EUROPEAN ELECTRIC CAR INDUSTRY

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INTRODUCTION

Since the invention of automobiles, the car industry has been largely dominated by internal combustion engine vehicles that are dependent on fossil fuels. However, the automotive industry, particularly in Europe, has embarked on the production of electric vehicles (EVs) in the recent years because of increasing environmental concerns and depreciation of oil resources that started in the 1960s and 1970s (Faisal 2017, p.3). Despite the increasing growth rate of EV production, internal and external factors within the industry have continued to influence their adoption and use. this paper focuses on analysing the recent developments in the European EV industry using the PESTEL and Porter's five forces models as discussed in part QUESTION a) and QUESTION b) below.

1. **QUESTION a)**

1.1 MAJOR FORCES SHAPING THE BUSINESS ENVIRONMENT OF THE CAR MANUFACTURING INDUSTRY

The European car manufacturing industry has significantly evolved over the years. The industry is largely driven by five key forces that can be understood using the PESTEL analysis. PESTEL is an abbreviation that represents six forces namely: political, economic, social, technological, environmental, and legal factors. These driving forces play a critical role in the strategy analysis in the activities of EV manufacturing firms (Schindeldecker, 2017). They include the following.

Political Factors

Political forces in the form of strong governmental support have boosted the growth of the EV industry in Europe. Besides providing subsidies, incentives, and tax-exempts, some governments have provided loans to both consumers and manufacturers. For instance, the Germany government gave incentives worth $1.4 billion to boost the sale of EVs to buyers and manufactures (Nicholas and Jennen, 2016). Moreover, DeMorro (2015) notes that most governments are discarding restrictions that hinder the sale channels of EVs. The combination of these efforts continues to create a sustainable opportunity for the car industry as well as encouraging greater industry participation.

Economic Factors

Economic forces reflected in the high growth rate of the EV industry play a crucial role in its business environment. According to MarketLine (2015), the global market volume for EVs grew at an annual rate of 27.2% between 2011 and 2015. Accenture (2015, p.3) estimates the market grow to $390 billion by 2020. The high growth is attributed to moderate economic growth globally resulting in increased demands. Moreover, the increasing fleet age of conventional vehicles in most nations is driving consumers to invest in EVs. This has not only increased the demand for EVs but also has forced stronger competition as well as an increased market presence (Schindeldecker 2017, p.5).

Social Factors

EVs are not by any means affordable to the average income earner or the majority of the middle-class customers. The relatively high buying cost is one of the leading barriers to the adoption of EVs, success, and expansion of the business. According to Turrentine and Kurani (2007, p.1215), the majority of the potential clients cannot afford the high prices of EVs.

Also, the majority of the potential buyers are not interested in long-term benefits that come along with EVs as much as they are interested in top speed and acceleration features in internal combustion engine-powered vehicles. Such factors have a profound effect on the business environment of the car industry particularly in the adoption of EVs and, therefore, must be addressed to boost the acceptability of EVs.

Technological Factors

Technological advancements have played a key role in the car industry in the last few years. Strong demands, as well as support, are the key pillars behind the recent high rate of innovation in the EV industry and its business environment. According to Bullies (2013), the two pillars have played a critical role particularly in the components and supporting infrastructure such as charging technologies used in the EV industry.Nevertheless, there are key areas that need to be addressed to promote mass adoption. For instance, a majority of the current EVs have a long recharge time, which is a key barrier to their use in most parts of the globe irrespective of affordable recharge prices. Moreover, in comparison to conventional vehicles, EVs have limited millage which is a crucial barrier to their mass adoption (Schindeldecker, 2017). However, various governments in Europe have already begun investing in research and development to address these challenges and this is going to improve the efficiency of EVs in the future.

Environmental Factors

Environmental forces, particularly environmental awareness, play a crucial role in the adoption of EVs. Societies and governments have realised the increasing environmental challenges such as climate change and global warming resulting from conventional vehicle emissions leading to an increased demand for energy-efficient transportation. The tightening

of the average carbon dioxide emission limits by most governments is forcing car manufacturers to produce zero-emission vehicles (Schindeldecker 2017). For instance, European aims to reduce carbon dioxide emissions to 95g CO2/km by the end of 2020 and 68-78g CO2 /km by the next five years (Amsterdam Roundtable Foundation, McKinsey & Company, 2014, p.22). Combined with the now more expensive fuel costs as compared to thirty years ago, this has led to a growing demand for EVs.

