



ANALYSIS OF THE ELECTRIC VEHICLES INDUSTRY

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INTRODUCTION

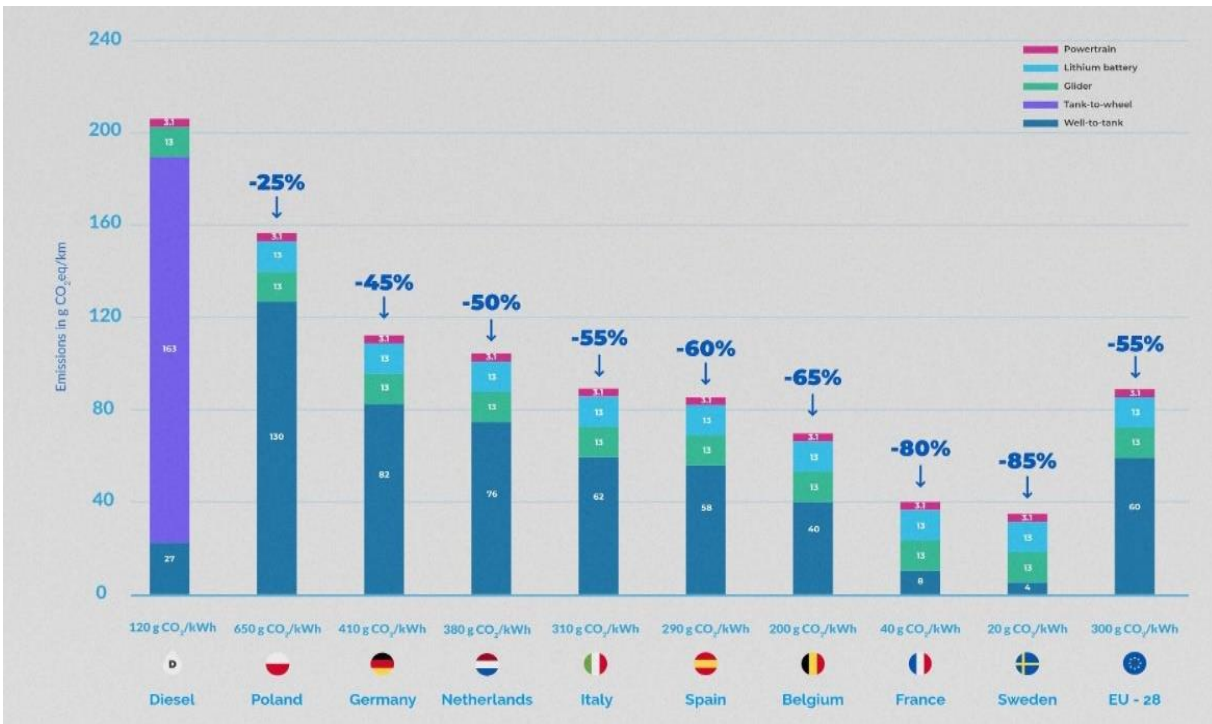
Electric cars exist since before internal combustion engines. The prototypes of electric cars were created as early as 1835. (Emad, 2017, p.55) In the early years of the 20th century, electric cars have been very popular. But the massive manufacturing of cheap gasoline cars decreased the interest in electric vehicles. The energy crisis of 1970 and 1980 provoked a temporary increase in the use of electric cars. Electric cars reached the stage of mass production later in the 21st century when have been introduced strategies for large-scale industrialisation of renewable energy technologies. Adopting electric mobility will helps the EU to accomplish its target of decreasing air pollution, greenhouse gas emissions, noise and oil dependency.

