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The Global Business Environment

Electric vehicles in Europe

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Introduction

The auto industry has been undergoing significant transformation over the past decade with traditional fuel vehicles giving way to autonomous vehicles and ride sharing options. Technology too is also getting significantly advanced for vehicles. One key trend which is becoming increasingly visible is the industry slowly inching towards manufacturing of Electric Vehicles (EV) (Gao, et al., 2016). Government regulations and drive for cleaner vehicles, concerns about environmental degradation, cost savings and changing customer preferences are the reasons for this major change. This report has taken up the case study of Volvo Electric Cars and has taken references from ““Electric vehicles in Europe: gearing up for a new phase?” to understand the new and emerging business opportunities for car manufacturing industry in the wake of the new trend. Porter’s Value Chain and Life Cycle analysis models have been considered to understand the trends. Also, critical assessment of current businesses related to the global automotive industry which may cease to be profitable in the long run has also been given.

a) New and emerging business opportunities for entrepreneurs and business executives due to production and marketing of electric cars

The transformation in the auto industry is happening at a rapid pace due to the technological advances, changing customer demands and stricter regulations with respect to increasing fuel efficiency and reducing carbon footprint. This has led to a fundamental shift from traditional gasoline charged vehicles to newer technology like autonomous and electric vehicles. The need for cleaner cars and cost savings has led to preference for electric cars, especially by the younger generation giving opportunities for even smaller players like Tesla to move up the electric vehicle sector. With software leading the way for innovation and increased product value, Original Equipment Manufacturers will need to change their current strategies or form key tie-ups to participate in the new developments to be in the race and stay ahead of competition (Gao, et al., 2016). There is seen a gradual shift in revenue pool to mobility services and data driven innovative services like car sharing.

The new and emerging trends, especially in the Electric Car segment have given rise to various business opportunities in the auto world moving away from the traditional business options. The shift towards electric mobility has given rise to a new end-to-end value chain (Amsterdam Roundtable Foundation and McKinsey & Company , 2014). Porter's Value Chain analysis and Life Cycle model have been provided below to understand how the EV segment will make use of the latest transformation happening in the auto world to create business opportunities for the sector and surge ahead in the future.

By doing a Value Chain and Life cycle analysis for EV's, one can analyse the various activities and the technological impact to the sector, presently and in future.

Value Chain Analysis

The value chain model, developed by Porter, would help in understanding the primary activities and support activities for the EV segment; and analyse these factors to minimise costs or add to business opportunities and competitive advantage (Grant, 2016). The economics of the EV supply chain refers to the supply of raw material and battery recycling segments as major components. Opportunities in the form of Vertical OEM on the infrastructure side are making car manufacturers shift from the traditional car production role. For example, Tesla offers full access to Supercharger stations which are compatible with its models (Amsterdam Roundtable Foundation and McKinsey & Company , 2014). Companies could consider providing charging point services for private charging as an emerging opportunity. They install charge points at home or at the office and provide maintenance services. One has to consider the multi segment supply chain in this segment with multiple stakeholders to understand the varying economic features. The value chain analysis for the EV sector is as below:

Value Chain Model

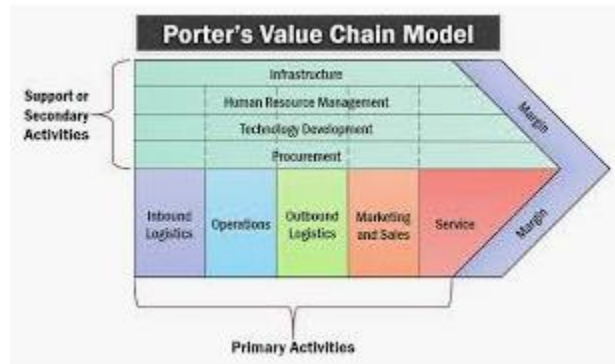


Figure 4: Source (The Investor Book, 2019)

Primary Activities

Inbound Logistics

Inbound logistics for the EV sector would refer to the inward flow of raw materials and goods into the industry which includes supply of raw material, warehousing, transport and delivery. How the EV company utilised its warehouses and distribution network would give the company better cost efficiency and competitive advantage.

Operations

The manufacturing activity carried out for converting raw materials to finished products requires efficient management by the EV team through efficient use of their technology based operational systems. There is the need for navigation software and apps related to charging infrastructure to be properly made available to EV drivers (Amsterdam Roundtable Foundation and McKinsey & Company , 2014). Currently, this option is limited so it could create opportunities for having charging stations installed at specific locations a lucrative business opportunity just like the existing fuel stations.

Outbound Logistics

Outbound Logistics for the EV segment refers to the warehousing of the vehicles to its transportation and distribution to end consumers. The automotive logistics market is expected to reach USD 472.9 billion by 2025 with CAGR of 7.55% due to increased vehicle production, and electric vehicles increased boom being the main reasons for the growth (Markets and Markets, 2020).

Marketing and Sales

The automobile industry has huge competition where companies use both traditional mediums like billboards, print etc and digital mediums like website, social media etc to promote their products and brand.

Support Activities

Procurement

The EV's manufactured use parts which are sources from suppliers globally, emphasising the need for maintaining strong relationships with major suppliers.

Technology Developments

With the automotive industry being hugely competitive, technology and innovation are the key differentiators for the industry. Autonomous driving technology and electric mobility are the latest technological trends gaining prominence in the auto industry so companies would have to invest a lot in R&D to gain competitive advantage (Amsterdam Roundtable Foundation and McKinsey & Company , 2014).

Infrastructure

The infrastructure relates to the different departments like administrative, quality assurance, accounting, finance, general management, etc.

