



# The Case of BMW in times of regulatory uncertainty

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## **Abstract**

**Title:** The Case of BMW in times of regulatory uncertainty

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**Keywords:** crisis; strategy; regulatory changes; competitive advantage; dynamic capabilities; resource-based theory; SWOT; Ansoff-matrix

This case study examines BMW's strategic responses to the proposed ban on internal combustion engines in the European Union by 2035 and the transition to electric mobility. It delves into BMW's response to the changing automotive market by studying the company's competitive environment, internal resources and capabilities, and strategic decisions while dissecting the external threats and opportunities stemming from the regulatory change. It highlights the importance of competitive advantages, dynamic capabilities, and strategic decision-making in rapidly changing market environments.

Following the case, additional theoretical concepts are introduced. These ideas aid in a deeper comprehension of how to approach the case from a teaching standpoint and they highlight the different types of analysis that can be conducted. The study also features a section dedicated to resolution notes, which are the author's personal analyses, and these provide extra assistance to instructors.

## **Abstrato**

**Título:** O caso da BMW em tempos de incerteza regulamentar

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**Palavras-chave:** crise; estratégia; alterações regulamentares; vantagem competitiva; capacidades dinâmicas; teoria baseada nos recursos; SWOT; matriz de Ansoff

Este estudo de caso examina as respostas estratégicas da BMW à proposta de proibição dos motores de combustão interna na União Europeia até 2035 e à transição para a mobilidade eléctrica. Analisa a resposta da BMW às mudanças no mercado automóvel, estudando o ambiente competitivo da empresa, os recursos e capacidades internas e as decisões estratégicas, ao mesmo tempo que dissecas as ameaças e oportunidades externas decorrentes da alteração regulamentar. O caso destaca a importância das vantagens competitivas, das capacidades dinâmicas e da tomada de decisões estratégicas em ambientes de mercado em rápida mutação.

Após o caso, são introduzidos conceitos teóricos adicionais. Estas ideias ajudam a compreender melhor a forma de abordar o caso do ponto de vista pedagógico e realçam os diferentes tipos de análise que podem ser efectuados. O estudo também inclui uma secção dedicada às notas de resolução, que são as análises pessoais do autor, e que fornecem uma ajuda adicional aos professores.

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## List of Abbreviations

BEV	Battery electric vehicle
BMW	Bayerische Motoren Werke Aktiengesellschaft
BYD	Build Your Dreams
CEO	Chief Executive Officer
CLAR	Cluster architecture
CO <sub>2</sub>	Carbon dioxide
e.g.	For example
EU	European Union
EV	Electric vehicle
FCEV	Fuel cell electric vehicle
Ibid.	in the same place
ICE	Internal Combustion Engine
ICEV	Internal Combustion Engine Vehicle
MEB	<i>Modularer E-Antriebs Baukasten</i> , 'modular electric-drive toolkit'
MMA	Mercedes-Benz Modular Architecture
OEM	Original equipment manufacturer
OTA	Over-the-air
PHEV	Plug-in hybrid vehicle
RBT	Resource Based Theory
R&D	Research & Development
SUV	Sport utility vehicle
SWOT	Strengths, Weaknesses, Opportunities, Threats
US	United States
VW	Volkswagen
YOY	Year-over-year

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## 1 Introduction

In July 2021 the European Commission settled on the European Green Deal that aims to cut net Carbon dioxide (CO<sub>2</sub>)-Emissions by 55% vis-à-vis the emissions of 1990 (European Commission, 2021). This comprehensive package includes measures complementing emissions trading that tackle increasing emissions from road transport. It is stated that stricter CO<sub>2</sub> emission standards for passenger cars and light commercial vehicles will accelerate the transition to zero-emission mobility. Average annual emissions from new vehicles must be 55% lower from 2030 and 100% lower from 2035 than in 2021 (European Parliament, 2022). Consequently, all new cars registered from 2035 will be emission-free. This manifests the first specific time frame and effective due date of the combustion engine has been agreed upon internationally. While the end date is not yet set in stone, since it is subject to a proviso and must be agreed upon in the EU Parliament and the Council of Ministers, it sets a specific timeline and challenges the entire automotive industry to adapt.

While the Automotive industry has been joined by various players who pursue a pure Electric Vehicle (EV) strategy, this Case Study deals with BMW as an incumbent Original Equipment Manufacturer (OEM) vs. one of the more traditional players with a diverse portfolio. It is particularly interesting to analyze their case as they initially were one of the first movers in the realm of EVs launching the i3 and i8 as soon as 2013. Nevertheless, they decided to pursue a strategy that is open to all technologies (Hägler, 2019).

This paper aims to develop a deeper understanding of the challenges inherent to the decision of the European Commission and how BMW copes with them. Many competing OEMs have stated datelines before 2035 when they want to stop selling ICE motors. So far, BMW has not yet issued such a statement. Rather than only innovating towards E-mobility, they want to remain open to all technologies and follow customer demand (Freitag, 2021).

## 2 Case Study

### 2.1 Company Overview before the Regulatory Decision

This chapter will focus on the company prior to the regulatory uncertainties mentioned in the introduction clarifying the starting point of certain changes discussed later in this Case Study.

#### 2.1.1 Milestones

This subchapter aims to give a bit of historical context to the Case study and outlines a certain timeline that will help the audience to grasp the many often simultaneous events in a concise manner. While BMW has a longstanding history and tradition, this study will mainly focus on the events starting in the early 2010s. When BMW introduced the i3 on the market in 2013 and the i8 shortly thereafter, it sent a shockwave in the premium segment, and it was a clear sign that the carmaker would join the electric revolution. These cars were purpose-built, contrasting converted models and they were introduced at a time when the market share of EVs was still inconsiderable. The markets with the highest market share at the time were Norway (6.1%), the Netherlands (5.6%), and the United States (1.3%) (Mock, 2014, p. 3).

Simultaneously, Daimler and Volkswagen (VW) also launched their versions of EVs, namely the Smart EV in 2011 and the e-up in 2013 respectively. However, these cars were converted off existing models while BMW demonstrated how battery-only cars allow for a different technical layout and therefore created a completely new vehicle concept with modified proportions as well as a holistic concept in the choice of materials used (BMW, 2022a). In the Graphic below, significant milestones are described, and future important steps are outlined. The contents of this graphic will be discussed further in the upcoming chapters.

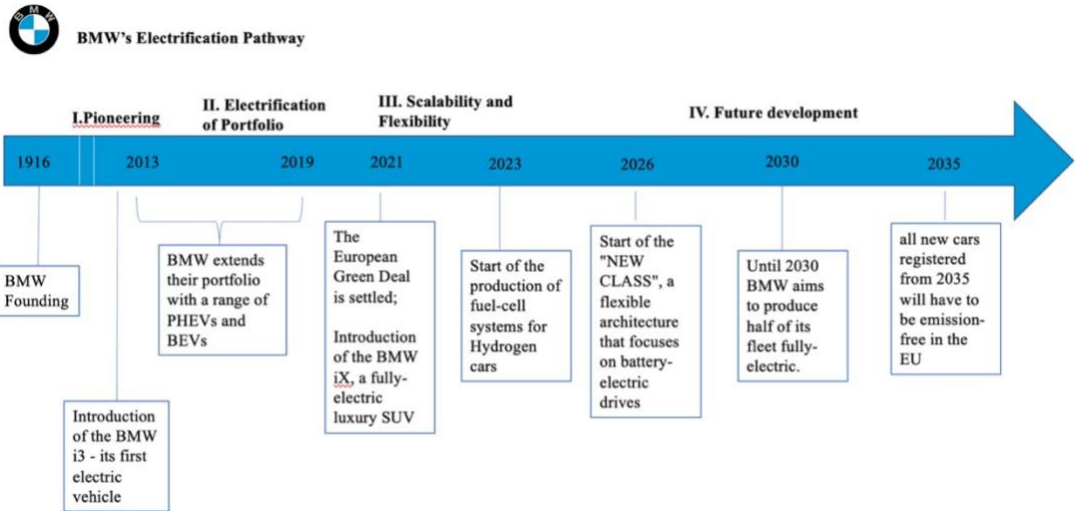


Figure 1: BMW's Electrification Pathway Timeline; Own figure

### 2.1.2 Business Segments

BMW is a German-based automobile and motorcycle manufacturer. The company divides its activities into Automobiles, Motorcycles, and Financial Services. They develop, manufacture, assemble, and distribute BMW, MINI, and Rolls-Royce brand cars and SUVs as well as motorcycles. Additionally, their Financial Services segment focuses on car leasing, multi-brand financing, fleet business, customer and dealer financing, customer deposit business, and insurance activities.

### 2.1.3 Mission, Vision & Strategic Goals Pre-Decision

While the BMW slogan "Sheer Driving Pleasure" (German: „Freude am Fahren") has been used to advertise BMW vehicles since 1972, it does not fully encompass the Vision of BMW. The corporate vision first announced in 2007 is to ensure that: „The BMW Group is the leading provider of premium products and premium services for individual mobility“ (BMW, 2008, p. 199). As early as 2009 BMW stated that “they are not only working on electrically driven cars but also on concepts designed to significantly reduce the environmental impact of the car all the way along the value-added chain” (BMW, 2010, p. 35). Their long-term aim is “*to produce emissions-free mobility with vehicles powered by electricity and hydrogen*” (BMW, 2011, p. 34). “*The project BMW i stands for visionary electric vehicles, revolutionary lightweight construction, inspiring design, and innovative mobility services. It also stands for a new understanding of the term “premium” that is strongly defined by sustainability*” (BMW, 2013, p. 38). This vision was supported by their so-called “Strategy Number One”, which was set up in 2007 to guide the company to 2020 with interim goals focused on unit sales and a return on sales between eight and ten percent (BMW, 2008). Customer orientation and the understanding of operating in the premium segment, not only in products but also in terms of the services provided, were the focus of this strategy displayed in Exhibit 1 (ibid.).

The aforementioned strategy was revised and updated in 2016 as “Strategy NUMBER ONE > NEXT.“, geared with strategic approaches through 2025 (Exhibit 2) (BMW, 2016). It was stated that competitive advantage is achieved by providing forward-looking solutions and that sustainability is an integral part of their corporate strategy. BMW anticipated that new technologies and digital services will revolutionize their industry. Despite this, the BMW Group anticipates a gradual and regionally varied transformation due to the industry's lengthy, capital-

heavy investment cycles and the long lifespan of its products. As such, all drive types are already incorporated into vehicle designs. The combustion engine will retain a substantial role for the foreseeable future. Therefore, BMW continuously strives to enhance established processes' efficiency and refine pertinent technologies under the Efficient Dynamics NEXT initiative, a technology to unlock additional potential for improving the efficiency of combustion engines (ibid.). The highlighted dimensions in which individual mobility is perceived by BMW are electric, connected, and autonomous.