Drive towards the production of electric cars

Recently, increasingly the attention is paid to the problem with global warming, the greenhouse effect and climate change, concerning human and nature. The conventional vehicle sector is considered as the biggest source of greenhouse gas emissions all over the world and this is damaging not only the environment but also people's health. Transportation is the main problem in Europe for climate change too, as it contributing to 27% of the EU's total greenhouse gas emissions. Although in the past 20 years the aim is CO₂ to be reduced, in 2018 average emissions level from new cars growing up. But while the levels of CO₂ emissions from diesel vehicles increase, the emissions from petrol vehicles stay unchanged. The reason is the car manufacturers promote the sales of more powerful diesel cars because in this way they gain a bigger profit margin. (Transportenvironment.org, 2018)

Although the environmental benefits and the solid promoting rules that the governments apply regarding the adoption of electric vehicles, the penetration of the current automobile market is quite low. (Canals Casals et al., 2016)

Electric vehicle's climate impact in different energy mixes



(Source: Transportenvironment.org, 2018)

The electric vehicles are progressively starts to be considered as a method to support reduce climate change. Three significant factors influence the growing interest in the electric vehicle industry – economic, socio-political and environmental. These factors contribute to electric vehicles being adopted at the government level and in many countries the federal and local governments establish policies to stimulate electric vehicle adoption. The socio-political factors emerging from oil's dependence. There are numerous countries importing it in enormous quantities, also make a big impact. (Cbinsights.com, 2020)

Strive to decrease carbon footprint motivates people to buy electric vehicles. For example, in Norway, 29% of electric car buyers defer environment protection as the main reason for buying. (Mckinsey & Company, 2020)

The governments in many countries provide extra advantages for people who use electric vehicles to encourage sales, for example, special parking permits in busy city areas or the possibility to drive in taxi or bus lanes. (Mckinsey & Company, 2020)

The price of electric vehicles is still very high, but government subsidies stimulate people to shift from conventional cars to electric vehicles. For example, in Norway, these subsidies cover discharge from purchase tax, VAT, toll road, annual circulation tax and registration tax. A survey in Norway shows that almost 50% of buyers of electric vehicles state as the main reason for their purchase 'to save money'. (Mckinsey & Company, 2020)

Business environment of the electric vehicle industry

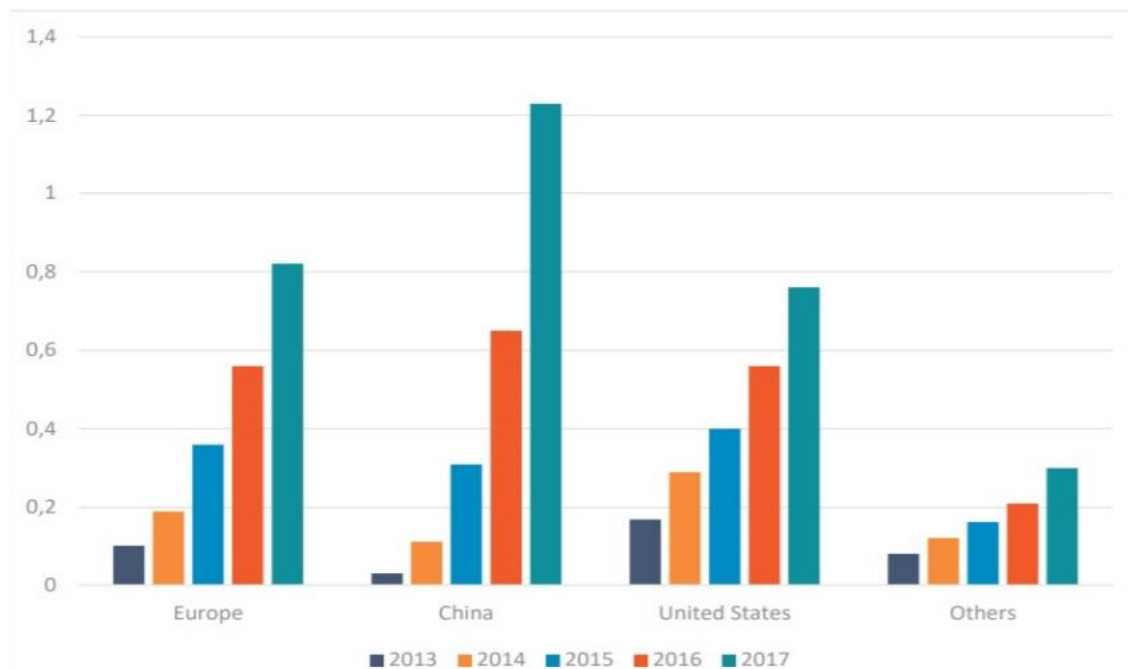
Even though the sales numbers of electric vehicles in the EU market are not remarkable, some countries, for example, Norway and the Netherlands, are distinguished with high levels of adoption.

