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**New Business Opportunities in the
EV Industry 2**

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1. Introduction

Nowadays, major concern is to reduce or eliminate the dependency on fossil fuel use in every sector of the business. Therefore, investing in different researches in line with new energy fuel is a priority in the automotive industry. Also a concern is given to the mass world pollution and working towards clean energy is needed. So far batteries are the answer and the technology that enables the development of electric vehicles and enhance the electric vehicle industry (Chalk et al., 2006).

The key idea of this study is to discover the new opportunities and discontinued businesses in the automotive industry. Therefore, identifying and analysing a company's value chain, industry value chain and the stages of the product life cycle of the electric vehicles is necessary. High product demand signifies new business opportunities for the future.

2. Porter's Value Chain

The Porter's Value Chain is a strategic management tool for analysing how an organisation adds value to its products or services. According to Porter, the amount that buyers are willing to pay for a product or what firms provide them is value. We can speak about a profitable firm when the value exceeds the cost involved in creating the product. When firms deliberately increase their cost the value becomes a premium price (Porter, 2001).

Example of a company: Tesla's first sports car Roadster was sold on a premium price to boost the production of more cars. According to Musk, Tesla's CEO, by selling expensive cars, the company would be able to build and sell more and more affordable ones in future. (Greiner et al., 2019)

The Value chain represents a firm's activities that are carried out to shape, organise, and produce its idea. Then to market and deliver to the buyers and also includes its support activities. They are classified as primary and support (secondary) activities. The way a firm performs its individual activities and the way its value chain is presented actually

reflects the history, strategy and approach to implementing its strategy in the market. Even if two companies are working in the same field of the market, no two are the same (Porter, 2001). (Fig 1).



Fig 1. Porter's Value Chain. Source: Smartsheet, 2020

2.1 Key Primary Activities and Secondary Activities in the firm

As per Porter's Value Chain model, the primary activities within the company consist of inbound logistics, operations, outbound logistics, marketing and sales, and service (Fig.2). (Tarver, 2019)

Primary Activities	Description
Inbound Logistics	Receiving and storing raw materials for producing the end product
Operations	Activities that transform the raw materials to ready (finished) products and services
Outbound Logistics	Actions associated with getting ready products to the buyers
Marketing and sales	Activities of informing the buyers of the price, benefits, use, etc.
Service	Activities related to maintaining products performance after they have been sold

Fig 2. Source: Author (M Paskaleva)

Example of a company: The most important of the primary activities is the inbound logistics. The suppliers must be reliable and the raw materials must be of a good quality. Back in 2013, Tesla signed a contract with Panasonic, firm with long history and reputation, a four years contract to deliver nearly 2 billion Li-ion-based battery cell for their production cycle (Amsterdam Round Table Foundation et al., 2014).

The secondary activities are exactly what is said. They are second as they are not directly associated with the end price of the product. However, they are very important for each company as they add value to the end product (Fig. 3). (Tarver, 2019)

Secondary Activities	Description
Procurement	Involves negotiations of the prices with the suppliers and the supply of raw materials
Human Resource Management	This is concerned with the recruitment, development, monitoring, motivating, etc. all members of the staff
Infrastructure	These are the finance, quality control, legal and administrative activities that the company performs
Technological Development	This is mainly used in the research and development departments and gives advantage of any company

Fig 3. Source: Author (M Paskaleva)

Example of a company: In 2013, Tesla also was the only company that was able to offer battery swapping facilities. That proves the importance of the secondary activities within the company too. Having a knowledgeable Research and Development Department as part of the Technical Development activities is a great benefit for each company (Amsterdam Round Table Foundation et al., 2014).

2.2 Industry Value Chain

Here, with the help of Porter's value chain analysis, the value chain of the electric vehicle industry has been shown (Fig 4). The major players in an industry value chain are the suppliers, production, sales, customers and associated services as insurance, charging stations, etc. and recyclers.

