

Corporate Transformation in the Face of Climate Change Crisis: The Role of Electric Vehicles*

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Abstract: This study investigates how businesses are transforming in response to the climate change crisis and what role electric vehicles play in this process. The study addresses main topics such as the environmental impacts of electric vehicles, their integration into business strategies and their contribution to sustainability goals. Electric vehicles attract attention with their lower carbon emissions compared to fossil fuelled vehicles. Therefore, businesses have the opportunity to reduce their carbon footprint and support their sustainability goals by integrating electric vehicles into their fleets. However, this transformation process may face some challenges. The study discusses the barriers preventing the widespread adoption of electric vehicles and how these barriers can be overcome. It also examines the innovative strategies and business model changes that arise as businesses adopt electric vehicles. With the use of electric vehicles, businesses can develop new approaches in areas such as fleet management, energy supply and charging infrastructure and gain competitive advantage. In conclusion, the study addresses the importance and impact of EVs in organisational transformation, emphasising the role of businesses in tackling the climate change crisis, and provides business leaders, policy makers and academics with an in-depth understanding of the environmental and strategic impacts of EVs on businesses.

Keywords: Climate Change, Corporate Transformation, Electric Vehicles, Business

Jel Codes: M00, M10, S54

İklim Değişikliği Krizi Karşısında Kurumsal Dönüşüm: Elektrikli Araçların Rolü

Öz: Bu çalışma, işletmelerin iklim değişikliği krizine yanıt olarak nasıl dönüştüğünü ve elektrikli araçların bu süreçte nasıl bir rol oynadığını araştırmaktadır. Çalışmada elektrikli araçların çevresel etkileri, iş stratejilerine entegrasyonu ve sürdürülebilirlik hedeflerine katkısı gibi ana başlıklar ele alınmaktadır. Elektrikli araçlar, fosil yakıtlı araçlara kıyasla daha düşük karbon emisyonları ile dikkat çekmektedir. Dolayısıyla işletmeler, filolarına elektrikli araçları entegre ederek karbon ayak izlerini azaltma ve sürdürülebilirlik hedeflerini destekleme fırsatına sahiptir. Ancak bu dönüşüm süreci bazı zorluklarla karşılaşabilmektedir. Bu çalışma, elektrikli araçların yaygın olarak benimsenmesinin önündeki engelleri ve bu engellerin nasıl aşılabileceğini tartışmaktadır. Ayrıca, işletmelerin elektrikli araçları benimsemesiyle ortaya çıkan yenilikçi stratejiler ve iş modeli değişiklikleri de incelemektedir. Elektrikli araçların kullanımıyla birlikte işletmeler filo yönetimi, enerji tedariki ve şarj altyapısı gibi alanlarda yeni yaklaşımlar geliştirebilir ve rekabet avantajı elde edebilir. Sonuç olarak bu çalışma, işletmelerin iklim değişikliği kriziyle mücadeledeki rolünü vurgulayarak elektrikli araçların kurumsal dönüşümdeki önemini ve etkisini ele almakta ve iş dünyası liderlerine, politika yapıcılara ve akademisyenlere elektrikli araçların işletmeler üzerindeki çevresel ve stratejik etkileri hakkında derinlemesine bir anlayış sunmaktadır.

Anahtar Kelimeler: İklim Değişikliği, Kurumsal Dönüşüm, Elektrikli Araçlar, İşletmeler

Jel Kodları: M00, M10, S54

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1. Introduction

Climate change is emerging as one of the biggest challenges for humanity in the 21st century. Serious problems such as global warming, rising sea levels, increase in extreme weather events, and decrease in biodiversity force all countries and the business world to take action. The effects of these threats are felt in many areas, from economic balances to social structure, and are one of the biggest obstacles to a sustainable future.