Similar to the overall corporate strategy, BMW also refined its sustainability strategy multiple times. Quoting increasing demands due to regulatory requirements, BMW last updated the sustainability strategy in 2019, consisting of the following six key topics: mobility solutions, decarbonization, environmental and social standards in the supplier network, circular economy, employees and culture as well as responsibility and partnerships (BMW, 2020a). They demonstrated the importance of sustainable sourcing of rare earths by buying from mines in Australia and Marocco directly providing them to their suppliers and measuring every model's ecological footprint along the entire value chain (BMW, 2020b).

## 2.2 Market Analysis

In the following, a market analysis of BMW will be conducted looking at the company's competition, customers, positioning, and trends in the automotive industry to better understand accompanying macroeconomic factors influencing the strategic decisions of the company.

### 2.2.1 Competition

Although it is difficult to pick singular competitors out of the vast competitor landscape within the automotive industry, this paper will focus on the examples of VW, Daimler, and Tesla. Those companies are especially relevant as VW penetrates the domicile market with a mass-market strategy and additionally has its sub-brand Audi as a fierce competitor within the premium segment; Daimler is an incumbent OEM with a similar production volume, product portfolio and overlapping target customer segment and Tesla is a pure EV-player. They aid in showcasing different strategies respectively.

VW, as a manufacturer of significantly higher vehicle volumes than BMW, decided to develop a purely electric vehicle architecture with the Modular Electric Drive Matrix (German: MEB)

starting in 2015. The electric models of the ID. family from VW, as well as numerous models from Audi, Skoda, and Seat, are based on this architecture.

Although not yet implemented Daimler plans for the segment up to the size of the C-Class the Mercedes Modular Architecture (MMA), which is intended to produce electric vehicles, but can accommodate internal combustion engines in the front section. From 2025, Daimler will also rely on purely electric architectures for segments from the C-Class upwards but still has the MMA in place, which leaves room for internal combustion engines. Daimler is also cutting its spending on combustion technology by 80 percent by 2026 (Handelsblatt, 2023a).

All the advantages of electric drives can only be fully utilized with a dedicated electric vehicle platform - as demonstrated by Tesla and VW with the MEB.

Unlike the traditional automakers, Tesla, as a pure EV player, started its journey with a singular focus on electric vehicles. This has allowed the company to fully capitalize on the advantages of electric drives from the start. Tesla's strategy, unlike those of BMW, VW, and Daimler, did not require a transitional phase from combustion engines to electric drives. Tesla's innovative approach includes the development of a proprietary EV platform, superior battery technology, and an extensive charging infrastructure. Furthermore, Tesla's commitment to vertical integration and control over its supply chain has helped it to maintain quality and pace in production, while also reducing costs. Another distinction is that Tesla doesn't do advertising. However, the company enjoys the highest brand awareness in the industry being associated with E-mobility by 77% in 2021 (Appinio, 2021).

Considering regulatory changes including the Euro 7 emission standard and the Internal Combustion Engine (ICE) ban, most carmakers are investing only in what is necessary. Audi, for example, is determined not to develop any new internal combustion engines at all from 2026 and does not plan to sell any from 2033 with the exception of China.

### 2.2.2 Customer Structure

BMW's primary target market is upscale, given its premium prices. The brand is relying on traditional values and has a loyal customer base, that value the iconic design, manufacturing excellence, and sporty driving style. BMW also targets customers who prioritize sustainability and environmental issues, by offering a range of electric and hybrid vehicles.

The global EV market has been growing at a rapid pace (Exhibit 3), but the rate of adoption varies significantly across different regions due to a combination of factors including policy support, charging infrastructure, and consumer awareness (McKinsey, 2021a). A visualization can be found in Exhibit 4.

For a better understanding of the differing customer interests this chapter shall try to bring in customer perceptions from different markets to better understand consumer needs around the globe with which global OEMs have to cope:

In Europe, Norway leads the way in EV adoption where a fifth of all cars on the road today are zero-emission (Kane, 2023a). This trend is likely going to continue and even accelerate, as Battery Electric Vehicles (BEV) / Plug-in Hybrid Electric Vehicles (PHEV) Year to date registrations account for 79% and 9% of total car registrations respectively (ibid.). These worldwide unique adoption rates are driven by generous government incentives such as tax exemptions, free tolls, and free parking. The Netherlands, Sweden, France, and Germany also have high rates of EV adoption due to similar policy support. However, immediate stalling of or even negative growth rates can be observed whenever a reduction in incentives is implemented, e.g., at the end of 2022 in Germany (Handelsblatt, 2023a).

In contrast, in the United States, EV market share is on a sharp rise with a 74% Year-over-year (YOY) growth to currently 7% of total vehicle sales (Kane, 2023b). However, supportive policies that vary from state to state immensely impact the adoption rate. The main barriers to EV adoption in the US include a lack of charging infrastructure, particularly in rural areas, and range anxiety among consumers. Federal policies such as the Inflation Reduction Act of 2022, which brought back the \$7,500 federal tax credit eligibility for Tesla and General Motors further hinder the market penetration of imported models that are automatically exempt from this policy (ibid.). Tesla remains the market leader with a 57% market share, noticeably dropping from a 74% share in 2022 (ibid.).

Given that 59% of BEV sales worldwide were made in China, this country dominates all others (Irle, 2023). In China, EVs made up roughly 33% of all vehicle sales in 2023, with BEVs holding a 22% market share and PHEVs holding an 11% market share. The Chinese government has backed EVs with robust policies. 40% market penetration by 2030 is the

government's goal for the EV industry in China's most recent 15-year development plan until 2035 (PWC, 2023). However, the BEV growth was also much slower than in prior years due to the Chinese government's subsidies ceasing by the end of 2022 (ibid.). BYD is the most popular brand among the top ten automobile models in China, followed by Tesla. They are also leading the chart of global total sales (Exhibit 5). These days, software-related considerations are the most crucial ones. In-vehicle technology including the Internet of Things, over-the-air (OTA) updates, and autonomous driving is more significant to 45.7% of Chinese customers than safety, configuration, and energy efficiency (Yue, 2022).

In other parts of the world, due to high upfront prices, a lack of charging infrastructure, and legislative uncertainty, EV adoption rates are still low in emerging economies like India, Brazil, and South Africa. Nevertheless, these nations constitute a sizable potential market for EVs.

This varied consumer sentiment in the different markets due to different influencing factors makes it abundantly clear, that a one-size-fits-all strategy is impossible to pursue. OEMs must position themselves in a way to cater to these differing needs and market penetrations.

### 2.2.3 Positioning

BMW is a premium OEM that has been in business for almost a century. They have positioned themselves as a premium brand that provides high-quality and innovative automobiles and motorcycles. Observing the differing speeds in market penetration and the importance of regulatory incentives, BMW adopted a dual strategy that focuses on both ICE and electric engines. All the while, BMW has not committed itself fully to electric engines, currently deploying a flexible, adaptable architecture called “CLAR architecture” that can produce all four drive types. Prior e-models like the i3 and i8 in 2013 as well as the iX in 2021 were built on their own pure E platform rather than a new architecture. That way, key parts, such as the e-drive, motors, and high-voltage storage, could also be utilized in other upcoming models. With the help of this strategy, the company can meet the needs of different clients while also addressing environmental issues.

By concentrating on marketing and innovation, BMW has been able to maintain its status as a premium brand. While BMW experienced a severe crisis due to a lack of marketing orientation in the 1950s that almost led to the company's bankruptcy and a sale to competitor Daimler-

Benz, they adopted a new marketing-oriented approach and refocused their branding efforts and profited from a strong brand image in the premium segment ever since.

In addition to marketing, innovation has also been a key factor in BMW's success. The company has been at the forefront of developing new technologies and features that enhance the driving experience. Due to being a first mover in the EV realm, they acquired resources & capabilities in the field of e-mobility. They invested heavily in the project “i” before its start in 2006 when no other competitor would. Yet, their innovation efforts are not limited to EVs: They have established many technical solutions to the vehicles to improve efficiency and reduce fuel consumption called EfficientDynamics NEXT to help continuously improve their ICE (BMW, 2023a).

The company emphasizes its commitment to sustainability and innovation in its advertising and branding campaigns. However, the proclaimed technology openness is not limited to EVs (Knecht, 2020). Instead, technology openness means the continued development of all technologies according to BMW CEO Zipse (ZDF, 2023). This strategy is following the overall mantra of not relying upon a single powertrain and offering the customer what they want and remaining flexible in volatile times. Next to the diversification in terms of powertrains, BMW also diversifies its efforts regarding geographical developments. A detailed view of the geographical distribution of revenue can be found in Exhibit 6.

#### 2.2.4 Trends

Government laws and consumer demand for more environmentally friendly transportation alternatives are driving the current transition towards electric and hybrid vehicles within the automobile sector. A rise in demand for connection and cutting-edge features in cars, such as OTA updates and self-driving capabilities, can also be observed in the industry (McKinsey, 2021b, 2023). Another trend influencing the automobile sector is the influence of worldwide efforts to combat global warming. Governments across the world are putting restrictions into place to cut back on energy use, and emissions, and to increase safety on the roads. Another key development that has been reshaping the automobile sector for many years is globalization. Companies are looking to expand into new markets and profit from the reduced manufacturing costs in emerging nations as the sector becomes more globally integrated (Pavlínek, 2009). New supply chain management techniques have emerged because of the trend toward globalization, as businesses look to optimize their supply networks to save costs and boost productivity.

Assemblers and suppliers, both in developed and developing countries, are increasingly located at a short geographical distance from each other to more efficiently organize deliveries of components and communications (Lawson, 2019). This trend has led to the development of new logistics and transportation systems that enable companies to manage their supply chains more effectively.

Finally, stagnation in developed economies with a simultaneous rise in the importance of the Chinese market and the difficulties of foreign firms to penetrate this market is another trend that is considerably impacting carmakers' strategies. This trend is strongly shaped by a political dimension: The sale of Chinese cars to EU nations has increased significantly, despite EU nations' failure to establish stable industrial ties with China in the automotive sector (Maiza, 2018). This becomes increasingly important as China is not only the biggest market accounting for 59% of global EV sales, but also producing 64% of the global EV volume (Irle, 2023).