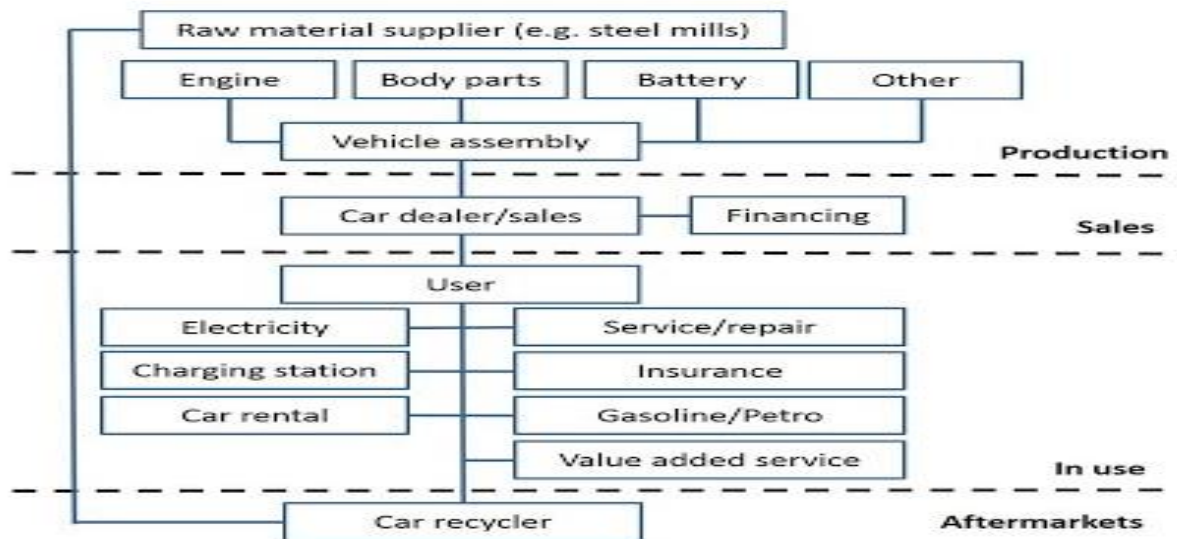


Fig 4. Porter's Value Industry Chain. Source: Electric Vehicles - Industry Analysis (MGMT 5510 Spring 2014), 2020

Considering the above diagram can be seen that some players will appear in the industry scene and others will vanish. In the production phase the battery's suppliers will expand their businesses and become more and more popular. Other businesses that will emerge are the manufacturers and distributors of electric charging stations. In the other hand, the businesses that will disappear are all internal combustion engine manufacturers.

The value chains associated with the electric vehicle industry are presented as follows (Fig. 5):

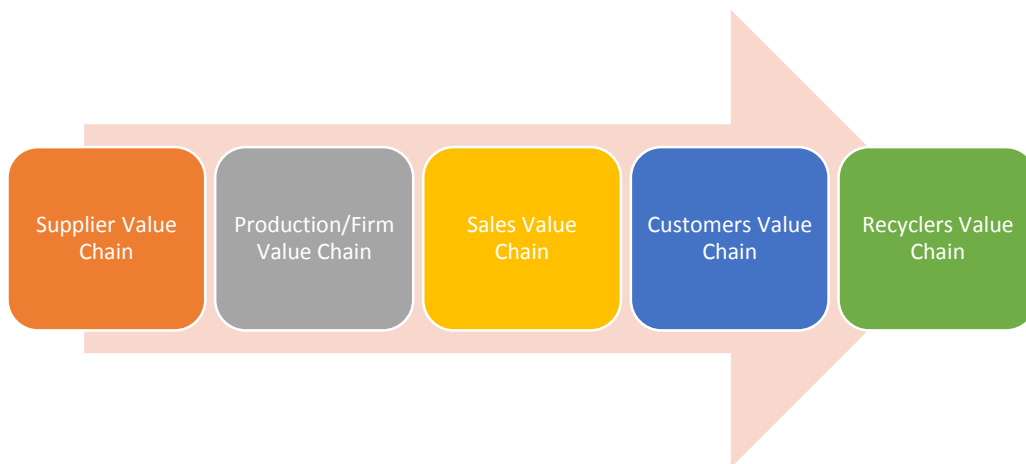


Fig 5. Porter's Value Industry Chain. Source: Author (M Paskaleva)

The above illustration of the industry value chain presents the key value chains that are applicable in the electric vehicle industry. The supplier chain of the electric vehicle industry requires the supply of electric batteries for manufacturing the electric vehicles. Next, to the supply chain, there comes the sales value chain, where the distribution of EVs needs to be done. In the customers' value chain, successful purchasing of EVs occurs. Last in the chain become the recyclers. Here the used or disposal production is recycled to be involved in the manufacturing process again (Cicconi et al., 2012).