Since 2008, there has been a rising interest in electric cars thanks to the progress in battery and controller manufacturing technologies, concerns about rising oil prices, and the necessity to degrade greenhouse gas emissions. In 2010 - 2012 leading companies such as General Motors, Tesla Motors, Nissan and others invest hundreds of millions of dollars, racing to make the electric car desirable to their customers. By the end of 2012, most car companies already offer electric cars and recycle old cars, replacing inefficient conventional engines with electric ones, allowing people to take advantage of the qualities of electric vehicles at a much more affordable price. Gradually, the companies operate in the automobile industry become aware that to survive and to remain competitive in this fast-changing business environment, the innovative approach is very important. (Mckinsey & Company, 2020)

In 2013 Nissan sells 100 000 units of its full battery-electric LEAF and Tesla reached 25 000 from the sale of its Model S. The same year the European Commission demonstrated it uphold the adoption of electric mobility by presenting a directive for the expansion of infrastructure of substitute fuels. This directive promotes clean fuel transportation and offers concrete aims on facilitating the infrastructure extend. (Mckinsey & Company, 2020)

Even though there are numerous difficulties regarding adopting electric vehicles, many countries within Europe work efficiently in this direction. For example, Norway, the UK, the Netherlands, France and Germany compose more around 80% of the sales of electric vehicles in the EU. (Bienias et al., 2020) Furthermore, in 2017, Norway was a world-leading country regarding the market share of electric cars and also owned the highest share of electric vehicle stock. The EU market is still the biggest for petrol and diesel vehicles. Nevertheless, the share of electric vehicles is increasing very fast. (Niestadt and Bjornavold, 2019)

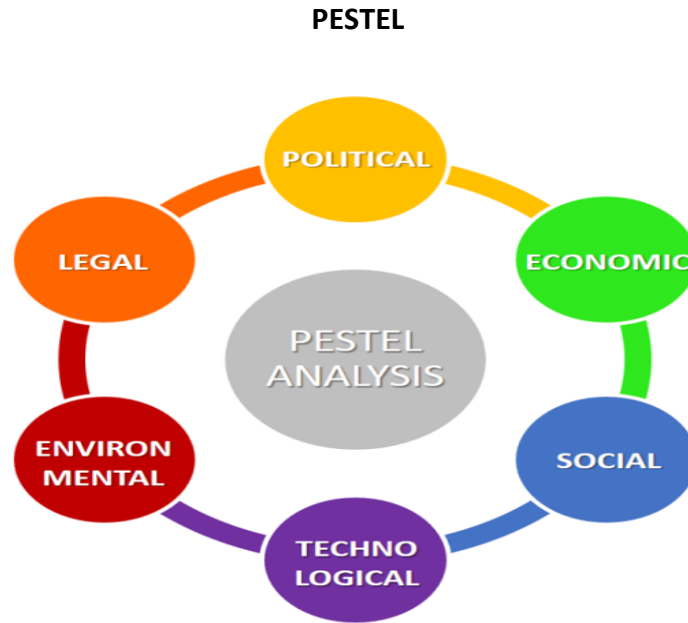
The electric cars in motion, 2013-2017 (in millions)



(Source: Niestadt and Bjornavold, 2019)