The business world plays an important role in the measures to be taken against the climate change crisis (Newell, 2004; Agrawala et al., 2011). Companies carry out their activities not only from a profit-oriented perspective, but also by considering environmental and social responsibilities and developing strategies based on sustainability principles (Herrmann, 2004; Schaltegger & Hörisch, 2017; Breuer et al., 2018). The role of businesses in this transformation process is valuable in terms of providing an effective response to the climate change crisis. In this context, electric vehicles are emerging as a sustainable transport model (Bohnsack et al., 2014; Nilsson & Nykvist, 2016). Producing less carbon emissions compared to traditional internal combustion engines, these vehicles contribute to businesses' efforts to reduce their environmental footprint and achieve sustainability goals (Leach et al., 2020). Electric vehicles also bring many opportunities in the context of sustainability such as energy efficiency, renewable energy utilization, and technological innovation. In the fight against this global crisis, it is noteworthy for businesses to take sustainability steps and fulfill environmental responsibilities (Mwasilu et al., 2014; Sanguesa et al., 2021). At this point, the widespread use of electric vehicles stands out among the ways to reduce carbon emissions and optimize energy consumption (Richardson, 2013). Electric vehicles are important in environmental sustainability because of their low carbon emissions and energy efficiency.

However, the ecological footprint of these vehicles from production to use, how they fit into the sustainability strategies of businesses and the dynamics that need to be managed in this process are among the issues that need to be addressed (Pietrzak & Pietrzak, 2020; Dall-Orsoletta et al., 2022). Also, factors such as technical and economic barriers to the widespread adoption of electric vehicles, infrastructural requirements, government policies, and changes in consumer behavior have decisive effects on how businesses can manage this transformation (Li et al., 2020; Alanazi, 2023).

In this framework, the study will address how electric vehicles can transform the business world and how this transformation can play a role in combating climate change, thus aiming to raise awareness and mobilize businesses, policymakers, and consumers. The study aims to contribute to the shaping of corporate sustainability and environmental policies by evaluating the effects and potential of the integration of electric vehicles in the business world in combating the climate change crisis. In this context, it will focus on the development of electric vehicle technologies and how these technologies are adopted and implemented by businesses.

2. Studies on the Relationship between Electric Vehicles and Business

Studies focusing on the relationship between electric vehicles (EVs) and businesses provide a comprehensive understanding of the benefits and challenges associated with these technologies in terms of sustainability, economic impacts, and energy management. The literature reveals that electric vehicles are transforming the business world across various dimensions, from environmental impacts to cost efficiency.

A significant body of research emphasizes the importance of electric vehicles in the context of sustainability. Palit et al. (2022) analyzed the role of EVs in reducing carbon emissions and highlighted their potential as a key tool for achieving environmental sustainability goals. Reddy et al. (2024) underscored the energy efficiency and carbon emission reduction potential of electric vehicles, presenting them as a greener alternative to fossil fuel-based transportation. Similarly, Kumar & Alok (2020) examined the

economic and environmental impacts of EVs, emphasizing their role in supporting low-carbon strategies, particularly in the business sector.

Research on the adoption of electric vehicles by businesses has explored the technical and economic dimensions of this transition. Das et al. (2020) investigated the infrastructure requirements for the widespread adoption of EVs, as well as the influence of government policies in this process. Ahmad & Zhang (2021), examining the intersection of smart energy networks and electric vehicles, suggested that businesses could integrate EVs into their energy management strategies. Bohnsack et al. (2014) demonstrated the advantages of innovations in EV technologies for businesses, particularly noting how fleet electrification can reduce operational costs and align with environmental objectives.

While the adoption of EVs in the business sector offers numerous advantages, it also presents various technical and ecological challenges. Hawkins et al. (2012) explored the ecological impacts of EV manufacturing processes, emphasizing the importance of managing these impacts effectively. Un-Noor et al. (2017) assessed the sustainable development of EV technologies, highlighting the challenges businesses may encounter during this transition. These studies suggest that businesses must consider both environmental and economic factors when adopting electric vehicle technologies.

The role of external factors in the adoption of EVs is also widely discussed in the literature. Kester et al. (2018) investigated the critical influence of government incentives and policies on the adoption of EVs, emphasizing their importance in shaping business transformation strategies. Furthermore, Helveston et al. (2015) analyzed how changes in consumer behavior affect EV adoption and highlighted the role of social perceptions in promoting the acceptance of these vehicles.