2.3 Value Chain Analysis

Petrol and diesel hinder the environment through their emissions. The electric vehicles are non-emitters of carbonaceous gases, as they are entirely driven by batteries (Nordelöf et al., 2014). Considering Porter's Value Chain analysis, it has been found that some business players will thrive in the new electric vehicles market, whereas others will disappear.

3. Product Life Cycle

A product life cycle defines the stages through which a specific product has undergone during its lifetime. The life cycle consists of four stages. They are market development (introduction), growth, maturity, and decline. The Product life cycle model is mainly used as a marketing tool and plays a significant role of deciding when to advertise, introduce promotions, expand to new markets or present new version of the product (Levitt, 1965).

Stage 1. Market Development – This is the stage where a product is first introduced in the market. It is characterised with low sells and no proved demand for it.

Stage 2. Market Growth – At this stage the demand is rising and sells are increasing rapidly.

Stage 3. Market Maturity – At that stage, there is not a significant growth or interest of the product

Stage 4. Market Decline – This is the stage where the customers demand and sales are very low

3.1 Current electric vehicles life cycle stage

The electric vehicles have already been introduced and are receiving extensive growth at the moment. The sales had doubled between 2015 – 2017 years. Only for the first half of 2018, 783 000 vehicles were sold and it was expected the sells to growth up to 2 million units by the end of 2018. Therefore, the market for electric vehicles is considered to be at the rapid growth stage now (Deloitte, 2019).

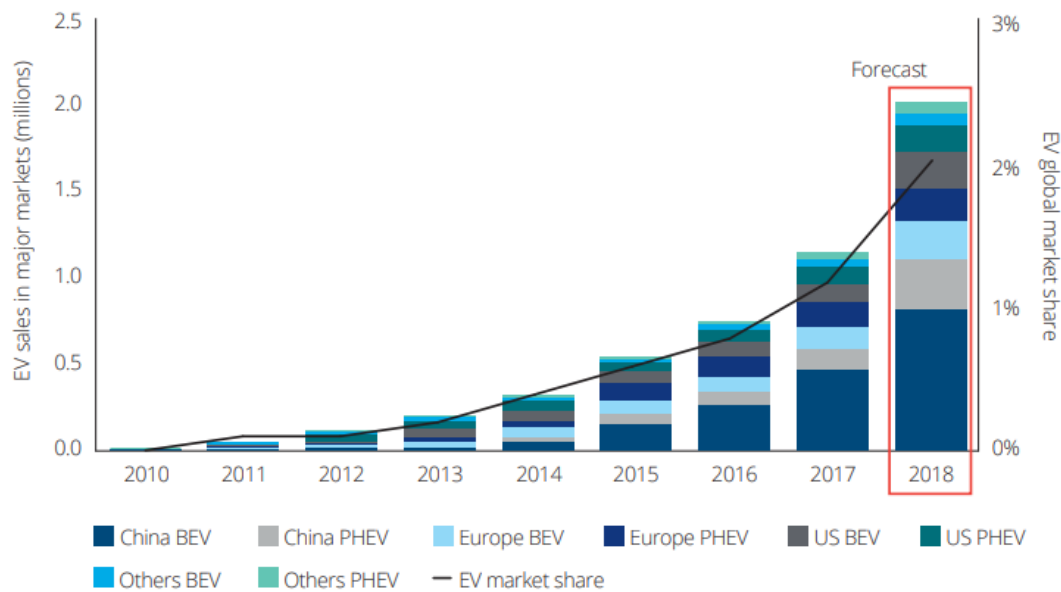


Fig 6. EV passenger car sales in major regions; Source: (Deloitte, 2019)

Report of the first quarter of 2020 shows

- Germany is the largest EV market in Europe and surpassed Norway
- United Kingdom is the leader of hybrid car sales
- An increase by 82% of new registration of electrically chargeable vehicles
- An increase of 58% of sales of battery-electric cars

(Bekker, 2020)

3.2 Electric vehicles key stage 5 years ago – 2015

Only some years after the electric vehicles were introduced in the automotive market on very high prices, a decrease of the batteries prices made them affordable for most people. Batteries prices dropped by 65% since 2010 (BloombergNEF. 2016). At 2015 the EV's were in the development stage considering the progress now in 2020.