While the paradigm shift towards EVs is one of the most crucial changes in the automotive industry within the next decades, they are nowadays still at a disadvantage compared with their ICEV counterparts in terms of price. Data from 2019 suggests that the average production cost of a NEV was \$12,000 higher than that of an ICEV in the small- to midsize-car segment and the small-utility-vehicle segment (McKinsey, 2019). This results in many models except some high-end models typically being sold at a loss. This disadvantage is certainly going to diminish with technological advancements and better manufacturing capabilities with a cost parity expected to be reached by 2025 (ibid.).

### 2.3 Regulatory Changes

Environmental concerns, technical improvements, and shifting consumer preferences are all contributing to the push toward EVs and other low-emission modes of transportation. Due to the numerous nations that are providing incentives for consumers to purchase EVs, they become more attractive although subsidies can also be temporary and require government efforts. At the same time, combustion engines are also subject to stricter rules. The enforcement of the Euro 7 emission standard in Europe is anticipated to begin in 2025. The emission of pollutants like nitrogen oxides, carbon monoxide, and ammonia will then be strictly regulated for all new gasoline and diesel-powered vehicles (Handelsblatt, 2023b).

Most striking is the proclaimed full ban of ICEs in 2035 by the European Commission. The plan for all newly registered cars to be emission-free from 2035 has yet to be approved by the individual EU member states. There are signs of resistance from countries where jobs are heavily dependent on the automotive industry. Notably, such regulations may differ in the ways they are adopted in national laws. This is also the reason for different expected timelines concerning the banning of fuel-based automobiles even among EU countries. As this regulation is only concerning the EU, a worldwide roadmap toward the banning of fuel-based cars is more scattered. A preliminary (expected) timeline of similar bans worldwide can be found in Exhibit 7.

Another discussion surrounds the topic of e-fuels, an innovative solution with the option to make millions of existing vehicles with diesel and gasoline engines as well as new vehicles climate-neutral. This topic will be further discussed in a future chapter as the topic is highly polarized and vividly discussed by policymakers and carmakers alike. In addition to the countries' planned sales bans, more and more cities are deciding to restrict the entry of gasoline and diesel vehicles (Times G. C., 2023). Oftentimes, these plans include proclaiming a sector that will thereafter only allow clean cars to enter this restricted area. Cities have more liberty compared to countrywide legal efforts to introduce such measures and are more eager to have earlier ban dates.

#### 2.4 Strategy after EU Regulation

While the overall strategy has not changed and remains to be the most successful and sustainable premium provider of individual mobility, there have been adjustments and proclamations that will be outlined in the following. BMW is pursuing a strategy of multiple drivetrains manufactured at single production lines. Instead of converting individual factories to e-mobility they gradually convert the entire production network as this allows for flexibility to meet regionally varying demand with precision. This strategic approach was coined by BMW CEO Zipse with “the power of choice” (Handelsblatt, 2019). Furthermore, the choices available to the consumer are only going to increase. Next to the already known BEVs, PHEVs, and ICEVs, the company is investing in Hydrogen or FCEV, short for Fuel Cell Electric Vehicle, with a competence center built in Munich. They have had a strategic Research and Development (R&D) partnership with Toyota researching the possible industrialization of this drive train (BMW, 2023a). While competitors like Audi and Daimler have abandoned their plans to develop FCEVs, BMW is having a public trial with its second-generation model of the iX5

Hydrogen delivering 100 units to markets like Europe, the US, and Asia. According to Zipse in an interview with Bloomberg, the next automotive trend will revolve around hydrogen cars:

*“After the electric car, which has been going on for about 10 years and scaling up rapidly, the next trend will be hydrogen. When it’s more scalable, hydrogen will be the hippest thing to drive”* (Bloomberg, 2022).

BMW will eventually provide five different drivetrain alternatives to help the group's alternative fuel options become more diverse:

The rationale behind this strategy Zipse explains as follows: *“To say in the UK about 2030 or the UK and in Europe in 2035, there’s only one drivetrain, that is a dangerous thing. For the customers, for the industry, for employment, for the climate, from every angle you look at, that is a dangerous path to go to”* (Bloomberg, 2022).

As of now, BMW offers an electrified version in all important key vehicle class segments and all sub-brands. These models include the MINI Cooper SE, MINI Countryman, BMW i3 (exclusive to China), BMW i4, BMW i5, BMW i7, BMW iX1, BMW iX3, BMW iX, and Rolls-Royce Spectre. Notably, the Mini brand is currently offering the most electrified portfolio, expected to only produce electrified models as of 2030.

In the upcoming years, BMW plans to increase the number of models. It predicts that by 2030, more than 50% of its global sales will consist of EVs (BMW, 2022b). By 2024, one-fifth of the Group's new cars will be all-electric, accelerating to a one-third share by 2026 (Tagesschau, 2023). At this point, however, only 10% of their sales are made up entirely of EVs (Handelsblatt, 2023a). Exhibit 8 portrays how BMW compares to its closest OEM competitors. The same prediction also suggests that a sizable amount of revenues will still go to combustion engines. BMW plans to use combustion engines for a very long time despite its dedication to electric vehicles. For instance, gasoline and diesel engines will continue to be used in the production of the X-series SUVs long into the following decade. However, it's possible that by 2035, the proportion of new ICE vehicle registrations in the European Union will be 0%. On a worldwide scale, however, BMW’s board of management assumes that even in 2040, more than half of all cars worldwide will still be powered by combustion engines. Therefore, all ICE motors including the four-cylinder models, and the six- and eight-cylinder models are also to be modernized. In addition, the diesel units are to remain on the market alongside the gasoline engines. This revised generation of engines could carry BMW well into its 2030s (Handelsblatt, 2023a).

All in all, Zipse disagrees with the proposed 2035 ban on internal combustion engines. He insists that BMW will only cease development of these engines when customer demand fades, a timeline he expects to differ across markets. He does not anticipate that all markets will have the appropriate framework conditions, including a sufficient charging infrastructure, in place for all consumers to switch to 100% electromobility. Because of this, solutions with highly efficient conventional motor technology will still be required to satisfy each person's unique mobility needs while also reducing CO<sub>2</sub> emissions in the transportation industry (Press, BMW, 2022a). This approach reflects Zipse's belief in meeting market-specific demands rather than adhering to a universal phase-out schedule.

#### 2.4.1 E-Fuel

This chapter will set the standard because lawmakers and OEMs are currently debating e-Fuels intensely. E-fuels, commonly referred to as synthetic fuels or electro fuels, are fuels made without the use of fossil fuels but rather with electricity and renewable resources (Ueckerdt, 2021). The emissions from ICE might be reduced to zero with the use of these fuels. E-fuels have attracted interest from BMW as a potential means of lowering vehicle emissions. The business has taken part in initiatives and research projects aimed at the creation and application of e-fuels, and it has also tested several e-fuel-powered vehicles (Hebermehl, 2023). The upsides of such a technology include Technological Compatibility, Energy Density, and Renewable Energy Integration, which will be explained in the following:

1. **Technological Compatibility:** E-fuels offer a potential solution for utilizing existing combustion engines without significant modifications and infrastructure, such as existing petrol stations as distribution points. Therefore, e-fuels reduce the need for infrastructure overhauls compared to EV charging points.
2. **Energy Density:** E-fuels possess higher energy density compared to current battery technologies used in EVs. Furthermore, e-fuels are easier to store and transport than electricity or pure hydrogen (Ueckerdt, 2021).
3. **Integration of Renewable Energy:** For e-fuels to be genuinely carbon-neutral, they may and must be produced utilizing renewable energy sources like wind or solar energy. E-fuel manufacturing can store and distribute energy more effectively by using extra renewable energy during off-peak hours.

However, the most important downsides to this technology are Energy Conversion Losses as well as Production Costs and Infrastructure, which will be explained in the following section:

1. Energy Conversion Losses: Compared to using electricity directly in EVs, the overall energy efficiency of the production of e-fuels is very low due to the complexity and number of conversion steps involved. At the moment, using hydrogen-based fuels requires five times as much energy as driving a battery-electric vehicle (Ueckerdt, 2021).
2. Production Cost and Infrastructure: Due to the existing lack of large-scale economies of scale, this energy-intensive process is expensive. As of now, only a few production plants have been built, the largest one in Chile due to ideal conditions for wind energy. Large-scale e-fuel production and distribution require high investments. As soon as the production of e-fuels on an industrial scale with a direct-air-capture method becomes established, production costs of around EUR 2 per liter may initially arise (Ueckerdt, 2021).

Due to the limited research and development in the field of e-fuels and their limited availability, it is impossible to define their future use cases. Nevertheless, contrary to other OEMs, BMW is openly promoting its advantages and advocates for its future use (ZDF, 2023). Ultimately, their widespread adoption hinges on government policies including subsidies and infrastructure investments.

#### 2.4.2 Production Strategy

Zipse summarized BMW's production strategy as follows: „The production follows the market“ (Knecht, 2020). On a global scale, it is projected that 30% of all vehicles will be electrified by 2025 (BMW, 2022b). Until 2030 BMW aims to produce half of its fleet fully electric. The BMW Group's production network comprises a total of 31 locations in 15 countries. Around a dozen plants worldwide are already producing electrified vehicles or preparing for production (ibid.).

BMW's broader strategy is to transform each of its global production sites into an iFACTORY that is lean, green, and digital (Zipse, 2022). An overview of BMW's production sites can be found in Exhibit 9. With its current CLAR architecture on its production lines, the BMW Group can manufacture vehicles with both fully electric and plug-in hybrid drives or with combustion engines on a single line. This approach is best exemplified by the BMW X3, which is available as a plug-in hybrid, as a combustion engine (diesel and gasoline), and as the BMW iX3 with

pure electric drive. BMW is exploring fuel cell technology, maintaining a flexible mixed architecture to produce PHEV, diesel, gasoline engines, and hydrogen fuel cell vehicles. This approach is costly but potentially lucrative, especially if global electrification is stagnant. Despite expanding electric car production, BMW is still phasing out engine production in Germany by 2024. The Munich plant will be retooled for electric cars, leaving only Austria, Great Britain, and China to manufacture combustion engines, serving all markets (Handelsblatt, 2020). This bundling increases its capacity utilization, leading to higher margins in the end.

This approach is contrary to other competitors like Daimler, opting for purely electric architectures from 2025, which may save them development expenses now. However, if the demand for internal combustion engines persists, they may need to extend old gasoline platforms or create new ones, leading to immense additional expenses (Handelsblatt, 2023a).