PESTEL analysis

The model investigates the political, economic, social, technological, environmental and legal factors which make a big impact on the entry and performing of the electric vehicles industry in the EU countries. (Perera, 2017, p.4)



(Source: ThemeGrill, 2018)

Political

The politics of environment and infrastructure are essential for the electric vehicle industry. As much as the government in every country has higher environmental standards, the more the people are inclined to buy an electric vehicle. The political factors are related to the present and future help for electric vehicles and financial uphold support. In 2014 the European Parliament discussed a directive provided by regulators of the European Commission which affirms the endorsement for the electric mobility in Europe in the future. This directive authorises to be built a special infrastructure for substitute fuels. The biggest EU Research and Innovation Program Horizon 2020 supports and funds the implementation of electric vehicles. The purpose of this program is to guarantee the leadership of the EU transport industry worldwide. (INEA, 2020) The European Green Vehicles Initiative is a project devoted to providing green vehicles and solutions for mobility. (EVGI, 2020)

Economic

For economic development, the key role has inflation rates, exchange rates, interest rates and the income of the consumers. The economic factors are determinative of the whole automotive market. In these countries, where the standard of living is high and the economy is effective and well-developed, for example in Norway, the usage of electric vehicles is greater and continuously growing. The sales of electric vehicles are progressively growing and in 2019 they are 2.2 million. However, according to Mackenzie's research, it is expected this result to fall to 1.3 million at the end of 2020 because of the situation with the outbreak of the Coronavirus. (Mackenzie, 2020) The biggest challenge for the future penetration of the electric vehicle is the price.

Social

Social factors can make an impact on the electric vehicle demand. The social factors refer to the approach and the vision of the people regarding electric vehicles. The key social factor determining the attitude of the EU consumers in terms of the electric vehicle industry is the insufficient knowledge of the benefits and features of electric cars. Because the internal combustion engine cars are the biggest polluters of the environment, making a great impact on global warming and the ozone layer, depleting fossil fuels resources, all of this influences the people's perception of the electric vehicles and force industry to increase manufacturing of electric cars. (Yong and Park, 2017)

Technological

Currently, the technologies for electric vehicles are not completely well-engineered. But the new regulations of the European directives regarding the transport emissions (from Euro to Euro 6) forces the automobile companies to improve the conventional vehicles. (Canals Casals et al., 2016)

The battery of electric cars is the biggest problem because of its big weight and low capacity. The average distance that an electric vehicle could reach with one charge is approximately 120 km. The lithium-ion accumulator and the carbon body could solve these issues, but this improvement will raise the vehicle's price. Also, the current charging infrastructure is another issue, but the

forecast is for increasing the number of charging stations in the future. (Mckinsey & Company, 2020)

Environmental

The environmental factors are mostly related to the problems with global climate change, the consumer's and governments' attitudes to the environment and the lower level of pollution caused by the electric vehicles which might contribute to the shift to the electric vehicle as to the most desirable option in an urban environment.

Legal

The legal factors are associated with the regulatory authorities, legislation and changes. The Directive of the European Parliament and the Council on the deployment of alternative fuels infrastructure declares that EU members must offer an acceptable number of charging stations, which must be publicly available according to technical features and safety requirements. (Eur-lex.europa.eu, 2014) The European Commission established the "Urban Mobility Package" and this gives an advantage to the electric vehicles by which will be decreased pollution, accidents and congestions. (Adams, 2019)

The effective inculcation of the electric vehicles in the EU areas mostly concerns on the changes in the national regulations and in this way, it could be assisted at the local level. In some countries have been designed special parking spaces for electric vehicles. For example, since 2009 in Amsterdam an initiative of the local authorities, called "Amsterdam Electric", stimulates the purchase and use of electric cars. In the first years, their owners receive the right not only to free charging but also to free parking in the city centre. The government reports a steady upward trend in the registration of electric and hybrid vehicles. (Filho and Kotter, 2015, pp.129–130)