3.3 Forecast of electric vehicles key stage after 5/10/20 years – 2025/2030/2040

According to Deloitte (2019), many car producers already made a considerable progress in the Electric Vehicles market. Technological developments are in constant progress by improving the charging times and miles run, and reducing the cost of production. However, the product has not reach the mature stage as yet and it is believed that there would be more new entrants by 2030.

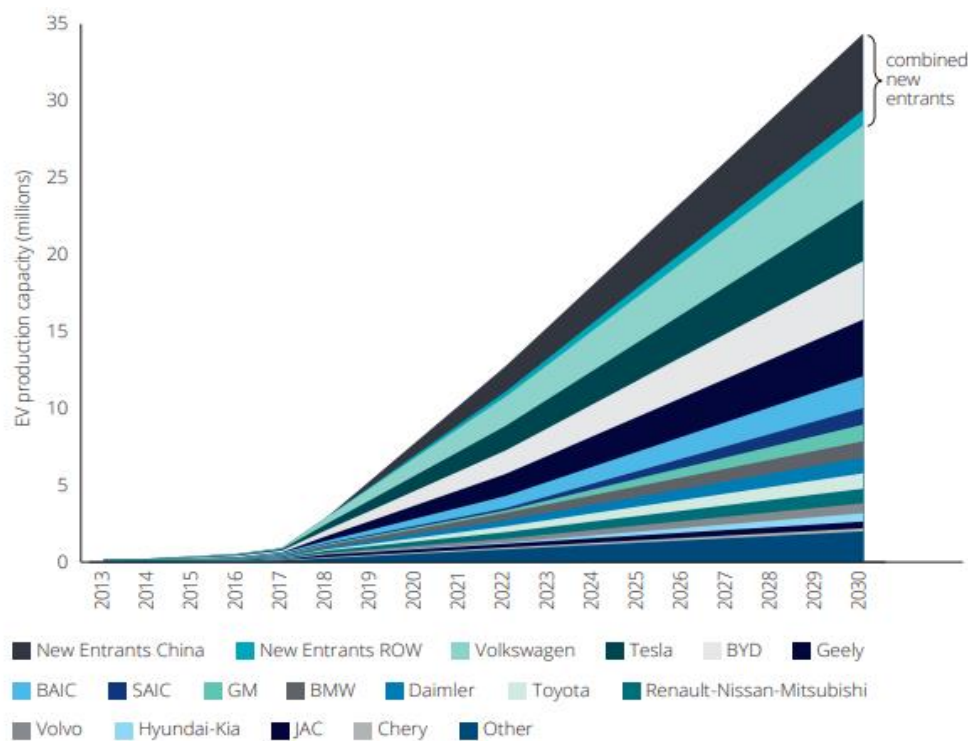


Fig 7. Electric vehicle production forecast of major OEMs and new entrants; Source: (Deloitte, 2019)

In 5 to 10 years, the market is expected to grow further with reduction of vehicle prices. For example, Tesla is expected to hit \$1 trillion in revenue in 10 years. Ron Baron, an

investor, believes that the next 10 years are just the beginning for Tesla and the company will continue to grow (Wayland, 2020).

According to Bloomberg New Energy Finance (2016), the EV's sales will grow by 35% and will hit 41 million by 2040 and the EV's will use 2,700 TWh of electricity (BloombergNEF. 2016).