Legal Factors

The legal environment is vital to the thriving of the EV industry. Law and statutes of different countries and states play a key role in determining performance of the industry. Most manufacturers of EVs in most countries operate within the boundaries established by the law. For instance, makers of EVs in Germany adhere to the laws diligently which has resulted in a nominal impact of legal forces on the performance of the industry. However, the impact of legal factors is significant in some countries such as the United States where 48 states have passed legislation that has either forbidden or severely restricted automakers' ability to sell their vehicles directly to the consumers (Moritz et al., 2015, p. 87). EV manufacturers such as Tesla which have vertically integrated sales and service have challenges as the law of the land forces them to sell their vehicles via authorized dealers. Such statutes and laws have resulted in strategic challenges to the EV industry regarding its showrooms that offer or are planning to offer sales and services together.

1.2 REASONS BEHIND THE DRIVE TOWARDS THE PRODUCTION OF EVs

The drive towards the production of EVs is fueled by five key forces. These forces are discussed in the Porters 5 forces analysis in the following section (Dobbs 2014).

Industry Rivalry

The global automotive industry is a multi-billion-dollar oligopoly. The industry's rivalry and competitiveness are high because market share is largely dominated by large competitors as well as brands. The intensity of this rivalry and competition in the EV industry is largely governed by a certain number of automakers, manufactures who are quite aggressive in relation to the business and substituting costs which is low (Jussani et al. 2015). The fact that the number of EV manufacturing firms is limited restricts competition effect on the industry. However, the few firms have been aggressive in innovating as well as promoting their products through tools such as aggressive marketing campaigns. Such aggressive marketing strategies have strengthened the effect of competitors in the business. Moreover, low switching costs or low impediments for consumers to purchase cars from other automakers has further strengthened the competition force. As such, this competitiveness is a crucial high-priority strategic management concern in the EV industry.

Consumer Bargaining Power

EVs buyers are a direct force that is determining firms' sales revenues in the industry. However, their overall effect is significant mainly due to low substituting costs, moderate presence of substitutes and low consumption (Jussani et al. 2015). The low swapping costs, which reduce barriers for customers to buy EVs from other automakers, imposes a strong power against all the players within the business environment. Nevertheless, the moderate presence of substitutes limits consumers' bargaining power against the majority of the firms. For instance, the majority of the consumers living in suburban or other areas with limited public transportation access find it more practical to drive personal cars. Moreover, the low purchase volume mitigates the influence of clients on EV firms as each consumer only buys

one or a few cars. The combined intensity of these external factors, therefore, makes customer's bargaining power a significant force in the European electric car industry.

Supplier Bargaining Power

The EV business is largely dependent on suppliers' reliability that shapes the industry's business environment by influencing material availability needed by the firms. However, the influence of their bargaining power is moderate as a result of reasonable forward integration, suppliers' size, and the level of supply (Jussani et al. 2015). The low forward integration level of suppliers is manifested through their limited control in the sales as well as the distribution of their products. Majority of them sell their materials to EV firms through third parties with a very limited number doing direct transactions with the firms. Moreover, most suppliers are of moderate sizes, thus, their impact on the business environment is limited. The moderate level of supply also allows suppliers to influence the EV industry; however, the influence is not significant.

Threat of Substitutes

Most of the players in the EV industry experience the threat of substitutes in the energy and automotive solutions environment. Nevertheless, the intensity of the threat is moderate due to low substituting costs, moderate presence of substitutes and their moderate efficiency (Jussani et al. 2015). Low switching costs attract competition from alternative solutions such as public transport and convention oil-powered cars, hence, imposing a powerful force against EV industry players. However, substitutes' moderate presence in the EV industry limits influence of substitute suppliers in the sense that consumers have limited options of substitutes in the market. Moreover, most of these alternatives have moderate efficiency level in satisfying consumer's practical needs. For example, public transportation has low

flexibility and versatility compared to private cars, a condition which further limits the risk of substitutes against EV firms. The combination of these external factors renders the substitute threat as a secondary management issue in the majority of players' strategies in the EV industry.