In China, complying with Chinese regulations, BMW formed two Joint Ventures: BMW Brilliance Automotive Ltd. in 2003 and the Spotlight Automotive Ltd. in 2018 to develop next-gen MINI electric cars. The high and rising importance of the Chinese markets is reflected in their investments. The company plans to enhance its Shenyang-based high voltage battery production facility with a \$1.39 billion investment, making it its third global power battery center and first outside Germany (BMW, 2023b). BMW Brilliance's Plant Lydia was officially opened in Shenyang, China, in June 2022. With an investment of 2.08 billion, the plant is the biggest single investment in BMW's history in China fully geared for E-mobility (ibid.). Formerly only produced in Oxford, England, BMW also shifted some of the electric versions of MINI cars to China, despite the flexibility and expertise of their British facilities. The local production strategy is meant to avert high shipment and tariff costs and enhance price competitiveness. Additionally, it shortens the production cycle and boosts flexibility by eliminating the need for imported car parts from Germany. While BMW leads as the top domestic premium manufacturer, its pure EVs saw modest sales in China, only 44,000 compared to over 700,000 ICEVs (Global Times, 2022). Nevertheless, the strategic shift towards local production is justified by the vast Chinese market share, comprehensive auto supply chains, and technological progress (ibid.).

Since it is uncertain how quickly electromobility will become widely accepted, the Bavarians want to remain flexible. The bulk of BMW's investment is going into electric drive systems

(BMW, 2023d). The "Neue Klasse" planned for 2025 should very quickly provide the basis for a dozen new models with purely electric drives.

#### 2.4.3 The Neue Klasse

*“We anticipate a large increase in electrification starting in the second half of this decade, which is why we are now beginning to construct the successor architecture as a matter of rotation. With this new architecture, electric drives will take center stage instead of combustion engines”,* said Frank Weber, BMW Chief Development Officer in an interview (Stegmaier, 2020).

BMW Group is set to begin producing its Neue Klasse models in 2025, initiating the third phase of its transformation (BMW, 2021a). Production will initially be centered in Debrecen, Hungary, a choice driven by the lower manufacturing costs compared to Germany. Debrecen's new factory is anticipated to open for business in 2025 (Zipse, 2022). It is anticipated that the facility will produce 150,000 vehicles a year. A press shop, body shop, paint shop, and assembly will be included. This plant will run purely on renewable energy sources. Over the next two years, it is expected to employ more than 1,000 people, representing an investment of more than €1 billion (ibid.). Neue Klasse EV production will start at the Munich factory in 2026. That same year, BMW will begin similar production in Mexico that same year and eventually move to the US after that, where BMW has committed a \$1 billion investment, this revolutionary architecture will be gradually introduced to BMW's worldwide production facilities (ibid.)

Adopting a "digital-first" strategy, the Neue Klasse EVs promise a unique user experience, unprecedented in BMW or any other production vehicle to date. Catering to the specific needs of each global region, these cars will use what BMW refers to as "technology stacks" (BMW, 2021a). These stacks will adapt the vehicle's operating system to local conditions and continually update it OTA, ensuring a tailored and consistently enhanced driving experience.

In an unexpected move, BMW plans to integrate hydrogen as an energy source in the Neue Klasse, according to CEO Zipse. He envisions fuel cells entering mainstream production for the Neue Klasse, due to hydrogen's future significance as an energy carrier globally (Bloomberg, 2022). Fuel cell vehicles remain uncommon, primarily due to a lack of hydrogen filling stations. Despite this, BMW remains committed to exploring diverse technologies. On the contrary, Volkswagen as well as Daimler are solely committed to battery drives, fearing a

technological dilemma if batteries and fuel cells are pursued simultaneously. Although investing in such a niche technology as fuel cells poses risks, BMW could gain a substantial advantage if fuel cells break through.

As the battery is one of the most important factors for the carbon footprint of BEV the Battery Cell Competence Centre in Munich is developing new cells to be used for the first time in the Neue Klasse models. They are developing a completely new cell generation for the Neue Klasse, aiming to enhance energy density and significantly reduce costs (BMW, 2023c). Unlike present BMW models, future battery cells will be round, akin to Tesla's, which are cheaper to produce. They predict up to 50% cost reduction compared to today's BMW cells, while simultaneously outperforming current Tesla models in energy density (Press, BMW, 2022b).

## 2.5 Challenges & Outlook

Despite BMW's notable strides towards electrification, autonomous driving, digitalization, and sustainability, it still faces significant challenges. The high costs of R&D in e-fuels, battery technology, and hydrogen fuel cells could strain the company's financials. Moreover, the efficiency of these technologies and their acceptance by consumers and regulators remain uncertain. Transitioning to a fully electric fleet also requires overcoming supply chain challenges, particularly sourcing ethically mined and sustainable raw materials for battery production in a growing competition.

As multifaceted as the challenges seem, so does their multifaceted strategy of staying flexible by investing in various technologies possibly enabling BMW to adapt to market changes swiftly. In the following, theoretical concepts are presented that will help grasp the presented case in the consequent discussion.

## 3 Literature Review

### 3.1 Porter's Five Forces

Porter's Five Forces is a widely-used framework for analyzing competitive dynamics in an industry. Developed by Michael E. Porter, the framework provides a structured approach to understanding the competitive forces that shape an industry's attractiveness and profitability today and in the future (Porter, 1979). By analyzing these five forces, firms can gain insights into the sources of competition in their specific industry and develop strategies to improve their competitive position. The five forces that Porter identified include the threat of new entrants,

the bargaining power of suppliers, the bargaining power of buyers, the threat of substitute products or services and the intensity of competitive rivalry (ibid.). Together they can help assess the attractiveness of an industry and the long-term profitability of a company.

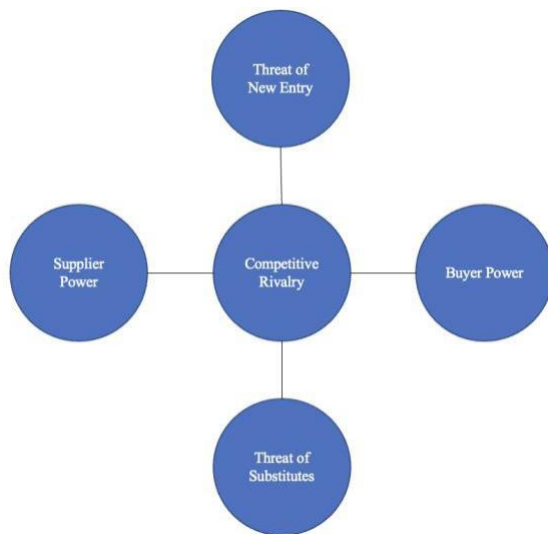


Figure 2: Porter's Five Forces; Own figure

### 3.2 Resource-based Theory and VRIO Framework

The concept of a sustainable competitive advantage refers to a value-creating strategy that is not currently being implemented by any existing or potential competitor and cannot be easily duplicated. The goal of strategic management is to achieve a sustainable competitive advantage, as it provides an edge over competitors. The Resource-Based View, which nowadays is called Resource-Based Theory (RBT) argues that huge variation in performance persists depending on the industry an organization operates in (Barney, 1991). While the main drivers of performance are bound to the industry, companies may own core competencies, which are very unique resources and capabilities that can provide a sustainable competitive edge. In other words, a resource that is valuable, rare, inimitable, and organized can be considered a sustainable competitive advantage (ibid.). This definition gave rise to the VRIO Framework, which is used by the RBT to determine whether a resource can provide a sustainable competitive advantage. A firm's resources can be tangible or intangible. Tangible resources could include equipment, vehicles, land, and cash, while intangible resources might include trademarks, brand reputation, organizational culture, and copyrights.

For a resource to qualify as a sustainable competitive advantage, it must create value for the company by enabling an increase in efficiency and effectiveness. It should also be rare and difficult to imitate so that competitors cannot easily duplicate it. Additionally, the company's

processes and operations should be built around the resource to maximize its potential. In summary, resources alone do not create any value for a firm, but they need to be organized, assembled, and coordinated to create value for customers.

However, while the RBT is a useful way to define competitive advantage, it has limitations in explaining competitive advantage in rapidly changing environments. To address this gap, the concept of Dynamic Capabilities was created and will be further explained in the following (Barreto, 2010).

### 3.2 Dynamic Capabilities

Firms must be able to adapt to changing market conditions to maintain their competitiveness in today's dynamic business climate. Teece et al. (1997) proposed the dynamic capacities view to solve this issue, and it has since become an essential management concept that has drawn extensive research in recent years.

Teece et al. (1997) proposed the dynamic capabilities view as an extension of the RBT of the firm, which considers the conditions under which firms can sustain a competitive advantage based on their resources and capabilities (Barney, 1986, 1991). Resources refer to “the stocks of available factors that are owned or controlled by the firm“, while “capabilities are the firm's capacity to deploy resources“ (Amit & Schoemaker, 1993, p.35.).

Barreto (2010) suggests that conceptualizations of dynamic capabilities can vary based on their nature, specific role, relevant context, heterogeneity, and purpose. Dynamic capabilities can be defined as abilities, capacities, processes, or routines, and they can concern changes in resources, capabilities, operating routines, decision-making abilities, or the ability to sense opportunities and threats (ibid.).

Barreto's (2010) definition of dynamic capabilities is that it is the firm's potential to systematically solve problems by sensing opportunities and threats, making timely and market-oriented decisions, and changing its resource base. This definition aligns with Teece's work, and it involves four propensities: the propensity to change the resource base, create, extend, and reconfigure the resource base, sense opportunities, and threats, make timely decisions, and make market-oriented decisions (ibid.; Teece et al., 1997).

In conclusion, the dynamic capabilities view is an important management concept that helps firms adapt to changing environments and sustain a competitive advantage. Despite the different conceptualizations, the dynamic capabilities view is a valuable tool that can help firms navigate the ever-changing business environment.

### 3.3 Ansoff Matrix

The Ansoff Matrix provides a framework for classifying strategic directions that a company can adopt. It visualizes the possible avenues for growth and helps categorize objectives (Ansoff, 1957). When considering product offerings for customers, the Ansoff Matrix can be utilized to identify opportunities for the company (ibid.). It is crucial to pay attention to existing product-market relationships while developing a new strategy. Notably, the matrix is not diagnostic, and rather helps structure thinking and classification (McDonald, 1995). The Ansoff Matrix consists of four quadrants, as depicted in Figure 1. Each quadrant represents a different growth strategy for the company. The model is pictured below:

**Market Penetration:** The company focuses on existing products and existing markets to increase its market share. This can be achieved through various means such as price reductions, intensified advertising and promotion, or acquiring competitors in the same market (Ansoff, 1957).

