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INTRODUCTION

The concept of the electric vehicle is not as new as people think it is because it was first introduced in 1830 but did not grow much popularity and soon wiped out from the market and then it again comes to the concern when Toyota releases their Toyota Prius in 1997 in Japan as the world's first highly manufactured hybrid electric vehicle (Blickwedel, Thomas and Whitehead, 2017). And the growth of the industry continues in the 21st century and before that it was in the introduction stage in the product life cycle.

Though people are not adopting electric vehicle in a great scale, the sale is increasing by the government support, rising popularity, better-quality offerings from the companies (Electric vehicles in Europe: Gearing up for a new phase? 2020). The rise in adoption of the EV will open a field for new business opportunities and on the other hand, will reduce some of the previously popular businesses related to ICE. Technological advances will help to flourish this business further.

DESCRIPTION

PORTER'S VALUE CHAIN MODEL ANALYSIS

According to Michael Porter, the affiliation among organisations and the upstream and downstream suppliers is known as the cost chain of the industry and this amount chain helps to evaluate the capability of cost minimization and the diversification of the company (Chopra, 2020). In the value chain model, there are mainly two activities that help to manage the whole industry; one is primary activities and the other one is supportive activities. The primary activities include the inbound logistics- collecting raw materials, manufacturing operations, outbound logistics- supplying the products, marketing, sales and after-sales service. To support these primary activities there are some supporting activities which include proper infrastructure, technology, and human resource management (Wu, 2012). The electric vehicle industry is a developing industry where there is the opportunity of emerging new businesses. The value chain model of an electric vehicle is given below:

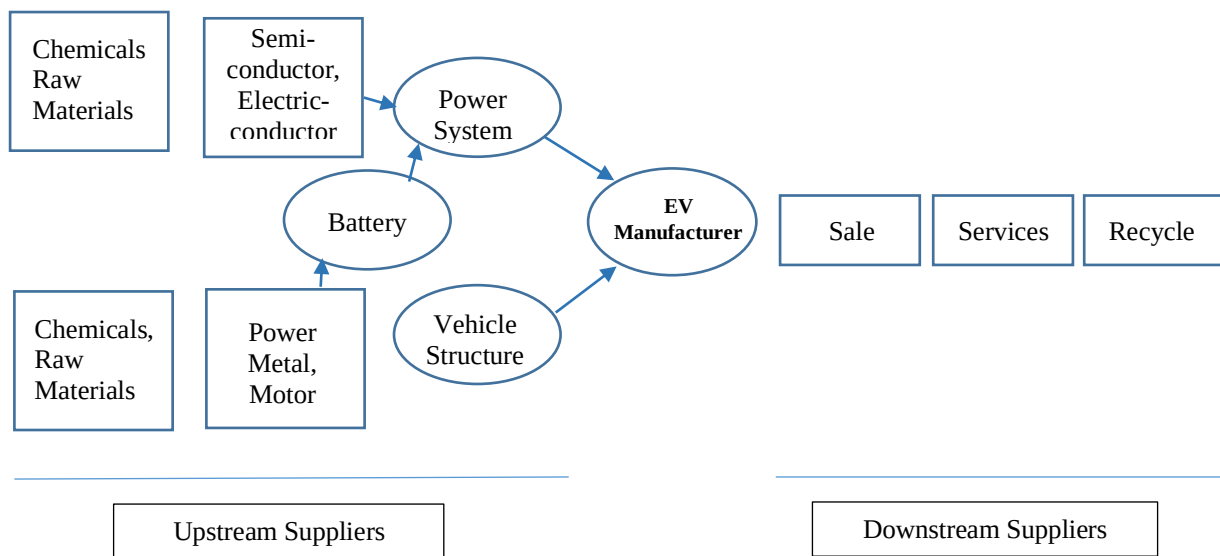


Figure 1: Porter's Value Chain Model of EV

Source: (Wu, S., 2012)

In the primary activities of the EV industry, to build a power system supplier provide chemicals, raw materials, semi-conductor and electric conductor; power metal, motor and other raw materials for battery are supplied to the manufacturing companies. Electric vehicle manufacturers then manufacture vehicles by combining power system, battery and vehicle structure and up to these activities are considered as the upstream suppliers (Wu, 2012).

