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Global business environment

(LCBB4005)

Assignment one

Electric vehicle industry

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INTRODUCTION

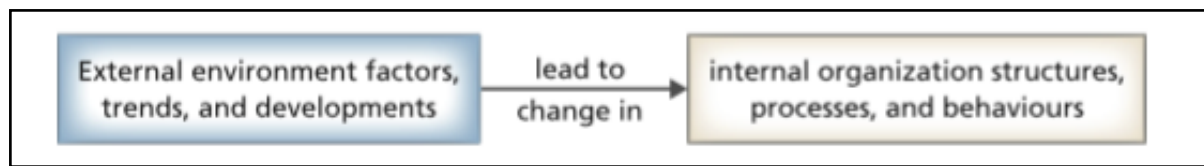
The EV industry has experienced steady growth through the years, surpassing one million unit sales in 2017 for the first time and forecast to grow from 2 million units in 2018, to 4 million in 2020, 12 million in 2025 and 21 million in 2030. This growth will be boosted by declining battery costs, government incentives, improving infrastructure as well as growing acceptance due to growing air concern issues among consumers (McKinsey 2014).

PART 1: BUSINESS ENVIRONMENT

In order to be successful, a business must adopt to external forces, failure to study and respond to these forces can result in failure. An organisation has to beware of these forces by identifying and analysing these factors through environmental scanning (Worthington and Britton 2014). As noted by Huczynski and Buchanan (2013), this process involves data collection from a range of sources including internet sites, government statistics, newspapers and magazines, market research etc. One major force that organisations should look out for is the technological changes in the business environment, though it has potential to create opportunities, it can also endanger the organisation. External factors can range from suppliers, competitors, regulatory agencies and joint venture partners among others (Huczynski and Buchanan 2013; Worthington and Britton 2014; Johnson et al 2017).

Using PESTLE and Porters Five Forces analysis, this paper will analyse the external environment of Electric Vehicles.

Figure 1: Impact of external environment



Source: Huczynski and Buchanan 2013)

Macro environment (PESTLE analysis)

Though all forces are important, the report has only considered political, economic and environmental issues because they are currently the main trends impacting the EV industry.

Political environment

One major factor boosting the growth of EVs trend is government support in form of emissions target, incentives, city access restriction as well as fuel economy.