**Product Development:** The company introduces new products to serve the existing market. This strategy involves extensive research and development efforts and expands the company's product range. It is suitable when a company has a deep understanding of its current market and can offer innovative solutions (ibid.).

**Market Development:** The company seeks new markets for its existing products. This expansion can involve geographical expansion (regional or international) or targeting different customer segments within existing markets (ibid.).

**Diversification:** The company diversifies into new products for new markets. This strategy carries more risk, but related diversification can help leverage synergies and mitigate some of the risks (ibid.).

It is important to note that diversification is considered the riskiest strategy, but it can offer potential benefits when carefully planned and executed, especially when related diversification is pursued.



Figure 3 Ansoff Matrix; Own figure

## 4 Teaching Notes

### 4.1 Introduction / Synopsis

This case study, created in 2022 and beginning of 2023, offers a glimpse into the strategic decisions made by BMW in light of EU’s ICE ban. By examining the industry, strategy, and dynamic capabilities, students can reflect on the oftentimes uncertain market conditions and how to manage them to keep ahead of competitors. Furthermore, students will gain insights into the operations of strategic crisis management. The process of how the company can reinvent itself and capitalize on market opportunities is elaborated upon. However, it’s important to consider further developments since the writing of this paper.

The teaching note included guides addressing the questions. While general suggestions are offered, classroom discussions may diverge and necessitate unforeseen changes in the approach.

### 4.2 Target Audience / Teaching Objectives

This case study presents a variety of viewpoints on BMW’s strategic choices to offer students insightful information for discussion on environmental, strategic, and resource-based theories.

It also offers an example of how these principles might be applied in real-world circumstances. It is proposed for undergraduate or postgraduate business or economics students. Critical components of the study include classroom debates and concurrent study of corresponding strategic analyses. This approach aims at fostering a profound understanding of strategy, market dynamics, competitor and consumer behavior, dynamic capabilities, and major organizational structures. Students are expected to be conversant with theoretical concepts related to environmental analysis, strategic methodologies, and innovative brainstorming techniques. While prior professional experience is beneficial, it is not compulsory. Students are advised to read the case, critically analyze it, and articulate their responses in essay form, including visual representations of their analyses. In the classroom, the professor should revise the questions with the students and guide them as needed, depending on the student's academic level. Reviewing the questions from the start leaves ample time for class discussions. The specific learning objectives for each question are outlined below.

**1) Explain the competitive environment of the automotive (premium) market and analyze BMW's internal strengths and weaknesses and external opportunities and threats regarding the regulatory decision to ban ICE.**

This question sets a good foundation for understanding the case and context. It will help students apply Porter's Five Forces as well as the SWOT analysis framework, which will be explained in subchapter 4.4, to understand the environment in which BMW operates. It's a comprehensive way of starting the analysis.

**2) How did the company's dynamic capabilities help it react to the ICE ban? What could have been done better? Where are areas of potential improvement?**

This question requires a deeper understanding of the dynamic capabilities concept and encourages students to think critically. Students should evaluate BMW's ability to adapt to environmental changes and to evaluate critically how the company's response could be improved.

**3) Analyze BMW's resources and capabilities and define which of them can be considered sustainable competitive advantages.**

This question will guide students in applying the RBT of the firm to BMW's case, helping them to identify and understand the strategic importance of unique resources and capabilities.

- 4) Taking into consideration BMW's strategy and goals for the future, provide recommendations on how they should proceed to achieve them. Present strategic recommendations for the company considering the regulatory uncertainties which is the ban on ICE.**

This question compels students to think strategically and critically, applying their knowledge of the case and theoretical concepts to suggest potential actions for BMW. The Ansoff Matrix can be used as a tool to balance strategic recommendations.

#### 4.3 Assignment Questions

The completion of the aforementioned assignment questions are recommended. The tasks can be simplified or modified by the professor. The students should be provided with the relevant theoretical background prior to the case discussion to develop structures and analyses. Critical thinking should also help the students to explore the problem in more detail and discuss different approaches.

#### 4.4 SWOT Analysis

According to Thompson (2007), the SWOT analysis is a valuable tool that can assist organizations evaluate their resource capabilities and limitations, assess potential market opportunities, and identify potential external threats to their future. This analysis involves examining the organization's internal strengths and weaknesses, as well as external opportunities and threats. By conducting an internal analysis, companies can determine their organizational strengths and weaknesses, while external analysis enables them to identify critical threats and opportunities in their competitive environment. Moreover, the SWOT analysis can assist organizations in identifying resources and capabilities that can be potential sources of competitive advantage and those that are less likely to be such advantages, as noted by Gurel (2017). By utilizing the SWOT analysis, organizations can select the most appropriate strategy that aligns with their objectives. To improve the effectiveness of the SWOT analysis, it is recommended to use both qualitative and quantitative tools in conjunction.

#### 4.5 Analysis and Discussion

- 1. Explain the competitive environment of the automotive (premium) market and analyze BMW's internal strengths and weaknesses and external opportunities and threats regarding the regulatory decision to ban ICE.**

To address this question, several steps need to be followed. Firstly, it is essential to examine the competitive landscape of the automotive (premium) market by applying Porter's Five Forces framework. This will provide insights into the level of competition and its influencing factors. Secondly, a SWOT analysis should be conducted specifically on the situation of BMW, taking into account the impact of the ICE ban. The analysis should be based on the information provided in the case study. However, additional suggestions based on common sense and knowledge may also be considered. The case highlights that the automotive sector is highly competitive. Utilizing the Porter's Five Forces framework can contribute to a comprehensive understanding of its competitiveness. This framework comprises five forces that shape the competitive dynamics of a market.

### **The threat of new entrants - High**

The automotive industry, particularly the premium segment, traditionally has high barriers to entry such as significant capital requirements, complex supply chains, and a strong emphasis on brand reputation. Many incumbent OEMs like BMW and Daimler have long operated within this somewhat siloed environment and mimicked trends employed by competitors that worked. A recent example of this behavior is the trend towards big SUVs that are considered as premium and simultaneously have high margins. However, as demonstrated by this case, the shift to EVs is potentially lowering these barriers, as it's creating opportunities for new entrants with expertise in electric technology, such as Tesla. Especially within China, there have been multiple companies solely focused on an electric-first approach such as BYD, Nio, or Geely currently beginning to explore the European market. Additionally, technology companies like Apple and Google have reportedly been exploring the auto industry. While entry barriers remain high due to the necessary technological expertise, capital requirements, and regulatory compliance this paradigm shift to EVs changes the sector completely.

### **The bargaining power of suppliers – Medium**

In a traditional auto manufacturing context, many suppliers compete for contracts, which can reduce their bargaining power. However, as the industry shifts towards electric vehicles, suppliers of batteries and other key components could potentially gain more bargaining power if their products are in high demand and short supply. With the shift to EVs, the supply chain dynamics have changed. The reliance on battery suppliers, often limited in number and concentrated in specific regions (like Asia due to some rare earths), is increasing, thus enhancing their bargaining power. Since the battery module of EVs is its main and most

expensive component, especially providing a sustainable production, this bargaining power increases once again.

#### **The bargaining power of buyers – Medium**

Buyers in the auto industry have a moderate level of power. They can choose from a variety of brands and models, and information transparency through online resources allows them to compare and shop around. However, brand loyalty, the emotional aspect of car buying, and the costs associated with switching brands can limit some of this power. Within the EV sphere, buyers have increased power due to a wider range of options available in the EV market. However, BMW's strong brand and reputation for quality can mitigate this to some extent. However, it is uncertain how much brand recognition persists in the future.

#### **The threat of substitute products or services – Medium**

Besides direct competitors in the auto industry, BMW also faces indirect competition from public transportation, ride-sharing services like Uber, and emerging technologies like autonomous vehicles. However, the different drivetrains as developed by BMW each simulate some form of substitute to each other. Given the right infrastructure and price level, electric vehicles, hybrid vehicles, and hydrogen fuel cell vehicles could all be seen as substitutes.

#### **The intensity of competitive rivalry – High**

The auto industry is highly competitive, with many established companies fighting for market share. Even within the premium segment, competitors include volume players like VW having several brands in the same premium segment like Audi, Toyota's sub-brand Lexus or Porsche, and the closest competitor Daimler. The shift to electric vehicles is intensifying this competition, as it's reshaping the competitive landscape and bringing in new entrants like Tesla aggressively expanding their EV offerings.

In the following, a SWOT analysis will be conducted.

#### **Strengths:**

BMW has a strong brand reputation, a history of engineering excellence, and significant monetary resources and R&D capabilities at its disposal. The company has also been involved in EV development for over a decade attaining resources & capabilities in this field. BMW's technological innovations, such as the efficient dynamics technology or their pioneering work

with carbon-fiber-reinforced polymer in vehicle structures are unique and portray their manufacturing and engineering expertise. Its growing range of electrified models includes 12 BEV and 13 PHEV models in development or already on the market as of 2023. Furthermore, it has an extensive global manufacturing and distribution network.

**Weaknesses:**

Transitioning to EVs requires significant investment and can lead to disruption in the supply chain and production process. Having no proprietary architecture focused on EVs and relying on its flexible CLAR architecture until 2025 is a compromise potentially affecting not only performance but also profit margins. BMW might also face challenges in shifting its brand image from luxury performance vehicles that traditionally have been ICE-based. It is debatable whether sustainability-aware consumers appreciate the power of choice over pure EV players.

**Opportunities:**

The shift to electric vehicles presents significant growth opportunities, as many governments are encouraging this shift through incentives and regulation. Changing consumer preferences equally provide growth opportunities. BMW could also leverage its expertise in luxury vehicles to differentiate itself in the electric vehicle market. Since BMW operates in the premium segment, the imbalance in costs of EV batteries and ICE is less drastic compared to smaller and cheaper models. Next to the growing importance of EVs, BMW also benefits from a slower (EV) market readiness since many competitors have abandoned or downsized ICE development. Should the development of infrastructure take longer than expected for instance, or regulatory decisions be reversed or postponed, BMW would have an advantage over its competitors to gain a higher market share. Similarly, should Hydrogen become a leading technology proving to be relevant in individual mobility, BMW has a unique advantage being the only OEM next to Porsche investing in R&D activities surrounding FCEVs and having first models on the road already. There's also potential for innovation in areas like autonomous driving and connectivity.