After manufacturing the vehicles companies sale their products and provide after-sales services which include charging facilities, battery swapping, repairing vehicle parts etc. every product has its lifetime and electric car battery has to be disposed of in a good process so that this cannot create any further harmful consequences for the eco-system. So, there is a last stage of the primary activities to recycle the end of life products of the electric vehicle. The activities after the manufacturing the electric vehicles up to recycling them are done by the downstream suppliers and thus the whole supply chain model creates a relationship among the company, upstream and downstream suppliers. But the whole process of the primary activities cannot be done without the help of the supporting activities which are firm's base, human resource management, technology and acquisition (Beeton and Meyer, 2016). Here, firm's infrastructure means the buildings, factory, capital, charging capability and charging stations for the electric vehicles and human resource management will control and observe the use of human resource in the production and other activities. For any EV manufacturer technology is a must as electric cars have to be technologically advanced.

NEW BUSINESS OPPORTUNITIES

Electric vehicles are not only supported by inside EU but also globally like China, India and other countries (Shepero and Munkhammar, 2018) and at the same time, this is taking place of the conventional ICE or Internal Combustion Engine which produce power using non-renewable energy like fuel. From the article, it has been seen that the manufacture of an electric car is increasing day by day and consumers are more willing to pay for the electric car as it reduces carbon emission, saves money, time and provide safety along with this governments of different countries are focusing more on the use of an electric vehicle for reducing the carbon footprint (Electric vehicles in Europe: Gearing up for a new phase? 2020). As a result, the use of the conventional ICE will be reduced drastically in next few years and besides this, there are enough opportunities for the investors and executives in new business models which will help to flourish the electric vehicle industry.

To find out why electric vehicle industry has new business opportunities, the analysis of the product life cycle of the electric vehicle is needed as it will show the present stage of the product to predict the future of it (Volpato and Stocchetti, 2015). The concept of the electric vehicle is not as new as people think because it was first introduced in 1830 but did not grow much popularity and soon vanished from the market and then it again comes to the concern when Toyota releases their Toyota Prius in 1997 in Japan as the world's first highly manufactured hybrid electric vehicle (Blickwedel, Thomas and Whitehead, 2017).

And the growth of the industry continues in the 21st century where before this stage was the introduction stage in the product life cycle. In the product life cycle, the electric vehicle industry can be placed in the growth stage in the market as the people are starting to adopt this gradually and there is a scope of further innovation. For this reason, this industry has many business opportunities which will support to grow the business further and achieve the matured stage in the market.



Figure 2: Product Life Cycle of EV

Source: (Volpato, G. and Stocchetti, A., 2015)

With the growing industry of electric vehicle, some new business opportunities will emerge to support this industry and smoothen out the service to the customers. Among them charging stations, food services along with charging stations, battery disposal, recycling services, electric car parts repairing services etc. will be very popular for the customers (Shepero and Munkhammar, 2018).

Charging stations: According to Statistical Research Department (Europe: number of electric vehicle charging stations 2010-2019 | Statista, 2020), the number of the public charging station in Europe is 170149 up to July 2019 which is not sufficient enough for mass production of electric vehicle in the upcoming days. So, the demand for charging station is at large scale and for this investors can invest into different charging stations like wireless or wired charging station, platform charging stations, battery swapping etc. (Madina, Zamora and Zabala, 2016). The platform-based charging stations can connect with the manufacturer and collect charges according to the per vehicle that will be charged and the consumers do not have to pay for charging.

Charge & chill service: Some businesses can provide one-stop service where they can offer the customers to have snacks or small shopping experience while they are waiting for charging their cars.

Other necessary services: Battery disposal, changing the EV parts, recycling the end of life parts or battery services has high potential to grow within the electric vehicle industry as these will support the industry to get mature market share and insist customers buy EV.

BUSINESSES IN THE GLOBAL AUTOMOTIVE INDUSTRY TO BE DISCONTINUED

The Global automotive industry is changing through the emergence of the electric vehicle in the industry and along with the new electric vehicles, there is emerging some new businesses which will eventually affect some present businesses in this industry. Identifying the automotive industry in the product life cycle can be tough because the automotive industry is the part of transportation infrastructure rather than product (Larminie and Lowry, 2013) and for this reason, companies try to capture the market by producing a demandable product and avoid decline through innovative business models and enter into the introduction stage in the product life cycle. In this case, the global automotive industry has reached in the matured stage and has slow growth rate because of innovative less energy-consuming vehicle designs which can face decline because of the market growth of electric vehicle industry (Volpato and Stocchetti, 2015). For this reason, some of the present demanding businesses can be vanished or reduced drastically because of low demand and investing in those businesses can be non-profitable. In the global automotive industry, the number of fuel pumps will be reduced as this will be taken place by the charging stations, service-providing businesses will be specialized for the electric vehicle preparing services, recycling of the old cars can be used for new electric cars.