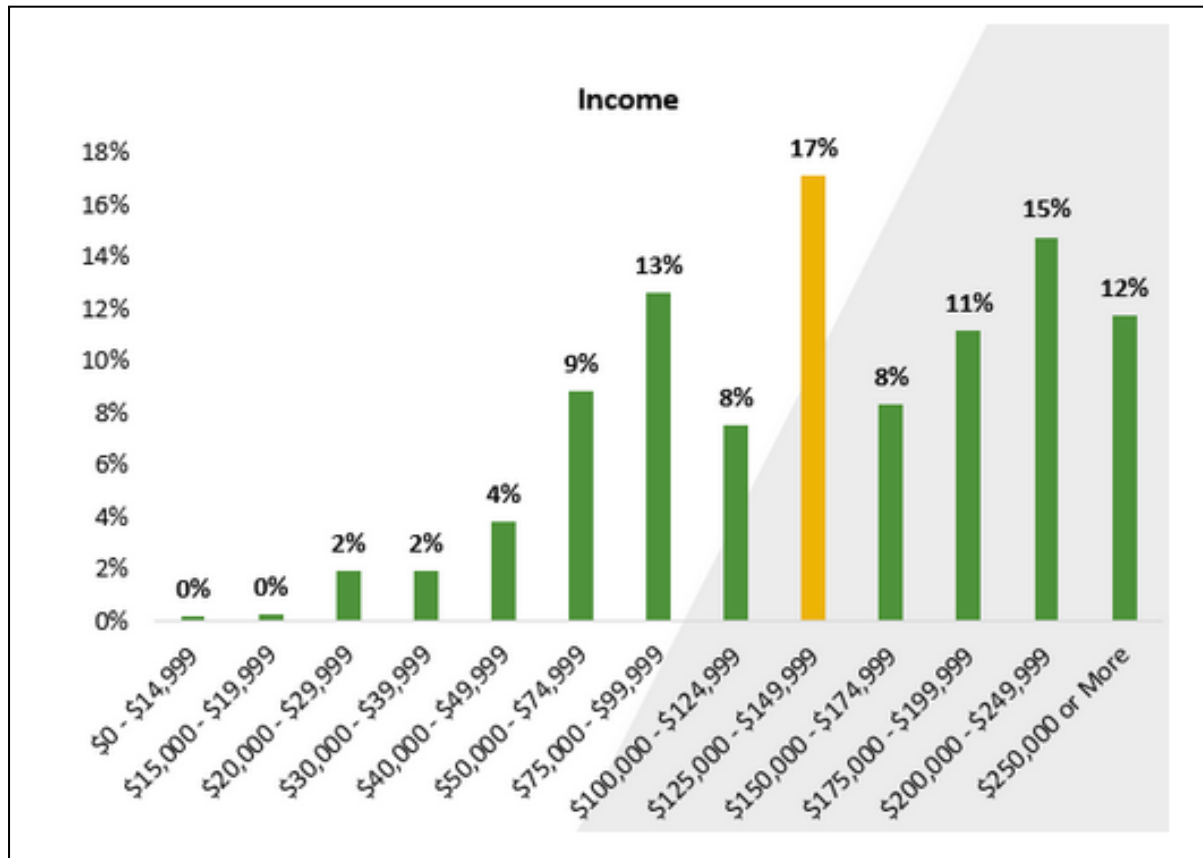
Financial incentives such value-added tax (VAT) and vehicle registration tax exemptions, or government subsidies, have made EVs more appealing to customers (McKinsey 2014; Deloitte 2018). On top of that, over 20 cities including Paris, Copenhagen, Central London, Oxford and Beijing have set plans to ban diesel and gasoline cars by 2020. Government incentives are a major opportunity for the industry as they will encourage the adoption of EVs (Bjerkan 2016).

Economic environment

Perhaps, the major issue restricting the adoption of EVs is the premium prices involved in the purchase and other lifetime costs. Though prices are forecast to go down, EV consumers are currently more on the affluent side with at least 70% of EV owners earning an average of \$100,000 (Butler 2019). Other costs involved in EV maintenance are the higher insurance costs. According to a report by altenergymag

(2019), auto insurance quotes for electric vehicles are at least 21% higher in comparison to gas powered models.

Figure 2: EV purchase by income earned



Source: CNBC 2019

As shown above, EV ownership is most among people earning between \$125,000-\$149,999.

Environmental environment

The main factor boosting EV adoption is the need by different governments to reduce growing carbon emissions from diesel vehicles, which is highly contributing to environmental change. In fact, several governments across the world have set up schemes to encourage the adoption of EVs. In the US, states including Vermont and New York offer tax incentives to EV buyers (Butlers 2019). In Europe, Copenhagen

and Italy have planned to ban diesel cars by 2019 and 2030 respectively while Central London will introduce zero emission zones from 2025 (Deloitte 2018). In Asia, Beijing's lottery favors EVs with over 60% of number plates forecast to be allotted to new EVs (Deloitte 2019).

