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**Examining the effectiveness of the
automotive transition to EV as a
sustainable approach**

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1. Introduction

1.1 Research Background

Sustainable development has become one of the pivotal factors in multiple industries particularly in the Automotive sector in the UK (Lenort *et al.*, 2023). As the world gets impacted because of climate change and the degradation of the environment there is an increasing requirement for every business to embrace sustainable practices. The automotive industry is better known for its environmental footprint. Recently the sector has been under pressure to make innovation and transition towards leveraging greener production. This transition not only meets the regulatory needs but also meets the preferences of consumers who specifically look for environmentally friendly products. Sustainable development in the UK automotive sector has multiple dimensions that consist of social responsibility, economic viability, and environmental stewardship. By deploying sustainable practices, firms can decrease that wastage level and improve the efficiency of resources (Times of India, 2023). The UK automotive industry also has identified a shift in consumer behaviour as most consumers focus on sustainability when they purchase products. People have become more cautious about the environment and prefer brands that are committed to sustainability and maintaining environmental responsibility. Naturally, most of the companies have started focusing on manufacturing greener products like Electric vehicles (EVs) and hybrid vehicles. That makes less carbon emission in comparison to conventional vehicles (Veza *et al.*, 2023).

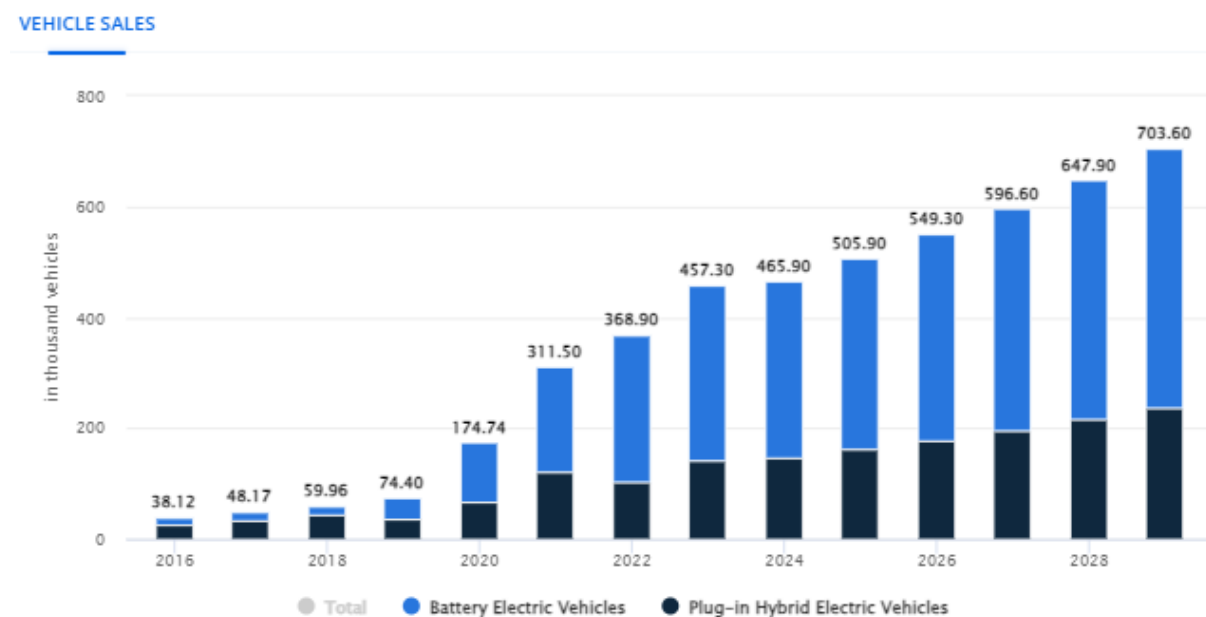


Figure 2: Eclectic vehicle sales ratio

Source: (Statista, 2023)

From the above figure, this is clear that consumers have liked to use EVs more in recent days. In 2024 the EV revenue in the United Kingdom will reach US \$ 34.0 bn (Statista, 2023). Despite the advantages, challenges are still there. The automotive industry faces multiple obstacles due to the high cost of implementation, it needs skilled labourers to support the latest technologies.

1.2 Research Aim

To investigate the impact of sustainable development practices on production in the UK automotive industry and along with this examine how this will impact the environment, cost and efficiency.