PORTER'S 5 FORCES analysis

Porter's five forces model helps to be analysed the position of the electric vehicles on the market and to understand better the competitive environment of the industry. The model also explores

the factors that influence the industry and estimate how the changes make an impact on its performance and profitability. (Hulsmann and Fornahl, 2013, p.158)



(Source: Adopted by Hulsmann and Fornahl, 2013, p.158)

The threat of new entrants

The electric vehicle industry is faced with numerous obstacles to entry. The production of electric vehicles needs big investments and also it is required experience in this sector in terms to be effective in this investment. The technological costs are still high and this reduces the margin on the electric cars. The fixed costs are high which leads to extra investment in capital to guarantee a market share especially for the new rivals. Therefore, the growth in the electric vehicle sector will mostly come from the internal combustion engine car manufacturers who already have the knowledge and the experience. (Mckinsey & Company, 2020)

Threat of Substitutes

Although the electric vehicle industry is not so competitive as the internal combustion engine cars industry, the threat of substitutes is still high. The new mobility notions, for example,

rideshare and autonomous driving and traditional transport as bus, airplane, train, etc. are still a big threat to electric vehicles. But the high price of electric cars is the biggest prerequisite for a potential threat from the internal combustion engine cars as a substitute.

Competitive rivalry

Numerous automotive companies are in a big competition for potential consumers of an electric vehicle. And the new entrants contribute to a stronger level of the competition. For that reason and also because of the growing demand for electric vehicles, it is forcing the existing players in the industry to make a huge investment to shift from conventional cars to electric.

Bargaining Power of Suppliers

On one hand, the power of suppliers is low because more often the manufacturers make innovations than the suppliers. Although in the production of electric vehicles and internal combustion engines cars some of the used parts are the same, for the manufacture of electric cars are applying new different systems as a battery pack. Many companies supply for both conventional and for the electric vehicle industry. But on the other hand, as the increasing interest in electric vehicles favours the emergence of new producers, it also creates a big opportunity for suppliers. (Purificato, 2013)

Bargaining Power of Buyers

The increasing concern for environmental protection and the advantage of long-term economies of fuel costs, persuade more consumers to shift from conventional to an electric car. But because the levels of competition and threat of substitution in the industry are very high, the buyers influence the strategies of the automobile companies. Because of this, the manufacturers are forced to make big investments in research and development for new technological changes. Also, if fuel productivity is improved, the buyers could lose their interest in purchasing electric vehicles. The power of buyers could be decreased by improving customer service and the affirmation of brand loyalty. (Purificato, 2013)

CONCLUSION

Nowadays the automobile industry is innovative and progressively expanding because of the constantly changing mobility concepts, improving technology and the consumer's demand for eco-friendly vehicles. By the investigation of all the factors that contribute to shifting to electric vehicles, it can be concluded they are considered as the most beneficial substitute for internal combustion engine vehicles. (Canals Casals et al., 2016)

The manufacturers that enter the electric vehicle market are progressively increased which enlarges the competitive environment and drives to lower prices. Governments and industries have affirmed their dedication to vehicle electrification. This dedication led to a significant decrease in battery cost, expanding infrastructure, fleet purchase and innovative public-private partnerships. Also, the progress of the technologies opens new opportunities for new businesses in the electric vehicles industry, for example producing batteries and construction of charging stations, as a part of the infrastructure that is already established by supporting corporations and governments. (Iea.org, 2018)

REFERENCES:

Adams, R. (2019). *Launch of EU Urban Mobility Package Consultation*. Available at: <https://civitas.eu/news/launch-eu-urban-mobility-package-consultation> (Accessed: 15 May 2020)

Bienias, K., Kowalska-Pyzalska, A. and Ramsey, D. (2020). *What do people think about electric vehicles? An initial study of the opinions of car purchasers in Poland*. *Energy Reports*, 6, pp.267–273. Available at: <https://www.sciencedirect.com/science/article/pii/S2352484719306365> (Accessed: 14 May 2020)

Canals Casals, L., Martinez-Laserna, E., Amante García, B. and Nieto, N., (2016). *Sustainability analysis of the electric vehicle use in Europe for CO2 emissions reduction*. *Journal of Cleaner Production*, 127, pp.425–437.