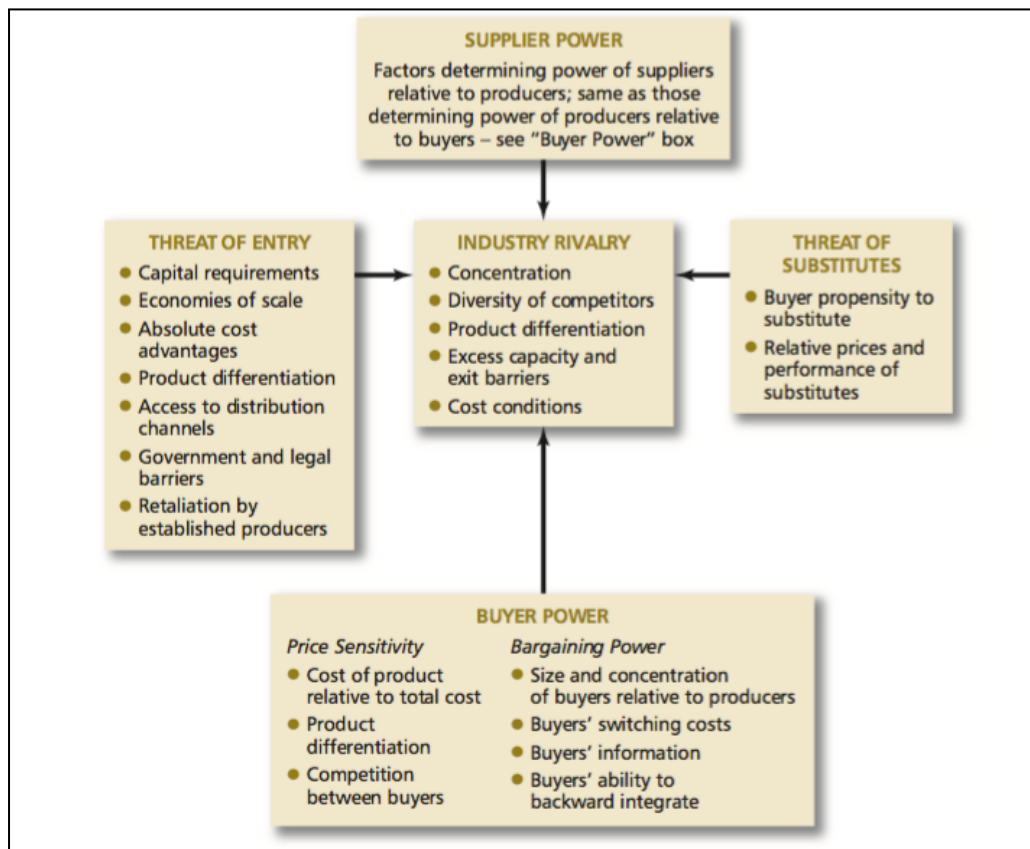
As a way of reducing carbon dioxide emission, some governments have also planned to order ride hailing companies to convert at least 40% of their fleets to electric by 2026 (Hertzke 2019).

Other factors

Whereas the above mentioned are the major drivers, there are other factors also likely to impact EV adoption. Value chain issues which have resulted in delayed deliveries and increased costs, driving range, lack of enough EV charging infrastructure and high charging time among others. All in all, it will take more than large government investment in the industry to increase EV adoption. Most of all it will require a major shift in cost competitiveness.