**Threats:**

BMW faces threats from new entrants with strong EV expertise, like Tesla or BYD. There are also significant risks associated with the transition to electric vehicles, such as potential supply chain disruptions, the need for large investments, and the need to meet strict emission regulations. Recent events like the closing of China's production sites due to its Corona strategy

or the persistent chip crisis have shown how vulnerable global supply chains can be. Especially supply chains related to battery supply are fragile and need to be managed closely until own production begins. Owning a battery production does not circumvent remaining risks regarding rare earths for instance. Regulatory decisions banning ICE vehicles pose a substantial threat to BMW’s traditional business. Since the trend of a rise in Chinese business seems to persist while the European market is stagnating, a dependence on the Chinese market and their regulation is a threat that is ever-growing.

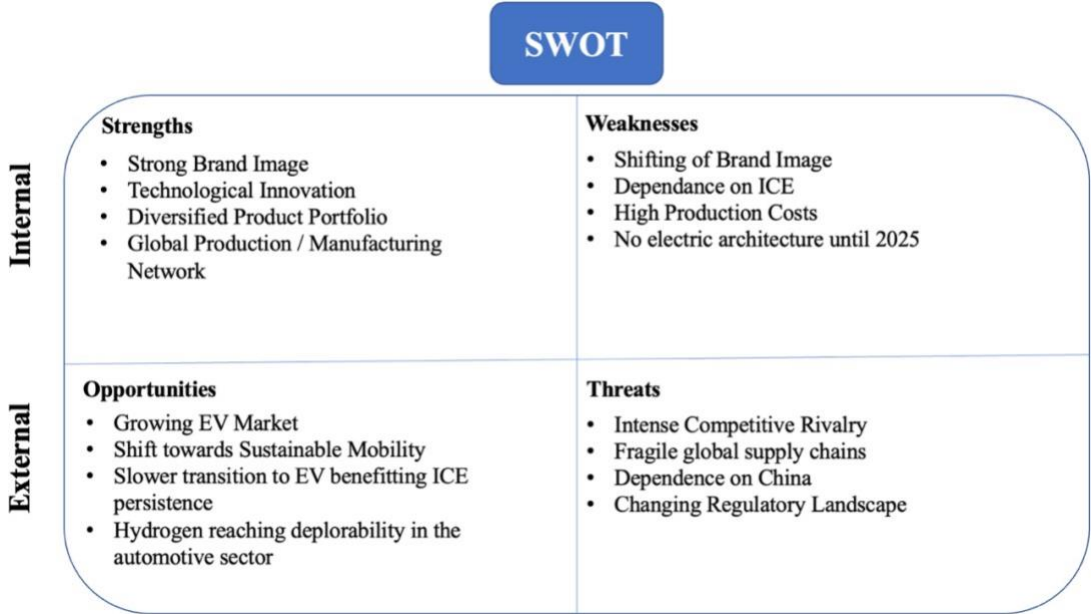


Figure 4 SWOT Analysis; Own figure

**2. How did the company’s dynamic capabilities help it react to the ICE ban? What could have been done better? Where are areas of potential improvement?**

To effectively address this question, it is essential to have a solid understanding of dynamic capabilities and their relevance in analyzing firms’ adaptability in changing environments. Dynamic capabilities serve as a complement to the RBT, which may be insufficient in dynamic and unpredictable situations such as regulatory uncertainties like the ICE ban. This ban serves as a prime example of an exogenous factor that significantly altered the business landscape, highlighting the importance of dynamic capabilities in such circumstances.

The objective of this question is for students to examine how BMW utilized dynamic capabilities to navigate and respond to the challenges posed by the ban, drawing upon Barreto’s definition. Barreto’s definition of dynamic capabilities emphasizes four key propensities:

sensing opportunities and threats, making timely decisions, making market-oriented decisions, and modifying the firm's resource base. By applying Barreto's framework, students can analyze how BMW demonstrated these propensities to effectively adapt and address the uncertainties and demands brought up by the proposed ICE ban.

BMW's dynamic capabilities have been exhibited in its ability to sense the threat and opportunity posed by the shift towards electric mobility and its subsequent actions to reconfigure its resource base in response.

They've displayed an ability to sense market changes through their early adoption of electric vehicle technology with the BMW i3 and i8 models, indicating their awareness of the need for a transition to sustainable mobility. Despite the success of these early models, the company's follow-up releasing the iX in 2021 was relatively slow compared to some competitors. Additionally, their strategic decision to rely on the CLAR architecture until 2025 could be considered a dangerous move. Since BMW is a smaller volume player compared to VW, they might profit from a flexible architecture being able to use their production sites' capacity to the fullest. Since most OEMs heavily rely on economies of scale and scope, the later adoption of an electric-first architecture might just come in time for increased customer demand in that realm.

In addition, they've demonstrated timely and market-oriented decision-making capabilities by committing to a substantial proportion of their sales being electric vehicles by 2030. Their persistent R&D efforts concerning the future of Hydrogen in the Automotive industry could potentially let them acquire a head start, should this technology prove useful in the future. Although it remains unknown what information leads them to believe the technology might play a significant role within the next decade, they proved in the past that the BMW Group acknowledges trends like EVs well before most competitors. It might just come true that these significant costs and the spreading of company resources will prove BMW right in the future.

In terms of potential improvement, BMW could have perhaps acted more decisively and invested even more heavily in electric mobility, considering the rapid pace of change in the automotive industry. Other areas of potential improvement might include diversifying their portfolio by enhancing their charging infrastructure or focusing on developing their own

batteries. As a smaller player, it might be worth considering some type of partnership with public institutions as well as private corporations in this very costly area of expertise.

### **3. Analyze BMW's resources and capabilities and define which of them can be considered sustainable competitive advantages.**

The primary objective of this question is to determine whether BMW possesses any sustainable competitive advantage. For students answering this question, it is crucial to grasp the concepts of sustainable competitive advantage, the RBT, and the VRIO framework. Students are required to identify and analyze the firm's most significant resources and capabilities, focusing on those that can be regarded as sustainable competitive advantages.

The resource-based theory approach examines a firm based on its resources and asserts that the company's performance is a direct outcome of effectively leveraging these resources. A resource that is utilized in a proper and strategic manner has the potential to become a sustainable competitive advantage. However, to be considered as such, it must meet the criteria outlined by the VRIO framework. This framework characterizes a resource as a sustainable advantage if it is valuable, rare, inimitable, and organized. Regarding Resources, especially two stand out to meet the given criteria for a sustainable competitive advantage:

#### **Brand Reputation and Customer Loyalty:**

BMW has established a strong brand reputation over the long period of its existence. The brand is recognized globally and has a loyal customer base. This resource is valuable as it helps BMW differentiate itself from competitors and attract customers. It is rare because not all automotive brands have achieved such a strong brand reputation. It is also difficult to imitate as building a strong brand takes time and consistent brand management efforts. Lastly, BMW has organized its marketing and customer relationship strategies around its brand reputation, leveraging it to maintain customer loyalty.

#### **Production and Manufacturing Efficiency:**

BMW has developed efficient production and manufacturing processes that allow for high-quality vehicle production at scale. The company has implemented advanced manufacturing technologies and lean production methods to optimize efficiency and minimize waste. This resource is valuable as it enables BMW to produce vehicles cost-effectively and deliver them

to the market efficiently. It is rare as not all companies have achieved the same level of production efficiency. It is also difficult to imitate as it requires expertise in production management, investments in automation and digitization, and continuous process improvement efforts. BMW has organized its production operations to maximize efficiency and maintain high-quality standards.

Secondly, capabilities can also be considered sustainable competitive advantages if they comply with the VRIO framework. Throughout the case, particularly one capability stands out as a sustainable competitive advantage:

### **R&D Capabilities:**

BMW prioritizes innovation and invests heavily in R&D. The company has years of expertise in creating cutting-edge technology for EVs and other areas of automotive innovation. BMW ranks among the best employers in both national and international comparisons for many years (Press, BMW, 2020). They have an advantage over other companies in attracting the most sought-after talent to lead R&D initiatives in the future as they are the only OEM ranking in the top 10 among IT students and placed fourth in the engineering category (BMW, 2021b). This resource is important since it enables BMW to release technologically advanced products on the market. It is rare because not all businesses have the same level of R&D capabilities. It is also difficult to imitate as it requires substantial investments, skilled engineers, and a culture of innovation to accumulate this type of knowledge and expertise. BMW has organized its R&D efforts to continuously enhance its product offerings and stay at the forefront of automotive innovation.

These three resources and capabilities – brand reputation and customer loyalty, production and manufacturing efficiency, and R&D capabilities, - contribute to BMW's competitive advantage in the automotive industry. They meet the criteria of being valuable, rare, difficult to imitate, and organized, as outlined in the VRIO framework. By leveraging and further developing these resources and capabilities, BMW can strengthen its position in the market and pursue its strategic goals, including the transition to electric mobility in light of the ICE ban.

#### **4. Taking into consideration BMW's strategy and goals for the future, provide some recommendations on how they should proceed to achieve them. Present strategic**

**recommendations for the company considering the regulatory uncertainties which is the ban of ICE.**

This question aims to foster creativity while using the Ansoff Matrix as strategic guidance particularly managing the risk of each strategic recommendation. It can assist in identifying potential growth strategies that BMW can pursue to adapt to the changing industry landscape. The matrix includes four growth strategies: market penetration, market development, product development, and diversification. By analyzing the different quadrants of the Ansoff Matrix and considering BMW's goals and competitive environment, strategic recommendations can be developed to guide the company's future growth and expansion plans.

The analysis provided by the students can further include two scenarios which are 1) the complete ban of ICE or 2) a relaxed and not fully implemented ban of ICE.

1) Should the ICE ban be implemented as intended right now, the Ansoff Matrix could look as follows:

**Market Penetration:** BMW could enhance its efforts in increasing its market share within the existing markets by selling more of its current EVs to existing customers. This could be achieved by implementing effective marketing strategies, improving service quality, or offering competitive pricing. BMW should leverage its R&D capabilities to innovate in terms of EV technology, achieving superior performance and range. Furthermore, BMW could leverage their brand reputation for the transition to EVs. Communicating effectively with their customer base about their commitment to sustainability and the benefits of EVs would ensure customers' trust and support during this transition.

**Market Development:** BMW could seek to introduce its existing EVs to new geographical markets or new segments within existing markets. This could involve identifying markets where EV adoption is growing rapidly, or where incentives for EVs are particularly strong, and making efforts to increase their presence in these markets.

