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Electric vehicles in Europe: gearing up for a **new phase?**

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1. Introduction

With the introduction of the electric motor in its every product, Volvo set a new chapter in the history of the automobile industry. Therefore, this study discusses the opportunity to develop with the electric cars along with the future changes that would take place within the product life cycle of the electric car. Further, the study would analyze the competitive environment for the electric motor and Volvo within the industry using the porter's five force framework as well as analyze the micro-environment of Volvo and its product development using porter's value chain analysis.

2. PESTLE analysis of Volvo

Political: with the increasing infrastructure spending along with the promotion of the use of public transportation by the government authorities boosted the commercial vehicle sales of Volvo

Economy: the fluctuation in the prices of the crude oil paves the way for Volvo to introduce the electric car model into their working system (VolvoGroup, 2019). Moreover, the increasing focus in the development of a new expressway and strategy to cost-effectively introduce the CSR approach proves to be beneficial for Volvo's electric car.

Social: with the increase in awareness among the people towards sustainable alternatives has created a positive impact on Volvo's electric car sale. Moreover, the decreasing rate of car ownership and increasing inclination, towards the use of public transport proves beneficial for Volvo (VolvoGroup, 2019). Besides, as electric car provides low maintenance to the consumer and design based on safety standards, Volvo has significant opportunity to prosper in the automobile industry.

Technological: the inclination towards the development of autonomous vehicles and incorporation of green technology within the vehicle has positively impacted on Volvo's approach to incorporate electric model in its every model from 2019.

Legal: carbon emission would be greatly reduced with the electric motor car. As a result, Volvo's decision to incorporate an electric motor in its every model follows the legal emission regulation.

Environment: Use of electric motor in vehicle result in zero exhaust emission of carbon within the environment. Therefore, the electric vehicle of Volvo proves to have a negligible harmful effect on the environment.

3. Product life cycle

Key stages in electric vehicle

The key stages involved in the product life cycle of electric vehicles compose of 7 important stages that consist of raw material production, manufacturing, transportation, operation, decommissioning, and well-to-wheel life cycle. The first stage involves the production of raw material in which, 73.2 GJ to 139.2GJ of total energy was consumed as a result carbon emission took place (Kukreja and Cheng, 2018). The second phase is the manufacturing process in which the compact cars are manufactured, which results in the consumption of 17-22 MJ/kg (Kukreja and Cheng, 2018). The third phase involves the transportation phase in which the vehicle from its point of assembly to its point of use is transported. The operation phase involves the longevity of electric vehicles while performing its operation and the amount of energy it consumed for its operations (Kukreja and Cheng, 2018). The decommissioning involves the process of dismantling as well as shredding the Volvo's electric car (Kukreja and Cheng, 2018). Volvo has claimed that it would provide a warranty for its product up to 8 years from the date the vehicle is

delivered to its first owner (Korosec, 2019). However, after the warranty, if any problem occurs within the electric vehicle, the owner needs to spend money on the repairing of the vehicle. However, in each stage, the key aspect was to reduce the carbon emission from the overall life cycle of the electric vehicle of Volvo.

Evaluating the current stage of Electric vehicle

The current stages in the product life cycle of Volvo's electric car involve enhancing the battery storage life so that a large amount of electricity could be stored. Volvo uses Li-ion cells as its battery to power its electric motor; however, to store power for a longer period, Li-ion cells would not be adequate. Therefore, the key stage in the product life cycle of the electric vehicle is developing the battery capacity of the electric vehicle (Kukreja and Cheng, 2018). Further, Volvo's goal is to reduce the carbon footprints that are generated from its product by 40% (Kukreja and Cheng, 2018). Though the electric vehicle does not produce any carbon emission the generation of electricity for powering the electric motor involves the use of non-renewable from which, carbon emission took place. Thus, the key stages in the production and development of the electric vehicle of Volvo are to reduce the carbon emission using a renewable energy source to store electricity within the battery used in the electric vehicle. Therefore, Volvo highly focussed on the well-to-wheel life cycle that involves energy resource extraction along with production and distribution of energy carrier and efficient use of this converted energy are the key stages.

Evaluating the earlier stage of Electric vehicle

The main problem of the electric vehicle was the absence of proper technology in the form of battery that could store the electrical power for a long period. Moreover, due to the use of

expensive batteries, the costs of the electric vehicle along with its maintenance cause increase due to which, its development was slow.

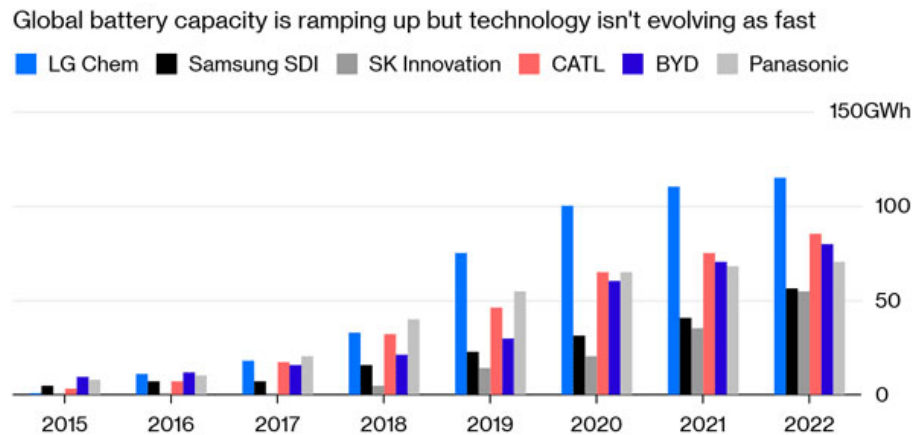


Figure 1: Showing the developing trends of battery for electric car

(Source: Trivedi, 2019)

Besides, the global energy consumption was increasing along with it, the need for global battery capacity also increased but the technology to store and fulfil the requirement to store the energy does not change. Therefore, for the past five years, improvement in extending the battery life and enhancing the battery capability was done.