Micro environment (Porters five forces) and conclusion

Figure 3: Determinants of the five forces of competition in an industry



Source: Grant 2016

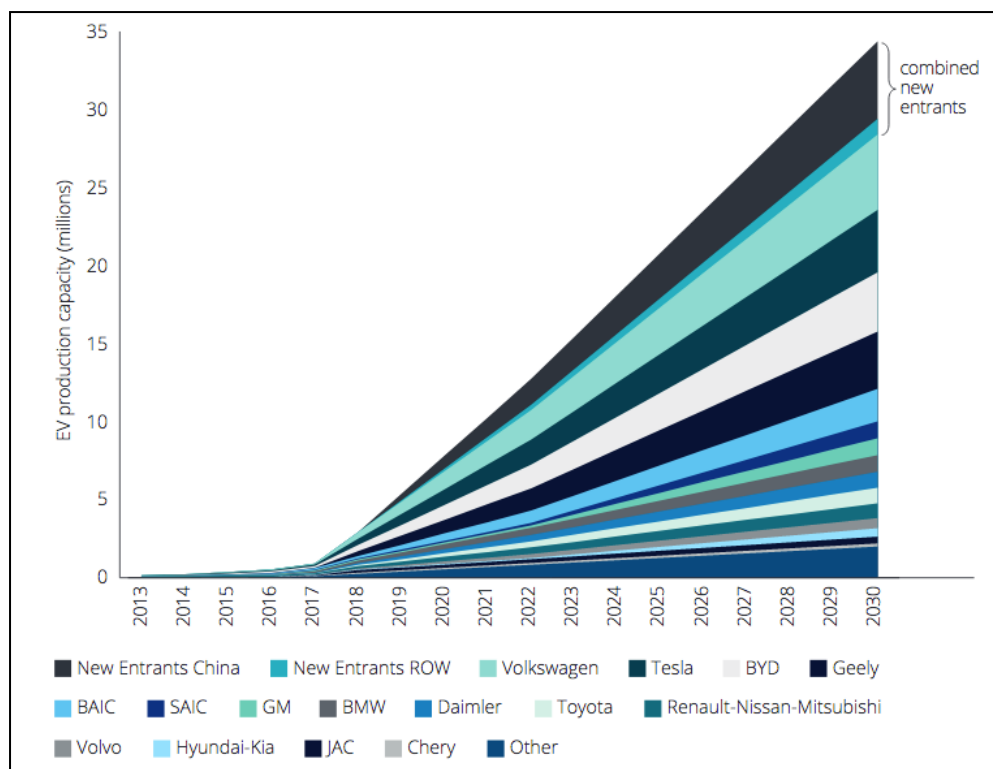
Threat of entry (high)

The height of barriers to entry in any industry highly depend on the unit cost disadvantage faced by firms attempting to enter the industry (Grant 2016). The automobile industry has always been protected by high barriers to entry including capital requirements, economies of scale and absolute cost advantage. However, just like any other industry, the automobile industry has been disrupted by technology which has brought in well-funded, aggressive competitors such as Tesla and many Chinese startups (Barkai 2018). This has put incumbents at a disadvantage and increased competition in the market. It should also be noted that EVs use 40 to 50 less components than regular cars, this has made it easier for

even companies like Tesla and Google without experience to enter and succeed in the market (Akira 2017).

In fact analysts have forecast the the supply for EVs will by 2030 exceed supply as new entrants (majority form China) join the market and command the biggest share (Deloitte 2019).

Figure 4: New entrants between 2013-2030



Source: Deloitte 2019

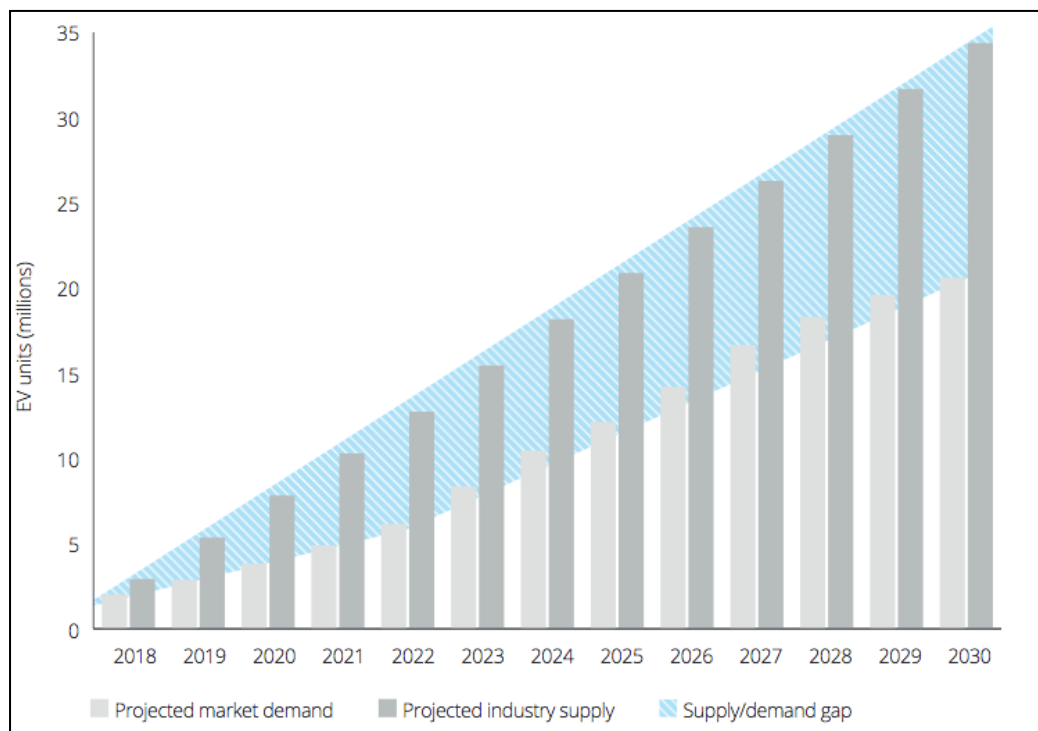
Threat of substitutes (high)