**Product Development:** BMW could focus on the development and introduction of new EV models or improve existing models to meet the evolving needs and preferences of customers. The focus here would be on innovation and R&D. Current efforts revolving around connectivity

should be intensified and regional differences e.g. IoT and OTA updates in China should be proactively targeted. The Neue Klasse and the start of their own battery production facilities will help tremendously to become more flexible in terms of geographical differences. The R&D efforts regarding FCEVs could be intensified leading to a competitive advantage in case the technology prove relevant and become mass adopted.

**Diversification:** BMW could consider moving into new markets with new products, possibly related to their core business. In the context of the ICE ban and transition to EVs, this could involve ventures like developing EV charging infrastructure, offering energy storage solutions, or moving into mobility services. BMW could look for strategic alliances or partnerships to share costs and risks. This could be particularly useful in areas like battery production, autonomous driving technology, and charging infrastructure. Prior Joint Ventures with Daimler in mobility services have shown that this is possible, although they recently sold those.

Each of these strategies would involve different levels of risk and would require BMW to leverage different sets of capabilities and resources, so they should be pursued concurrently to create a balanced strategic approach. The compatibility of any growth plan should be carefully considered by the students. The selected approach must be in line with BMW's long-term goals, dedication to sustainability, and capacity for providing consumers with value. Additionally, considering the competitive landscape and regulatory environment will be crucial in determining each growth strategy's feasibility and potential success.

2) Should the regulatory environment prove to be more flexible than anticipated and the ICE ban is relaxed or not fully implemented, BMW could find itself in a favorable position due to several reasons:

BMW's continued development and refinement of ICE technologies could prove to be a competitive advantage if the ICE ban is not fully implemented. While many competitors are shifting their focus primarily towards EVs, BMW's ongoing efforts in improving the efficiency and performance of ICE vehicles could help them stand out in the market. Despite the growing shift towards EVs, there is still a significant market for ICE vehicles, especially in countries where EV infrastructure is less established. If the ICE ban is not fully implemented, BMW can continue to cater to this market with its high-quality ICE vehicles. This could provide a steady stream of revenue to fund BMW's continued transition towards EVs and reduce the financial

risk of the transition. Additionally, BMW's strategic decision to use a flexible vehicle architecture that can support ICE, hybrid, and fully electric powertrains gives the company a significant advantage in a scenario where the ICE ban does not fully come into force. This allows BMW to adapt its production based on market demand and regulatory requirements, producing more ICE or hybrid vehicles if there is a market for them.

While there could be significant upsides if the ICE ban is relaxed or not fully implemented, it's also important that students do not overlook the overall trend in the automotive industry moving towards electrification and sustainability. Companies that fail to adapt risk being left behind. Therefore, a balanced approach that leverages potential opportunities from continued ICE production while also progressing towards more sustainable technologies would be the most prudent strategy.

## 5 Conclusions and Limitations

This thesis crafted a case study designed to instruct students in managing crises for globally-operating corporations. The goal is to teach students how to strategically navigate through crises. By looking at real-life scenarios, students can understand the strategic decisions that must be taken under real-world constraints.

A major takeaway from this study is the realization that strategic changes can also be prompted by uncertainty and the chance of regulatory changes in the future. However uncertain, they nevertheless change the industry today and necessitate strategic decisions. This often includes revisiting and redefining customer values and requirements, establishing new unique selling propositions, and finding fresh positions in the market.

As this topic is very recent and evolving in its nature, it's hard to predict what will happen in the industry in the future. However, creative thinking can help discover new paths and include them in decision-making. The theories used in this thesis may be used differently in real-life business situations.

I had the opportunity to use the knowledge I had learned in my studies through this case study. It improved my ability to think strategically and helped me create analyses based on various theories and ideas, both of which would be useful in my future job.

The main limitation and challenge with this work can be seen in conducting the research outside of the company. While the secondary data of listed companies such as BMW is vast and there were numerous published interviews available, insider access to the company could have further helped the work. Most of the information in this work derives from BMW's online data and interviews with experts in the industry. Another limitation was the uncertainty of the ICE ban is to this day and discussions regarding its implementation remain to this day. For instance, shortly before the submission of this work, the EU reached an agreement with Germany to step back from a complete ban on combustion-engine vehicles starting in 2035 providing those vehicles operate only on e-fuels, which could be focused on in the future and considered in the case study for the students.

## 6 Exhibits for the Case Study

### Exhibit 1 – Strategy Number One



Source: BMW Group Annual Report 2007

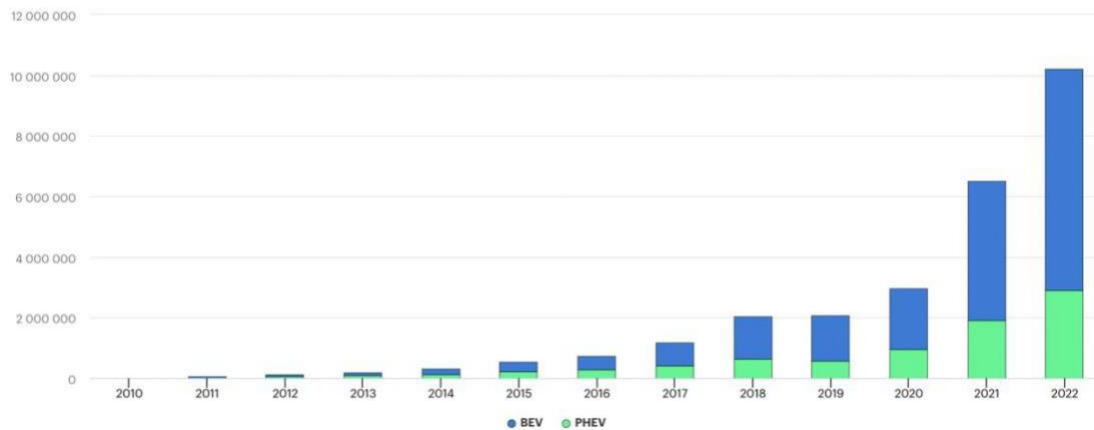
### Exhibit 2 – Strategy Number One Next



Source: BMW Investor Presentation 2016

### Exhibit 3 – EV sales worldwide development 2010-2022

EV sales, cars, World, 2010-2022  
Vehicles

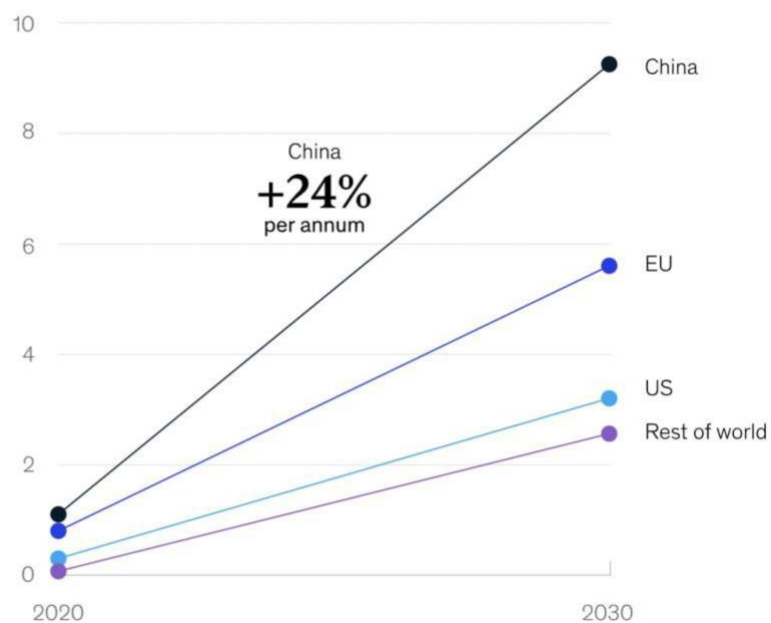


Source: IEA – Global EV Data Explorer (IEA, 2023)

### Exhibit 4 – Global BEV sales forecast

**By 2030, battery-electric-vehicle sales in China may exceed nine million cars, an average increase of 24 percent each year over the next decade.**

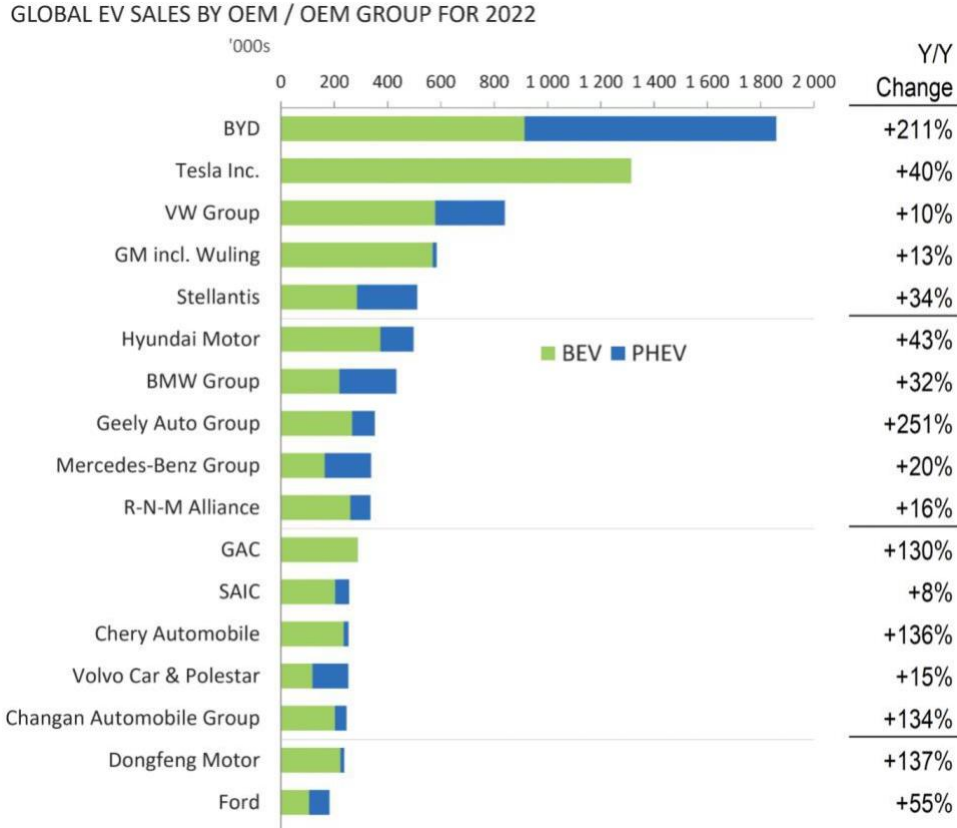
Global BEV passenger car sales forecast,<sup>1</sup> million