Human Resources Management

HR management is now an important area of focus which ensures maximum human resource utilization and value creation for the enterprise.

The model shows that due to the changing trends in the auto industry and particularly EV segment, there is lot of opportunities throughout the value chain for companies focussing on technological innovation.

Life Cycle Analysis

Life cycle analysis helps to analyse the benefits and drawbacks of technology to a product and can serve as a decisive tool in vehicle engineering (Li, et al., 2016). For the EV segment, the analysis is done by assessing the environmental impacts of using technology relating to energy efficiency and use of key metals; and CO₂ related emissions during the various stages of the vehicle life cycle as shown below.

Life Cycle Analysis



Figure 5: Source (Drive Electric, 2015)

A Life Cycle Analysis report was done by the Energy Efficiency and Conservation Authority (EECA) which found that EVs suit New Zealand's environment far better than gas powered vehicles both across the lifecycle of the vehicle and while in use. It looked at the various stages of the EV life cycle from resource allocation to production, to its use on road and recycling at the end of the life of the vehicle. EV's were seen to perform higher with regard to lower carbon emission across the life cycle showing 60% fewer CO₂ emissions than petrol operated vehicles. With renewable energy going to be the norm as cited in the study in New Zealand, CO₂ emissions from EV's are further expected to go down further. Also, 40% less energy is required for an EV when compared to gas operated vehicles. EV's also report lesser smog formation and lower levels of particulate matter across its lifecycle. Also, due to production of EV's there was no major depletion

of key earth metals as mainly lithium is used in its batteries. (EECA, 2015). The above analysis shows that EV's are ecologically sustainable and cost-effective.

The above analysis and the critical assessment shows that reputed car makers like Volkswagen, Tesla are revamping their business models to rope in electric cars as the future of the auto industry, in the process gaining competitive advantage and creating new business opportunities in the bargain.

b) Critical assessments of other businesses currently related global automotive industry that may not be profitable in the long term

The move towards more advanced technology, reducing carbon footprint and changing consumer preferences has led to increasing popularity of autonomous and electric vehicles. Electric vehicles could be the future of the automobile industry and if this is the case, then it could mean certain traditional businesses in the auto industry would not longer be able to sustain itself in the near future. The drive towards car sharing as a revenue model would mean less cars would need to be manufactured in the long run. Stringent government regulations going for fuel efficient cars and reduced carbon footprint, reducing battery prices and increased awareness, has also increased the demand for electric cars globally, significantly, thereby affecting the traditional gasoline powered vehicle manufacturing, putting those businesses on a decline. One sector which is facing the heat due to growing popularity of the electric vehicle segment is the auto parts supplier's business. The shift from the internal combustion engine to EV can cause severe impact on the businesses of auto parts suppliers and small companies, which could even lead to their closing of business. Big organisations in the traditional component industry may have the necessary capital to adapt to the changes and move ahead but small players could see a sharp decline in their profits if EV is going to the future norm (Kauerhof, 2017). Also, building a traditional vehicle is very labour intensive but building an electric car requires only 30% of such labour. The move towards automation could also hamper the jobs on the factory floor. There is also the chance that such EV's could even be sourced offshore leading to a shift in manufacturing jobs. Due to EV's being cheaper to manufacture than traditional vehicles, competition will become more severe as government

regulations are also getting stricter on emission issues. As demand for such electric cars will increase, there would be need for fewer people to work on the same as these would be manufactured more on automated assembly lines, leading to less requirement of labour for assembling motors and for transmissions. Due to the nature of internal combustion engine being phased out to make way for electric car engines, there is going to be a dynamic shift in the automotive supply chains, leading to several traditional businesses being either phased out or reporting lesser revenues in the near future. There would be a change in the type of logistics required to process such new developments, the markets and destinations would also change leading to disruption in the supply chain. Battery manufacturing process would be the prominent technology applied to EV's which would cause a major change in the automotive supply chain. This would lead to lower volume manufacturers being phased out by higher volume battery pack producers (Dijk, et al., 2016). With no need of an engine plant or a welding shop, there could be a shift to higher level of outsourcing to new suppliers for components. This will lead to shrinking the size of the automotive assembly facility along with revised logistics requirements. This would lead to auto manufacturers losing hold on their core competence which was the assembly line making them to focus on the design and marketing of their products to be sustainable in the future. This impact of the reduction in the parts and elimination of certain sections of suppliers could cause a severe disruption in the automotive supply chain.

With changing and advanced technology, change has been evident in all industrial sectors, including the automobile sector globally. Though the popularity of the EV segment would lead to disruptions in traditional auto businesses and jobs, which could cause a severe impact on them, still the need for energy efficient and environmentally friendly cars cannot be ruled out. With younger generations preferring to go for such models, this could be the way vehicles would be manufactured in future. So, manufacturers would gain by adapting to the new technology and models to be part of the race and to have a competitive edge. They would have to realign their current strategies to suit the new trends so as to sustain potential growth and profitability.

Conclusion

The report talks about the how the current and emerging trends in the auto industry is having an impact on it. Electric vehicles are increasingly becoming popular due to changing customer preferences for environmentally friendly vehicles, the continual use of advanced technology and stringent government regulations with respect to favour for energy efficient cars. The report considers the new and emerging business opportunities in the wake of the increase in demand for EV's. Porter's Value Chain analysis and Life Cycle Analysis have been given to understand the new and emerging trend and business opportunities. Critical assessment of businesses which would not be profitable in the near future due to the advent of the electric car segment has been explained. Though there could be disruptions in the traditional businesses due to increase in the EV manufacturing, still the segment being an environmentally friendly one and cost effective, would be a feasible and attractive option for the future.

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