The Threat of New Entrants

The entrance of new firms in the EV industry has a significant impact on the business environment and the performance of the current players. However, the threat is of a weak force due to expensive brand development costs, high cost of business operation, and high economies of scale (Jussani et al. 2015). The EV business is significantly difficult to compete with due to the massive capital that is required to develop new brands, constituting a major entry barrier for most prospects. Also, the production of EVs is a capital-intensive venture constituting an even larger entry barrier (Schindeldecker 2017). Moreover, established firms in the industry have been benefiting from rising economies of scale which, a new firm can only attain after exceeding a given level of production level. Therefore, the threat of new entrants is a minor concern for the strategic management of players in the EV business environment.

2. QUESTION b)

2.1 NEW AND EMERGING BUSINESS OPPORTUNITIES IN PRODUCTION AND MERKETING OF EVs

The production and marketing of EVs present numerous new and emerging business opportunities that will generate massive profits to entrepreneurs and business executives. The opportunities are huge and they range from raw materials to manufacturing, to supporting

infrastructure and maintenance. The following are some of the challenging business opportunities that have the potential for high returns for the investors:

Electrical generation

The production of EVs is growing at a higher rate than electricity generation which is going to be their primary fuel in the coming years. The generated demand offers a different opportunity to investors and entrepreneurs to create a profitable business by providing an adequate power source. It is important to offer sustainable energy solutions as the future EVs will rely more on renewable energy sources such as solar power.

Battery Replacement Services

Battery replacement service is an opportunity that will last in the European industry. As long as electric cars rely on batteries as their energy storage components, batteries will always be required (Gao et al., 2008, p.5). Entrepreneurs and business executives venturing in removing, refurbishment, and upgrades are guaranteed to create a niche for themselves in the

Hyper-charging stations as well as their entire ecosystem

One of the main barriers in the adoption and use of EVs is the long duration it takes to charge them as compared to refilling petrol in conventional cars. As such, there is a gap in developing fast-charging stations that will shorten the charging duration significantly (Amsterdam Roundtable Foundation, McKinsey & Company 2014). This also creates a market opportunity for ancillary services such as coffee or massage services among others which can be offered while the EVs are charging.

Raw Materials

The production of EVs creates a massive demand for rare raw materials such as copper, lithium, and neodymium among others. These materials will continue to increase in prices as the EV industry continues to grow and creating profitable business opportunities for daring entrepreneurs and business executives. Investing in production and supplying of these limited raw materials guarantee high returns on investment. The other market gap that has huge return potential lies in the innovation sector of finding alternative raw materials that are cheaper and easily accessible.

2.2 BUSINESSES TO BE NEGATIVELY IMPACTED BY EVs

The production and adoption of EVs will render some of the businesses that are currently linked to the global automotive industry will not be profitable to invest on in the long run. Some of such businesses include the following:

The Oil Sector

Currently, the largest source of oil demand comes from passenger and personal vehicles. As transportation turns to EVs investing in oil companies is guaranteed to be affected. According to a research carried out by Barclays in 2019, oil reliance is expected to reach its peak as soon as 2025 as opposed to the previous estimation of between 2030 and 2035 (Slashdot 2019). With the world focusing its attention on cutting down carbon emission, the future of oil demand will be filled with deep uncertainty that will render it not only a risky venture to invest in but also unprofitable in the long run.

Maintenance and Auto Part Supplies

The maintenance business is expected to be negatively affected by the production of EVs. The impact will be more felt by auto part suppliers. According to the Amsterdam Roundtable Foundation and McKinsey and Company (2014), the after-sell service providers will be negatively affected as EVs require less maintenance compared to today's internal combustion engine vehicles. As such, investing in this business will be unprofitable in the long-run particularly to small players as large plays have the financial muscles to adapt to the dramatic changes.

CONCLUSION

The last few years have seen an increasing drive to change from oil-powered to the EV due to environmental and energy concerns. Nevertheless, the adoption and use of EVs remain promising as evidenced by the PESTEL analysis. The industry's business environment, as well as the success of individual players, is also influenced by the internal factors discussed in the current paper under Porter's five forces model. However, the influence of these forces is moderate or weak due to the competitive and capital-intensive nature of the EV business. Nevertheless, the production of EVs has introduced new and emerging business in the sectors of electrical generation, battery replacement services, second use and recycling, and raw materials among others. On the other hand, EV production has jeopardized the oil industry and maintenance and auto spare supplies rendering them unprofitable ventures to invest in going to the future. Despite the current low adoption and use, the EV industry's future is bright as the demand for more energy-efficient and environment-friendly transportation continues to rise daily.

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