<sup>1</sup>Battery-electric vehicles; based on wholesale volume (typically 10–20% higher than insurance registrations).  
Source: McKinsey Electrification Model

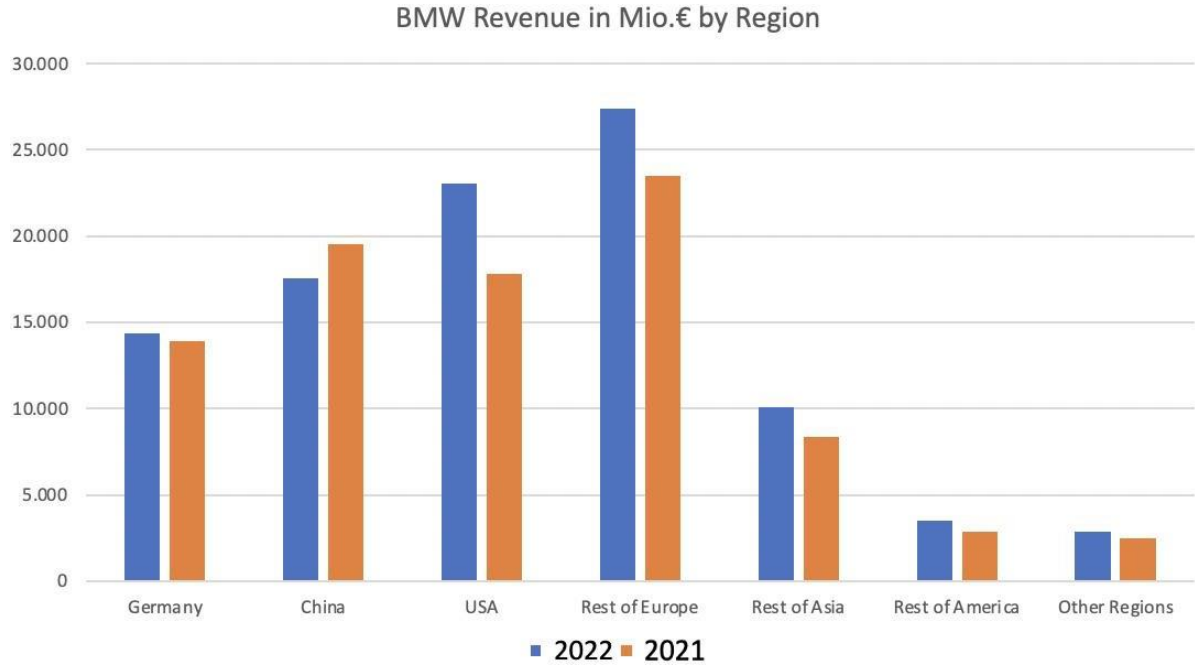
Source: McKinsey Electrification Model, (McKinsey, 2021a)

**Exhibit 5 – Global EV sales by OEM for 2022**



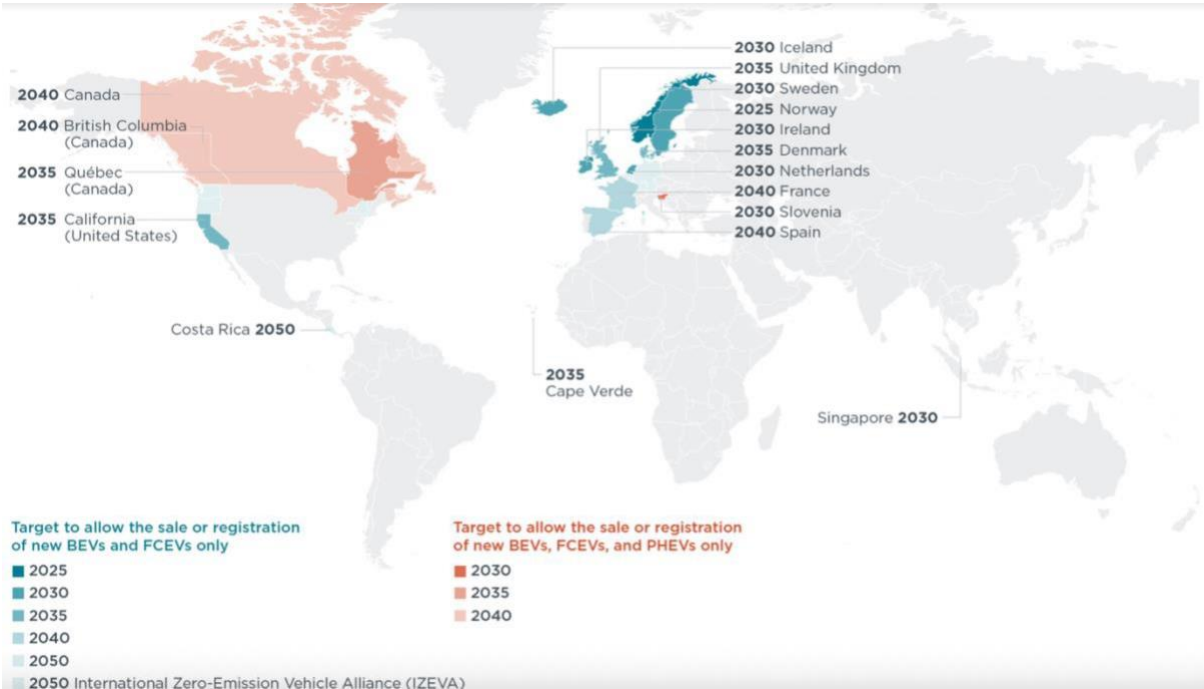
Source: EV-Volumes (Irle, 2023)

**Exhibit 6 – BMW revenue by region**



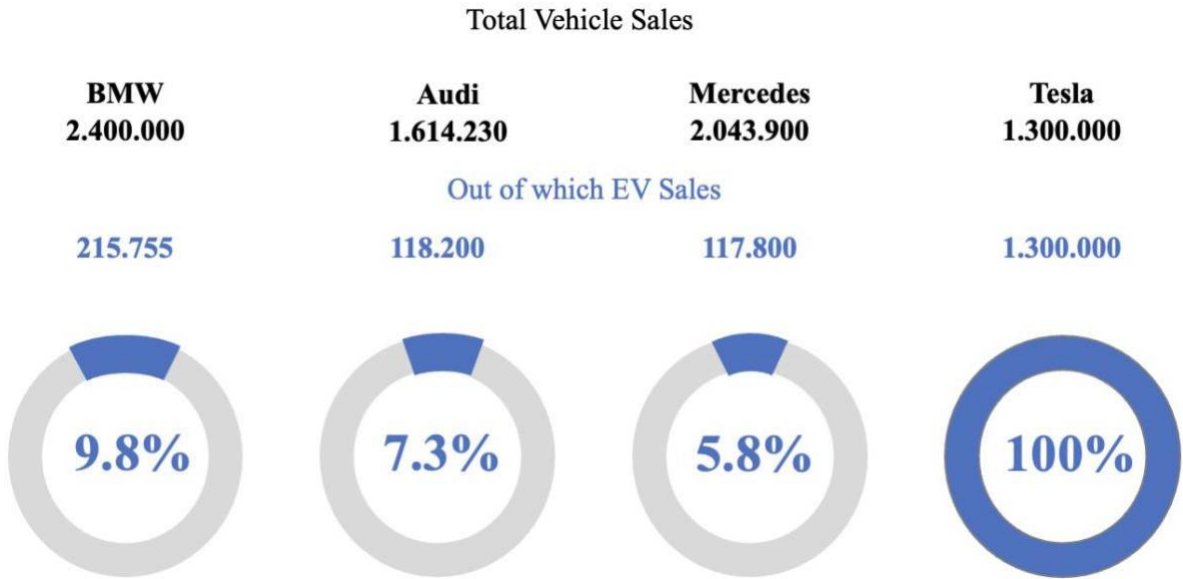
Source: (BMW 2023d), p. 18; Own figure

**Exhibit 7 – ICE phaseout advances globally**



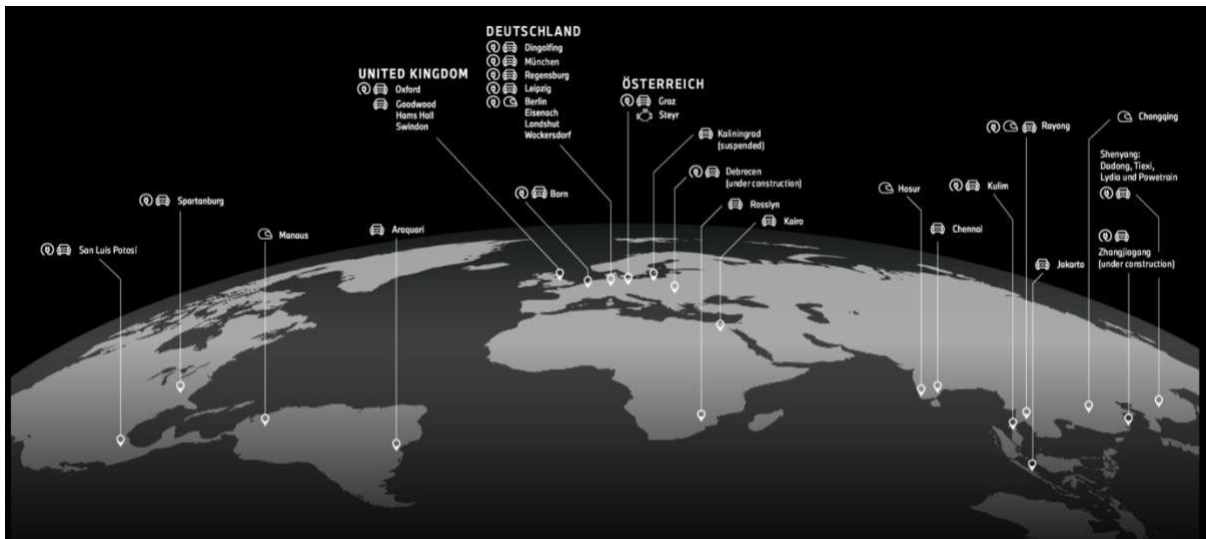
Source: (ICCT, 2021)

**Exhibit 8 – Comparison ICE vs EV against closest competitors**



Source: Companies Annual Financial Statements 2022; Own Figure

## Exhibit 9 – BMW production sites overview



Source: BMW Website

## 7 References

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