Substitutes for EVs include ride hailing companies, trains, electric two wheelers and three wheelers, with the main threat being recent car models that comply with the most recent emission standards such as the Euro 6 (Tobin 2019). Currently, these substitutes create a high threat of substitute considering that they are way cheaper than EVs and more affordable.

Bargaining power of buyers(high)

The power of buyers in any industry depends on price sensitivity as well as relative bargaining power (Johnson et al 2017). As of today, the bargaining power of buyers is high because of the many available substitutes on the market. According to analysts, this threat is likely to be hiked in future as more EV manufactures on the cheaper end especially from China enter the market. In fact, a 2019 Deloitte report noted that supply will exceed demand by 2030 as shown in the statistic below

Figure 5: EV demand VS supply 2013-2030



Source: Deloitte 2019

With so much excess, the buyers will have more bargaining power, leaving the industry less profitable due to the high competition involved.

Bargaining power of suppliers (high)

Just like buyers, suppliers can have so much power to the point of leaving the industry less profitable, but this is highly dependent on the number of suppliers in the market (Grant 2016). Being a new industry, the EV industry is characterised by few suppliers which gives them high bargaining power over EV manufacturers.

According to Hertzike (2019), the EV battery is the most expensive component of EVs due to few suppliers on the market, one major factor making the vehicles very unaffordable.

Due to their high power, they can push the prices high to the point of squeezing EVs manufacturers profitability. This can also be explained by the fact they can't operate without batteries, in fact, European manufacturers experienced delays in their supply chain resulting from shortage of batteries (Hertzike 2019).

Competitive rivalry (high)

According to Johnson et al (2017), general profitability highly depends on the competitive level among firms within the industry. With technology eroding traditional barriers to entry in the automobile industry, competition has continued to grow with new entrants and incumbent global manufacturers like Nissan, and GM coming to market with more offerings (Butler 2019). According to a 2019 Deloitte report, with lots of new OEMs especially from China forecast to enter the market, supply will be higher than demand. This is likely to force some incumbents out of the market, with funding also declining, most new entrants in China may not make it far (Deloitte 2019; Ball 2019).

Conclusion

The EV industry is growing very fast, as governments across the world acknowledge the need to shift from fossil fuel driven technology to sustainable technology that will mitigate climate change. As a result of low barriers to entry, government support and growing customer demand, new entrants including traditional OEMs, startups, non-automotive players as well as well funded OEMs from different regions are entering the market in order to satisfy this demand. On the customer side, this is great news because with competition growing, the prices will be pushed down, making EVs more affordable. However, the findings have shown that by 2030, supply will exceed demand as new entrants continue to enter the market, this will likely lead to the demise of many OEMs especially startups.