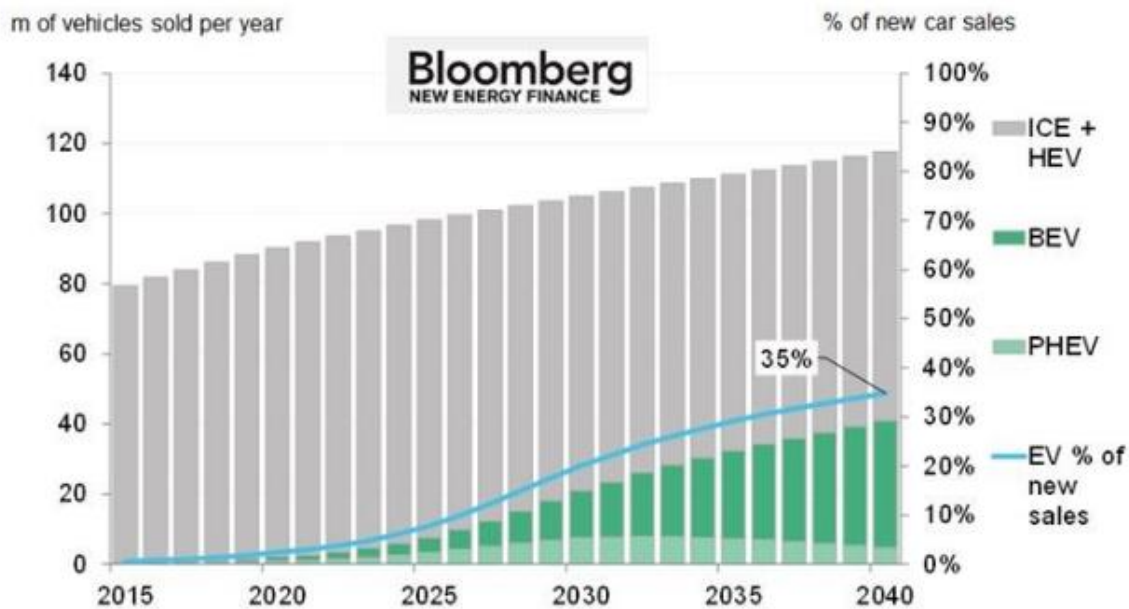


Fig 8. EV's forecast by 2040; Source: (BloombergNEF. 2016)

3.4 Product Life Cycle Analysis

The product life cycle of electric vehicles reveals that it is currently in the growth stage. The environment-friendly nature of the EVs has led to such huge market outgrowth of the EV industry. In 2017, the EV's had doubled sales (2015 – 2017) and after 10/20 years, it is expected to grow even more in market. However, even in 2040, the electric vehicles would still be in the growth stage considering the all World's ICE vehicles that must be replaced.

4. New opportunities and discontinued businesses

The two largest markets for electric vehicles in the World are China and the USA. The most recent CAM Electric Mobility Report 2020 examines the 2019 and shows that at this two leading markets is a decline in e-mobility. However, Europe shows significant growth in new registrations (Richert, 2020).

Europe has been positioned as the global leader in sales of electric vehicles for the first quarter of 2020. European countries like France, Germany and the United Kingdom are actively developing policies for promoting the sale of EVs (Weiss, 2020). Hence, all Europe based electric vehicles manufacturers will have new opportunities to enter the business firmly. Also, the large-scale pollution emission from carbon dioxide makes unattractive conventional cars and have allowed electric vehicles to expand in the global market.

Businesses of the internal combustion engine (ICE) manufacturing vehicles which are the traditional part of the automotive industry will not be profitable anymore. Therefore, investing further in diesel and petrol-fueled cars, as they will get extinct in the future must stop as soon as possible. Also, electric cars are non-emitters of carbon dioxide and particulate pollutants (Forbes, 2018).

Kotler's 8 step change management model suggests that a change needs to be done by creating a sense of urgency, forming the coalition, create a vision of the change, communicate the vision, removing obstacles, create short term wins, building on the change and anchoring changes in corporate culture (Rosenberg et al., 2011). In the case of the automotive industry, the change needs to be done by transforming the infrastructure of the sector from fuel-powered vehicles to battery charged cars. For this, the companies need to convince stakeholders about the urgency by showing them the massive carbon dioxide emissions done by petrol and diesel-powered vehicles. Later by proceeding through the eight steps of Kotler, new opportunities are anchoring in the corporate culture.

5. Conclusion

Opportunities come when there are favourable conditions in the operating market of businesses. The Porter's Value Chain and the Product Life cycle models have helped to identify the new opportunities and the discontinued businesses in the Electric Vehicle industry. The EV's are currently in the growth stage and is expected stay in the growth stage even after 10/20 years. Electric vehicles are battery-powered and use sustainable energy, which is the unique selling point of electric cars. The enormous demand from people for electric vehicles became possible when the value of cars was not the only decisive factor in buying them. Convenient maintenance, the ability to save, new thinking and the pursuit of nature conservation have also allowed electric vehicles to gain an advantage in the markets. The affordable prices, environmental-friendly demeanor and fast technology progression have created a huge demand for EVs in the global markets and many new opportunities.

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