Evaluating the Future stage of Electric vehicle

The future stage of Volvo's electric vehicle with respect to the storage of electrical energy would not change until innovative ideas change the situation. However, in the future stages for the electric car of Volvo, they would be able to reduce the carbon footprint from the entire lifecycle of the electric vehicle up to more than 60% within the next 10 years (Korosec, 2019). With the incorporation of renewable sources of energy within their system and an increase in the awareness among the people regarding climate change, the increase in the sale of the electric vehicle of Volvo is being predicted.

4. Analysis of the competitive environment: Porter's five force framework

Threat of new entrants

The threat of new entrants is low in the case of Volvo. This is due to the reason that Volvo has already held a prominent position in the market through the excellent activities that it has provided to the customers. Additionally, it is a well-known name in the automobile industry. The strategic approach of electric cars has provided it with an additional advantage to provide satisfaction to customers. Thus, the threat of new entrants is low.

Threat of substitutes

The threat of substitutes is low. No other automobile companies have significantly established the approach of developing electric cars instead of the same historic combustion engine cars until the initiative of Volvo. Thus, the chances of threat regarding the substitutes are low.

Bargaining power of suppliers

The bargaining power of suppliers is high. This is due to the reason that a huge number of suppliers exist in the market of the automobile industry (Pelliccione et al., 2017). Thus, the bargaining power of the suppliers is high as it has many significant other companies in the automobile industry to provide its raw materials.

Bargaining power of customers

The bargaining power of customers is low. The Volvo Company is one of the very few companies that have taken the initiative of developing electric cars to fulfilling the needs and demands of customers. Thus, the bargaining power is low concerning the clients as very few options exist for them to buy the innovation established by the company.

Competitive rivalry

The competitive rivalry is high due to the increased rate of competition in the automobile industry for a huge number of companies providing similar services and products (Shima, Kobayashi, and Shirasaka, 2019). However, the development of electric cars can allow the company to face the competition and hold a topmost position in the market.

5. Porter's value chain

Key primary activities

The key primary activities that are carried out in Volvo include:

Inbound logistics

The inbound logistics of the organization includes storage of raw materials, transportation, and delivery of products significantly.

Operations

The operations of the organization are the design and development of cars thereby carrying out the production in an effective manner.

Outbound logistics

Outbound logistics comprises the products of the business moving out of business for sell.

Marketing and sales

Marketing is an important activity in every organizational system. Volvo has been able to develop significant marketing activities for increasing the sales of products and services.

Services

All the significant services of the automobile industry are provided by Volvo to its clients. The services include the development of new automobiles and repair of any automobile parts.

Evaluating the key primary activities important for the future

All the above mentioned key primary activities are important to be carried out by Volvo for proper functioning of the organizational processes. However, the most important primary activities that are to be carried out by Volvo include marketing and sales, services, and inbound logistics. The inbound logistics of the company should be carried out effectively for developing a unique product that has been decided by the authorities of the company. Furthermore, marketing is an essential activity that must be developed by the company (Dal et al., 2017). This can then ensure to attract the attention of clients significantly thereby improving the sales of the company. Moreover, the services of the company need to be properly delivered to the clients so that no issues of complaints can arise in the system thereby interfering with the sales of the newly developed and designed product.

Evaluating the unimportant primary and secondary activities

All the primary and secondary activities of Volvo are important and thus all the activities need to be carried out by the organization. No activity in both the primary and secondary criteria can be regarded as unimportant and excluded for the future business. In spite of the innovation in a product that has been established by the company, it is important to include and follow all the primary and secondary activities so that the functioning of the internal activities of the organization can be facilitated properly. The marketing activity, however, can be regarded as one of the most important activities for drawing the attention of clients. Furthermore, another

important activity that needs to be excellently followed is the technology involved that comprises the secondary activities (Hossain, Tasnim and Hasan, 2017). This is due to the development of electric cars that is entirely dependable on the involvement of technological aspects.

Industry value chain

Supplier value chain

The supplier value chain involves the proper management of raw materials and building effective relationships with suppliers to get the best raw materials. The entire process of getting raw materials for the production process is critical and essential.

Channel value chain

The channel of the entire process of logistics is essential and should be critically carried out by evaluating the benefits and risks.

Buyer value chain

The needs and demands of buyers should be provided along with the aspect of proper pricing so that the buying of the products and services can be facilitated properly (Christiansen and Strobel, 2019).

Firm value chain

The infrastructure of the firm and all the technological aspects are essential to be build significantly for proper management of the development process and delivery of services.

Disposal value chain

The disposal chain that is the elimination of wastes during the entire process of production and other activities needs to be carried out properly.

6. Conclusion

Volvo has thus planned to develop electric cars instead of historic combustion engine cars. This has added value to the products and services of the organization thereby improving the sales significantly. However, a problem had persisted related to technological inclusion. This can be resolved with the proper inclusion of the primary and secondary activities of Volvo for proper facilitation of the organizational processes. Additionally, the marketing strategies and activities should be significantly developed for grabbing the attention of clients and improving the sales of products.

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