As per the Porters Five Forces findings, the barriers to entry are low, threat of substitute is high, buyer and supplier power is high, competitive rivalry is also high. As noted by analysts including (Grant 2016; Johnson et al 2017) in an industry where all the forces are high, the profitability will be low, making the industry unattractive. Never the less, it should be noted that the five forces framework has some weaknesses, for instance, it does not put into consideration the influence of a company's core competencies in its profitability. In fact, these forces may impact different firms differently depending on size.

Organization changes

In the move towards electrifications, the automobile industry in general is experiencing changes in the supply system, structure and technology. As noted by Huczynski and Buchanan (2013), any changes in technology will definitely impact an organisation's structure. The automobile industry has not been an exception, the

shift to EVs has put the industry under structural changes, impacting OEMs.

According to Akira (2019), a notable change will for instance happen to the traditionally pyramid shaped supply chain made up of subcontractors supplying components and top car manufacturers positioned at the top. In fact, the spare part and maintenance market will decline while traditional autoworkers will find their jobs at risk as factories become increasingly obsolete.

As noted by several analysts, unlike traditional vehicles, the manufacture of EVs requires fewer components, a major cause of the anticipated structural changes in the industry. Unfortunately, if automakers do not respond to these changes, they will most probably go obsolete. Several traditional automakers are coming up with strategies to respond to these changes threatening the industry. One of the major strategies is partnerships between incumbents and new EV manufactures.

Volkswagen has partnered with Anhui Jianghuai Automobile Group, BMW with Great Wall, and Toyota with BYD among others. Partnerships will be essential for success in the automobile industry, as they will help cut costs and improve the supply chain which is currently a major issue.

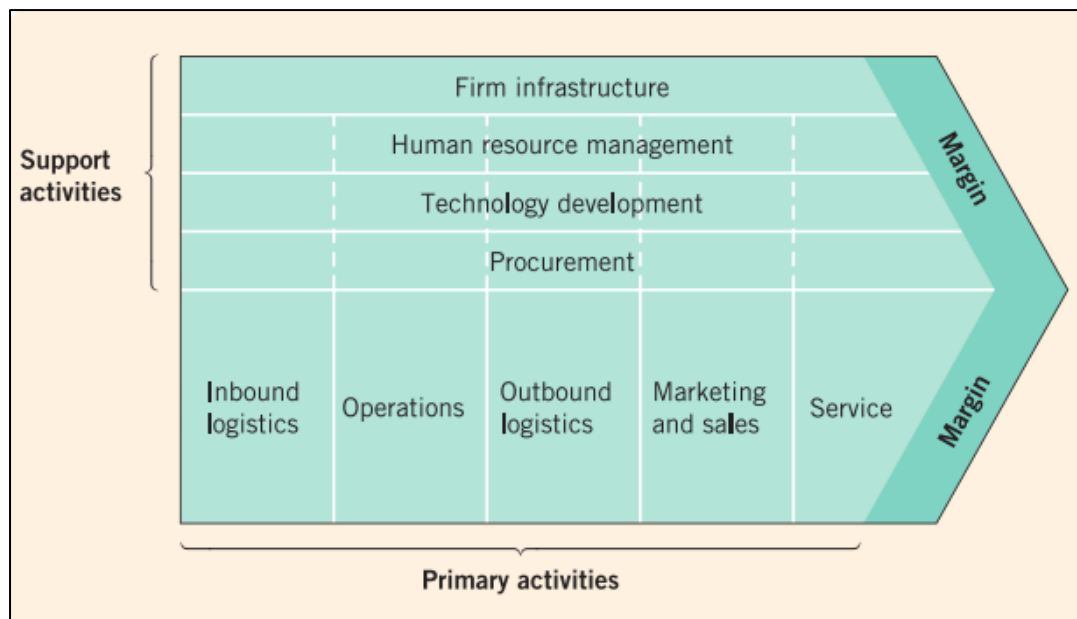
According to Ewing (2019), OEMs will spend over \$400 billion to retrain workers, retool factories as well as reorganise their whole supplier network. Some OEM companies are swapping their engines (conversion route) and replacing them with electric systems to support Evs. Companies like Jaguar Land Rover have continued using the same platforms, by utilising their existing infrastructure to produce fully electric, hybrids and plugin hybrids. This has helped them cut costs as well as offered them flexibility to scale production up or down depending on available demand (CB Insights 2019).