1.3 Research Objectives

- To analyse how sustainable development practices influence the production efficiency in the UK automotive industry.
- To identify the advantages and challenges of sustainable development practices
- To assess the environmental benefits that aligned with the sustainable production practices in the automotive sector of the UK
- To focus on the automotive sector and recommendation to improve the automotive operation to align with more sustainable practices

1.4 Research Questions

- How do sustainable development practices influence production efficiency in the UK automotive industry?
- What are the advantages and challenges of sustainable development practices?
- What are the environmental benefits that align with sustainable production practices in the automotive sector of the UK?
- How to focus on the automotive sector and what are the recommendation to improve the automotive operation to align with more sustainable practices.

2. Literature Review

2.1 Analyze how sustainable development practices influence production efficiency in the UK automotive industry

Sustainable development practices influence the production efficiency in the automotive industry of the UK. According to Lucian-Ionel Cioca et al. (2019), it emphasises energy efficiency helps to mitigate waste and streamline the process. Sustainable development practices consist of embracing different eco-friendly techniques like renewable energy, and electric machinery which allow to decrease the carbon footprint of the industry and enhance the operation and efficiency. By utilising energy-efficient techniques, automotive organisations in the UK are enabled to decrease production costs, which allows them to make more investments in quality improvement and innovation. Moreover, sustainable practices allow the industry to mitigate waste, Which is a costly part of vehicle production. Choi et al. (2023) stated that, an organisation that embraces a closed loop system, where plastic and metals can be recycled back into the production process. This is a great initiative to decrease the waste level, and the requirement for raw materials, as a result, it lowers the production cost and maintains the environmental impact. This improvement in the production will make a significant contribution to gain more profit. Sustainable practices not only improve the environmental impact but also enhance the business operation as well. UK regulatory bodies support the sustainable practice that assists the brand to keep its brand reputation intact and long-term growth. Sustainable practices are beneficial as they create a balance between the environment and production efficiency that makes the UK automotive industry stay competitive.

2.2 The advantages and challenges of sustainable development practices

Sustainable development practices provide various advantages for the automatic industry in the UK and a few significant challenges as well. One of the prime benefits of sustainable development practices is; that they reduce the environmental impact. Massoud *et al.* (2023) have stated different types of Sustainable practices are utilising renewable energy, and recycling the materials that mitigate the carbon footprint of industry making the production more clean and requiring fewer resources. Sustainable development practices also decrease the production cost over the period as they require less energy consumption, and less wastage of material enabling the brand to save money and improve overall efficiency. Moreover embracing sustainability improves the brand image as both the stakeholders and consumers value and prefer environmentally responsible companies. In the last few years, the United

Kingdom government has announced multiple policies to promote sustainability in the automotive industry. For an example " Road to Zero" is a significant one (Muratori *et al.*, 2023). The main aim of the strategy is to decrease the greenhouse emissions from road transport and give support to electric vehicles (Muratori *et al.*, 2023). This policy motivates automotive firms to rethink their manufacturing process and combine the sustainability process in every stage.



Figure 1: Road To Zero

Source: (Muratori *et al.*, 2023)

Apart from the benefits, challenges cannot be overlooked. One of the prime challenges is the high investment in the initial stage. When a brand switches to the sustainable production method it requires new and modern equipment for embracing advanced technology. The transaction is costly, particularly for small-scale automatic companies who might struggle to afford these costly changes. Another considerable challenge is sourcing sustainable materials which is expensive and the availability also limited (BillionBricks, 2023). Instead of the challenges numerous organisations are likely to adopt sustainable practices, as this is an important shift to meet the regulatory demand and consumer preferences.

2.3 The environmental benefits that align with sustainable production practices in the automotive sector of the UK

Sustainable production practices in the automotive industry of the UK provide a wide range of environmental advantages. As per Jyoti Rawat, Pooja Pant and Veena Pande (2022), it helps to reduce pollution, preserve natural resources and combat potential climate changes. Companies might use different types of renewable energy sources like solar power or wind power. UK automotive companies are making an effort to reduce carbon emissions that helps to decrease the environmental impact of global warming. Automatic companies have adopted sustainable materials like bioplastics and recycled metals that reduce the requirement for mining. Many of the UK automatic companies have embraced closed-loop systems for their production. A Closed-loop system is referred to as the procedure to reuse materials and recycle products that decrease the waste and harmful substances that get released into the environment due to production. This type of practice is helpful to save water and energy both as the entire production process becomes efficient and by leveraging limited resources. For instance, reusing water for cooling systems can cut down the water wastage which is important for those regions who are struggling with water scarcity.