To identify the profitability of the global automotive industry, Porter's five forces model, advanced by Michael E Porter can be analysed as it will help to describe the industry attractiveness and competitiveness (Michaux, Cadiat and Probert, 2015).

Entry barrier: In the automotive industry, businesses require a huge investment and much legal permission to start a new business or even launch a new car brand. So, the threat of entering a new business is hard but it can be easily by using an innovative and technology-based business model.

Bargaining power of the suppliers: The customers in the automotive industry like Toyota, Volvo, Ford, BMW who have large market share, have concentrated power and can shift their suppliers easily and even can produce those them themselves (Henderson, 2019). On the other hand, suppliers are small companies and have low bargaining influence.

Bargaining power of the buyers: Bargaining power of the buyer is moderate because the buyers (customers) have high price sensitivity for the general public cars and companies have to manufacture according to their demand (Henderson, 2019).

Rivalry in the industry: The global automobile industry has reached in the matured stage and it has to compete with not only national players but also international companies (Henderson, 2019). So, the rivalry inside the industry is quite high which shows less attractiveness.

Availability of the substitutes: The availability of the substitute is high for the customers as they can use many cheaper options like bus, train, two-wheelers and ride-sharing and even get electric vehicles in a cheaper price and with comfier.

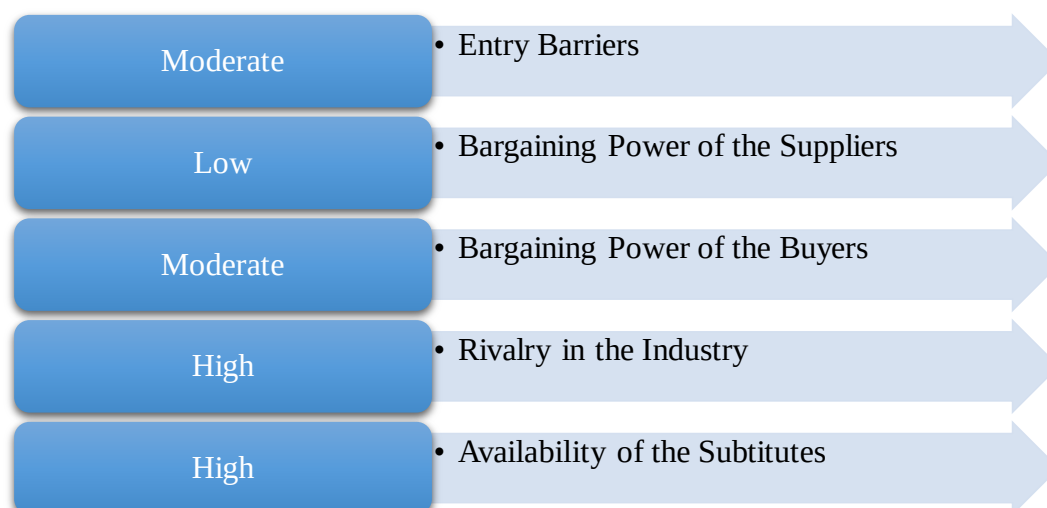


Figure 3: Porter's Five Forces Model of Global Automotive Industry

Source: (Henderson, R., 2019)

So, from the overall analysis, the situation of the global automotive industry is not attractive for investment and that's why some of its business will be discontinued in the future.

CONCLUSION

Porter's value chain model developed by Michael E. Porter, shows the relationship of an organisation with upstream and downstream suppliers which evaluates the capability of cost minimization and the diversification of the company (Chopra, 2020). Among the two activities of the value chain model, in the primary activities of electric vehicle industry, manufacturers get the raw materials for battery, power system and vehicle structure from the suppliers who are considered as upstream suppliers (Wu, 2012).

After producing the electric vehicles companies sale their products and provide after-sales services which include charging facilities, battery swapping, repairing vehicle parts etc. and recycling. The activities after manufacturing the electric vehicles up to recycling them are done by the downstream suppliers. To backing the primary activities the supporting activities are firm's base, human resource management, technology and acquisition and with the combination of these supporting and primary activities the whole supply chain model creates a relationship among the company, upstream and downstream suppliers.

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