Cbinsights.com (2020). *The Race for The Electric Car*. *CB Insights Research*. Available at: <https://www.cbinsights.com/research/report/electric-car-race/#1>. (Accessed: 14 May 2020)

Emad, A. (2017). *Handbook of Automotive Power Electronics and Motor Drives*. CRC Press, p.55.

Eur-lex.europa.eu (2014). *Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure (Text with EEA relevance)*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0094> (Accessed: 2 May 2020)

EVGI (2020). *The European Green Vehicles Initiative*. Available at: <https://egvi.eu/who-we-are/the-european-green-vehicles-initiative-egvi-cppp/> (Accessed: 11 May 2020)

Filho, W.L. and Kotter, R. (2015). *E-Mobility in Europe: Trends and Good Practice*. Springer, pp.129–130.

iea.org (2018). *Global EV Outlook 2018*. International Energy Agency. Available at: <https://www.iea.org/reports/global-ev-outlook-2018> (Accessed: 13 May 2020)

Hulsmann, M. and Fornahl, D. (2013). *Evolutionary Paths Towards the Mobility Patterns of the Future*. Springer Science & Business Media, p.158.

INEA (2020). *Horizon 2020. Green Vehicles*. European Commission. Available at: <https://ec.europa.eu/inea/en/horizon-2020/green-vehicles> (Accessed: 11 May 2020)

Mackenzie, W. (2019). *Electric car forecast to 2040 [IMAGE]*. Available at: <https://www.woodmac.com/our-expertise/capabilities/electric-vehicles/2040-forecast/> (Accessed: 12 May 2020)

Mackenzie, W. (2020). *Global electric vehicle sales to drop 43% in 2020*. Available at: <https://www.woodmac.com/press-releases/global-electric-vehicle-sales-to-drop-43-in-2020/> (Accessed: 12 May 2020)

McKinsey & Company (2020). *Electric vehicles in Europe: Gearing up for a new phase?*. Available at: <https://www.mckinsey.com/featured-insights/europe/electric-vehicles-in-europe-gearing-up-for-a-new-phase#> (Accessed: 11 May 2020)

Niestadt, M. and Bjornavold, A. (2019). *Electric road vehicles in the European Union. Trends, impacts and policies [IMAGE]*. European Parliament. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637895/EPRS_BRI\(2019\)637895_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637895/EPRS_BRI(2019)637895_EN.pdf) (Accessed: 3 May 2020)

Perera, R. (2017). *The PESTLE Analysis*. Nerdynaut, p.4.

Purificato, M. (2013). *DIPARTIMENTO DI IMPRESA E MANAGEMENT CATTEDRA DI ECONOMIA E GESTIONE DELL'INNOVAZIONE AZIENDALE. The Open Innovation Paradigm in Electric Vehicle Industry: A case study of Tesla Motors*. Available at: <http://www.ehcar.net/library/these/these043.pdf> (Accessed: 4 May 2020)

ThemeGrill (2018). *Scanning the Environment: PESTEL Analysis [IMAGE]*. Available at: <https://www.business-to-you.com/scanning-the-environment-pestel-analysis/> (Accessed: 14 May 2020)

Transportenvironment.org (2018). *TE Annual report 2018.* Available at:
<https://www.transportenvironment.org/annual-report-2018/campaigns/cars.html#first>
(Accessed: 11 May 2020)

Yong, T. and Park, C. (2017). *A qualitative comparative analysis on factors affecting the deployment of electric vehicles.* Energy Procedia, 128(128 (2017) 497–503), pp.497–503.