Natural Resource-Based View (NRBV) Theory

To analyse the impact of sustainable development on the production of the UK automotive industry, the Natural resource-based view theory would be a well-suited framework. Theory suggests how the company implements sustainable practices specifically to meet environmental challenges (Andersén, 2021). The theory focuses on the resource's role that makes a significant contribution to the environment and sustainability; like sustainable supply chain, resource efficiency and advanced technology. Hart introduced the Natural Resource Based View (NRBV) Theory in 1995 for the first time, which was based on the Resource-based view (RBV) introduced by Barney. According to McDougall, Wagner and MacBryde (2019) the NRBV theory of sustainable competitive advantage can be attained when the resources of companies are inimitable, rare, valuable and non-substitutable. The theory suggests that organisations must invest in sustainable production procedures and technologies that are eco-friendly to enhance overall efficiency and decrease costs over time. By embracing different sustainable practices the companies can make them different from the others, and grab the attention of the consumers who are environmental causes, this will improve the brand reputation as well. The natural resource based view theory uplifts the organisation to use

sustainable resources and promote the green technology uses of renewable energy and recycled material.

Sustainability Models: CSR – Triple bottom line model – Circular economy

Sustainability models assist the business to run the operation smoothly. Three popular models are CSR models. Circular economy and Triple Bottom Line model. The CSR model concerns the organisation's responsibility to act ethically and safeguard the environment. Triple bottom line is another sustainable model that maintains three aims, social responsibility, profit and environmental influence- people, profit and planet. Lastly, the motive of the circular economy model is to mitigate waste by utilising recycling and reusing materials. These models help the business and environment.

3. Research Methodology

Research approach and design

The research study will be conducted through secondary and primary data to meet the topic 'Impact of sustainability development on production in the automotive industry of the UK effectively and enhance the quality of the study. For this purpose, the research will follow a quantitative mono method. At the beginning of the study, this is essential to select a research philosophy which will be helpful in conducting the study and building a successful hypothesis from the gathered data. The researchers will employ interpretivism and pragmatism as research philosophies. Interpretivism research philosophy will assist the researcher in evaluating the data in a subjective manner, on the other hand, pragmatism research philosophy will assist in observing data through a focus objective. This will be helpful to meet the research objectives in a systematic manner. To conduct the entire study successfully, the researcher will utilise a deductive research approach along with the descriptive research choice. The research is proposed to conduct the impact of sustainability development on production in the automotive industry of the UK. For this reason case study analysis will be well suited to choose for the research study.

Data collection, analysis method and sampling technique

Choosing a quantitative mono method to conduct the research is suitable to work with both the secondary and primary data. The researcher will gather primary data by organising a close-ended survey or through an interview (Aggarwal, 2023). The researcher will do a survey with 50 respondents. The researcher will have 8-10 close-ended questions for the survey. Based on the secondary data literature review will be organised. Secondary data can be gathered from multiple reliable and genuine resources like company journals, government papers, and articles (Software, 2024). A Google form will be included to analyse the primary data. Through graphical representation, analysed data will be represented. Secondary data will be evaluated through thematic analysis and the collected data will be presented via themes that will match the research objectives. A convenience and non-probability sampling technique is perfect for primary data sampling. The secondary data can be gathered by maintaining exclusion and inclusion standards. On the other hand, primary data will be gathered via organising surveys where all the participants will join impulsively.

Ethical consideration

Any kind of external influence should not be there on the respondents to join the survey. The research must meet all the ethical standards. Collected data must be protected by implementing the General Data Protection Act 2018. As the research follows primary data, it will restrict a wide expansion. Secondary data collection might be the reason for irrelevance that can impact the research quality. The research will emphasise sustainable development's impact on production in the automotive industry of the UK.

4. Timeframe

Activities	W1- W2	W3	W4-W5	W6	W7	W8	W9	W10-W13	W14
Introduction									
Development of Aim and Objectives									
literature Review									
Research Methodology									
Ethical Approval									
Potential Outcome									

Figure 3: Timeframe for Proposal

(Source: Self-developed)

5. Conclusion

In conclusion, this can be stated that sustainable development practices impact the UK automotive industry's production. Sustainable practices in the automobile industry enhance production efficiency by reducing waste, lowering costs, and optimising resource management. As companies comply to meet consumer demand for environment-friendly options, they face challenges such as huge initial investments and procuring sustainable materials. Nevertheless, the long-term advantages are many like better brand reputation, compliance with regulations, and heightened market competitiveness outweigh these challenges. Transitioning to sustainability within the automotive sector of the UK is important for fostering an efficient and green future. This shift highlights the need to include sustainable practices throughout all production stages, leading to a more competitive industry that can benefit both the organisation and the planet.

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