PART 2: NEW OPPORTUNITIES

Porters Value Chain and conclusion

First developed by Michael Porter, a value chain explains the different categories of value adding activities in and around a firm which when combined create its product or service (Johnson et al 2017). In order to gain a competitive advantage, a firm must beware of those activities that deliver value to its service or product. As shown below, these activities are divided into primary and supportive activities.

Figure 6: Porters value chain



As already noted, the nature of the automobile industry is undergoing major changes from petrol driven engines to electric driven vehicles, changing the nature of components needed in the manufacturing process. Due to these changes, the nature and economics of activities involved in designing and production of these components will automatically be very different. This will highly impact the automobile supply chain and the value chain. The impact has already been felt by automobile manufacturers. In 2019, European manufacturers were faced with an issue of shortages in battery-cell production which led to long waiting periods for EVs in the region (Hertzke et al 2019). This is just one symptom of issues with in the EV value chain and supply chain. However, synchronising the value chain would create ability to plan necessary investments in new mining production for raw materials, such as nickel and cobalt; ramping up localised battery cell production with room to grow; and improving OEM volume planning.

By using Porters value chain to electric vehicles industry, it will help to show parts of notable value adding activities in delivering organisational strategy and achieving competitive advantage. Appendix 1 shows value adding activities within the process of manufacturing electric vehicles.

