing strategies, brand management, and innovation within the new environment. Companies that fail to do so may lose their market share to the new entrants in the changing industry environment.

2 BMW's NEV Strategy

BMW clearly understands that the future belongs to electric mobility. Thus, it has set out an aggressive NEV plan to stay at the top of the premium automotive market. The company has continued developing electric cars and thus has a broader range of electric vehicles to offer the market, as seen in the recent past [9]. The BMW i3, which was launched in 2013, was BMW's first fully electric car to be produced for the mass market, which was a big step towards the future of the company [3]. More specifically, since the launch of the i3, BMW has come out with other NEV models, such as the i4, an all-electric Gran Coupe, and the iX, an electric SUV [9]. These vehicles show BMW's capability to design and manufacture performance-oriented, technologically sophisticated cars and highlight the company's strategic shift towards the NEV industry.

The company has also invested a lot of resources in electric vehicle technology and production to achieve its NEV goals. At the end of 2020, the company invested over €30 billion in research and development, focusing on electrification and digitization [10]. This investment has helped BMW to produce good electric drivetrains, high-capacity batteries, and charging systems that make NEVs BMW outperform other vehicles from other companies [3]. In addition, BMW has set up specific plants for producing electric cars, such as the BMW i Production Competence Center in Dingolfing, Germany, where high-voltage batteries and electric motors are made [9]. These investments are evidence of BMW's strategic vision for the NEV market and its initiative to shape the future of the automobile industry.

Comparing the NEVs from BMW with the traditional ICE cars, it is clear that the company has effectively taken its strategic brand attributes of performance, premium, and

innovation to the NEV market. For example, the i4 ranges up to 590 kilometers (367 miles) and can go from 0 to 100 km/h (0 to 62 mph) in just 4 seconds, comparable to the ICE vehicles. Likewise, the iX features an elegant interior, driving assistance technologies, and integration options that make it fit for the BMW family [9]. Based on BMW's strengths in the field of design, engineering, and production of cars, the company has come up with a very attractive NEV product range that is well integrated with the rest of BMW vehicles and can attract both the ultimate driving machine enthusiast and the eco-aware consumer.

Nonetheless, BMW's NEV plan has its problems. The company has to manage its operations within the context of the electric vehicle market, a dynamic, competitive, and ever-changing market [3]. BMW has to focus on innovation, research, and development and engage with other stakeholders in the entire value chain [2]. In addition, the company needs to communicate the value proposition of the NEVs to the consumers, the superior performance, luxurious features, and environmental friendliness to explain the higher price tag and to position it in the market about competitors [3].

3 Pricing Strategies for NEVs

NEV pricing is one of the most important factors in the NEV market, and it is important to know the extent of its adoption. NEVs have a different cost structure than conventional ICE vehicles mainly because batteries and electric drivetrain are relatively expensive [2]. Thus, manufacturers of automobiles need to create new and effective pricing policies that would be profitable, competitive, and palatable to consumers.

The battery cost is considered the major cost factor in NEVs, constituting about 30-40 percent of the total vehicle cost [2]. Nevertheless, technological improvement and increased scale production have resulted in dropping battery costs, with the cost per kilowatt-hour (kWh) coming down from $1,000 in 2010 to $137 in 2020 [11]. This cost reduction in batteries has also allowed automakers to price NEVs more affordable than before, and the price differences between electric and ICE vehicles are much lower.

The company has followed a high-end pricing model for the NEV models in line with its policy of being a luxury car manufacturer. The BMW has positioned its NEV models, such as the i3, i4, and iX, at the more premium end of the market, given that they are technologically superior, perform better, and are equipped with high-end features [9]. For instance, the BMW i4 starts from $55, 000 and the iX from $80,000 and above, depending on the trim level. These prices are in the same range as BMW's most expensive ICE vehicles, such as the 5 series and X5, thus suggesting that BMW is interested in continuing with its premium brand positioning and targeting the wealthy, technologically conscious consumer.

Compared with its rivals, the price of BMW's NEV is relatively at the same level as other luxury car makers, including Mercedes-Benz and Audi, but higher than the volume automakers like Volkswagen and Nissan [3]. Still, BMW is competing with so-called new entrants that only make EVs, such as Tesla, the market leader in the premium electric cars segment. Tesla's Model 3 and the Model Y are comparable in price with BMW's i4 and iX, respectively, and these vehicles have captured a large market share thanks to the technological advantages, the driving performance, and the prestige of the Tesla brand [3]. To sustain a competitive advantage, BMW needs to develop and introduce new and improved NEVs that will stand out from the rest of the products in the market while at the same time emphasizing the value that BMW offers to its customers in terms of quality and luxury.