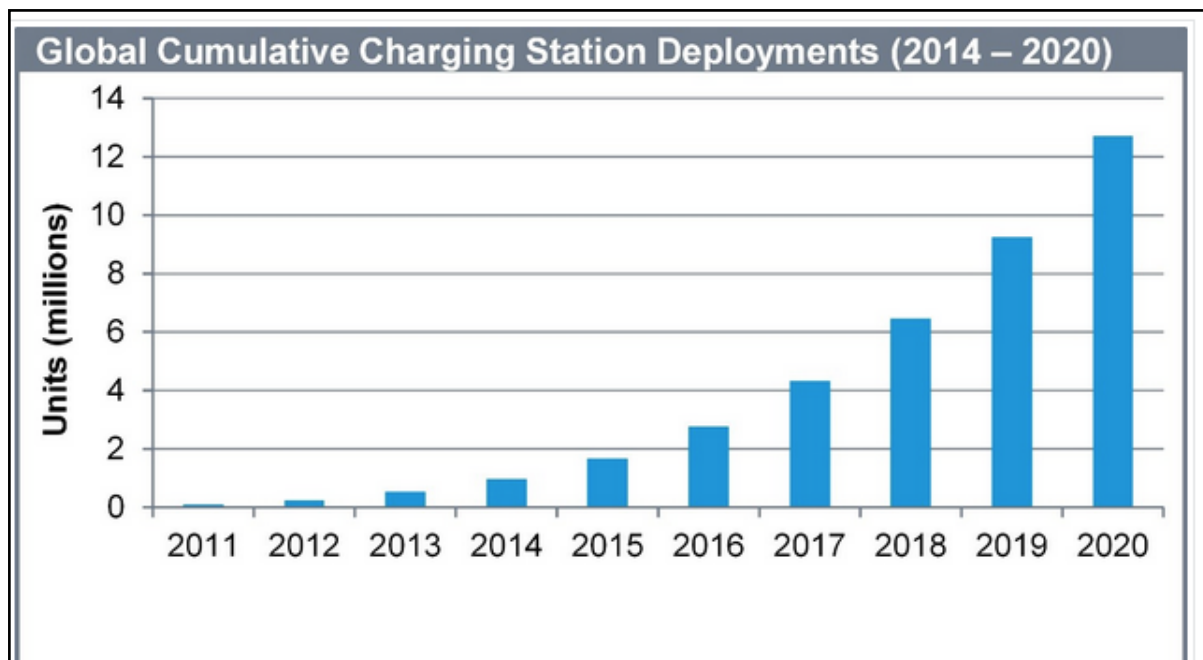
New business opportunities

As noted by Huczynski and Buchanan (2013) the impact of technology is both negative and positive. Whereas it can create unemployment, it can create new job opportunities. The drive towards EVs has created a number of business opportunities

Business opportunities for utility companies

The drive towards electrification will create a major opportunity for utilities. According to a 2019 BCG report, the rise of EVS has potential to create a major opportunity of \$3 billion to \$10 billion for utilities who will be able to meet the energy demands posed by transportation Electrification. Utilities can also enjoy this opportunity by offering EV related products and services which include installing, operating, and maintaining EV charging equipment (McKinsey 2014; Baker et al 2019). Utility companies should thus plan in advance by forging partnerships with EV manufacturers.

Figure 7: Growth of charging stations between 2011-2020



As shown in the graph, deployment of charging stations is a major business opportunity as its forecast experience tremendous growth, year after year.

Battery disposal services

Another business opportunity will be battery disposal services (Research and Markets 2017). According to the report, the battery recycling market is forecast to reach USD 11.83 Billion by 2022, at a CAGR of 6.5% between 2017 and 2022. This market will be boosted by the growing output of spent batteries from the automotive and industrial sources. There will be high demand for these services considering that they will cover not only for EV, but also for other electronic devices such as mobile phones.

Creating one stop chill and charge services

Considering the fact that charging EVs takes a considerable amount of time, another major opportunity would be forging partnerships with EV charging stations to create a one stop centre for chilling while charging (McKinsey 2014).

Businesses to be discontinued

Whereas EV drive will come with business opportunities, it will also threaten some industries and even cause the demise of others. Other than negatively impacting oil suppliers, it will result in unemployment as manufacturers of diesel car components lose market. According to analysts, electric vehicles are characterised by fewer moving parts which means they need fewer supply chains for the necessary parts as well as fewer people to assemble them (Deloitte 2018). Because of this, many auto workers may lose their jobs as large factories increasingly become obsolete with the market for spare parts and maintenance declining.

Conclusion (part 2)

In the move towards electrifications, the automobile industry in general is experiencing changes in the supply system, structure and technology. These changes have disrupted the whole automobile industry at large, forcing incumbents to plan new strategies in order to survive. These changes have come with both opportunities and threats, creating new job opportunities while also threatening the survival of others. However, it should be noted that though the manufacture of EVs requires fewer components, it still requires a large number of new electric and electronic components, and a battery which is the most expensive part of the vehicle. Considering that most OEMs do not produce their own battery cells, they

should think about forging partnerships with battery cell manufacturers in order to reduce costs.

Overall conclusion

The EV industry has experienced steady growth through the years, surpassing one million unit sales in 2017 for the first time and forecast to grow from 2 million units in 2018, to 4 million in 2020, 12 million in 2025 and 21 million in 2030. This growth will be boosted by declining battery costs, government incentives, improving infrastructure as well as growing acceptance due to growing air concern issues among consumers. However, with growing acceptance as well as a favourable landscape, OEMs and new entrants alike are entering the market, a fact that will result in high competitive rivalry. In fact, the supply is forecast to exceed demand by 2030, forcing some OEMs and new entrants out of the market.

Never the less, the drive to EVs will create some opportunities for some businesses such as utility companies, battery disposal services as well as chill and charge services around charging stations. An improvement in the supply chain and value chain is necessary for the growth and survival of OEMs. Partnerships between incumbents and new entrants as well as battery suppliers are also vital in the improvement of the supply chain as well as cost reduction.

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