NEVs have attracted much attention in the market, and policies and subsidies greatly influence their pricing and popularisation. Many countries also provide incentives to the buyers of electric vehicles through tax credits, rebates, and subsidies, among others [3]. For

instance, the federal government of the United States offers a tax credit of up to $7,500 to individuals who buy electric vehicles, while many European countries provide purchase subsidies and lower tax rates for NEVs [12]. These incentives, therefore, help lower the initial purchase price of NEVs for consumers and thus make them more affordable and convenient to buy. However, these incentives could be more consistent across different countries and dynamic, meaning that automakers and consumers are still determining what to expect. As NEVs become cheaper than ICE vehicles, the role of incentives is likely to decrease, and car manufacturers must prepare for new market dynamics.

4 Market Dynamics

The market forces of NEVs have changed fundamentally in the last couple of years due to changing consumer preferences, rising threats from new entrants with a single product strategy, and the realigning strategies of traditional players like BMW. Rising consumer consciousness regarding sustainable living and enhanced technology are key factors for the increased demand for NEVs. Today's consumers are ready to buy electric vehicles owing to increased environmental awareness, the need for better technology, and the availability of subsidies that help reduce the cost of these cars. McKinsey's 2022 Consumer Pulse Survey also revealed that the buyers of EVs are attracted by innovation and sustainability, and this is evident in their looking for features such as longer driving ranges and being able to connect seamlessly to the internet.

Nonetheless, traditional automobile makers such as BMW compete with new businesses that only deal with EVs, with Tesla and NIO as key rivals. Tesla remains the market leader with a 60% share of EV registrations in the U. S. led by the Model 3 and Model Y. The company enjoys a first-mover advantage as a strong brand and has continually delivered new technology, including a robust charging infrastructure. However, other manufacturers such as Hyundai, Kia, and Volkswagen are also coming up with equally good models, but at a lower price. Still, they are not able to match Tesla's sales figures due to production issues and limited networks. NIO has been quite successful in China, where government support and high local demand have allowed the company to capture a large share of the premium electric SUV market.

The increase in manufacturers that only deal with new vehicles, especially EVs, is battering the market share of the incumbent automakers. In the luxury segment, BMW, Audi, and Mercedes-Benz have introduced new electric vehicles to the market, and Tesla's brand value is diminishing compared to its rivals. For instance, Tesla's Model Y and Model 3 take up more than half of the EV registration in the United States of America; BMW and other traditional automobile manufacturers struggle to modify their production facilities and work on models to meet the ever-growing demand for electric vehicles. However, these traditional car makers are struggling with the issue of how to manage their legacy ICE business while building their NEV business, which is a significant challenge that calls for a big investment in technology and capacity.

BMW's positioning in the NEV segment is quite measured but, at the same time, purposive. Although BMW is still one of the key manufacturers of premium vehicles, it operates in an environment where more and more competitors provide low-cost yet high-tech cars. The i4 and iX versions have contributed to BMW's improvement, nevertheless, the firm's focus on the premium pricing strategy could be a disadvantage compared to Tesla, which has more possibilities to adjust the prices to penetrate the market. In the future, BMW has to work harder to position its NEV products based on quality, luxury, and innovation while at the same time ramp up its investment in battery technology and production capacity.

5 Conclusion

NEVs have become a widespread phenomenon that has revolutionized the automotive industry, and this has posed a significant threat to traditional auto manufacturers such as BMW. The transition towards electric vehicles has wholly changed the pricing tactics and the market scenario, given that firms like Tesla have become the market leaders. For BMW, the issue is how a traditional high-end ICE producer can prepare to meet the new market conditions. Since NEVs are increasingly comparable in cost and performance to traditional automobiles and as BMW has a premium pricing strategy, it has to change. BMW, in turn, has come out with models like the i4 and iX, which have also upped the ante in batteries and increased production capacity. However, the market will remain competitive as the NEV specialists and other conventional carmakers moving into the electric segment will keep cutting the company's market share. Hence, BMW will have to continue to develop new models and enhance the existing ones.

The consequences for other conventional automotive companies are similar. The same problems are relevant to Mercedes-Benz, Audi, and General Motors as they try to shift from producing ICE cars and compete with Tesla and other newcomers such as NIO. These car makers should not only have to put time and money into the technology and structures required to support electric cars but also alter the perception of their brands in a rapidly innovative and environment-friendly market. With battery costs continuously falling and incentives for NEVs still attractive, these companies will have to think about more dynamic pricing to be competitive and invest more in sustainability to meet customers' expectations.

The NEV era of the automotive industry will be characterized by further shifting of paradigms and the introduction of new models. To avoid being beaten by new entrants already focused on electric cars, the incumbent automakers have no choice but to jump on the electric bandwagon. Several key issues that affect the industry include the batteries' supply chain, the electric vehicle's manufacturing capabilities, and the pricing strategies. Those car makers who will prosper in this environment will be those who will not only be able to match the speed of technology development but will also be able to shape the identity of their brands in the era of electrification. The NEV era will, therefore, be one of more significant changes, and the companies that are most prepared to adapt will be the ones that dominate the market.

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