In this context, studies in the literature show that the integration of electric vehicles into the business world has significant potential not only for environmental benefits, but also for economic sustainability, energy efficiency and corporate social responsibility.

Table 1 below provides a comparative table of the countries where electric vehicle brands are present worldwide and their strategic goals for corporate transformation in the face of the climate change crisis.

Table 1. Comparison of electric vehicle use and climate change strategies

Country	Brand	Electric vehicle use	Strategic objectives related to the climate change crisis
ABD	Tesla	The brand with the highest production and sales of electric vehicles.	20 million electric vehicles by 2030; innovative battery technologies for zero emission vehicles (Tesla, 2023).
Germany	Volkswagen	Major investments and strategic transformation for electric vehicles.	Aiming to reduce CO ₂ emissions by 30 per cent by 2050, investments for carbon-neutral production (Volkswagen, 2023).
China	BYD	China is the largest producer of electric vehicles in the world.	Transition to fully electric vehicles by 2030; strategy to minimise fossil fuel use (BYD, 2023).
United Kingdom	Jaguar Land Rover	Commitment to produce only electric vehicles by 2025.	Carbon neutrality target in 2040, sustainable design and energy efficient production methods (Jaguar Land Rover, 2023).
France	Renault	Extensive new models for electric vehicles.	Target to produce only electric vehicles in 2030; green energy use and low carbon emission factories (Renault, 2023).
South Korea	Hyundai	Large-scale investments and innovation for electric vehicles.	Carbon neutrality target by 2045; electric vehicle and battery technology development strategies (Hyundai, 2023).
Japan	Toyota	Hybrid vehicles are also being produced alongside electric vehicles.	Zero carbon emission target by 2050; studies on water cell vehicles and energy efficiency (Toyota, 2023).

Source: (Author own design).

Brands such as Tesla (USA), BYD (China), and Volkswagen (Germany) are leading players in electric vehicle (EV) production. Tesla has revolutionized the industry, particularly with its advancements in battery technology and autonomous vehicle

features. BYD, as the largest EV manufacturer in China, holds a significant share of the global market (BYD, 2023). Tesla plays a pivotal role in combating climate change by focusing on producing zero-emission vehicles. The company plans to manufacture 20 million electric vehicles annually by 2030 and contributes to climate change strategies not only through vehicle production but also through battery storage systems and renewable energy initiatives (Tesla, 2023).

Volkswagen aims to reduce CO₂ emissions by 30% by 2050, aligning with its environmentally friendly transformation strategy. This strategy encompasses not only electric vehicle production but also carbon-neutral manufacturing facilities and sustainable supply chains (Volkswagen, 2023). BYD, on the other hand, plans to transition fully to electric vehicles by 2030, striving to minimize its environmental impact by reducing reliance on fossil fuels (BYD, 2023).

Countries like the UK and France are incentivizing manufacturers to transition to EV production and achieve carbon neutrality targets. Jaguar Land Rover, for instance, will produce only electric vehicles starting in 2025, while Renault plans to do so by 2030, further investing in green energy utilization and low-carbon emission factories (Jaguar Land Rover, 2023; Renault, 2023). Meanwhile, Japanese brands such as Toyota are diversifying their energy efficiency and sustainability strategies by investing in hydrogen fuel cell technologies alongside hybrid vehicles. Toyota aims to achieve zero carbon emissions by 2050 (Toyota, 2023).

The comparative analysis of EV adoption and climate change strategies presented in Table 1 highlights the significance of corporate transformation in addressing the climate crisis. Companies investing in electric vehicles and green energy are spearheading this transformation with a dual focus on environmental sustainability and commercial success. These strategies aim to provide effective solutions to global environmental challenges while enhancing the future market share of the brands involved.

3. Climate Change and Institutional Transformation

Climate change poses a global threat by disrupting the natural balance of our planet, altering weather patterns, affecting the water cycle, and endangering ecosystems (Upadhyay, 2020). Corporate transformation refers to the process of reshaping business operations and practices in alignment with sustainability principles (Loorbach & Wijsman, 2013; Roome & Louche, 2016; Bican & Brem, 2020). The relationship between these two concepts is multifaceted and underscores the role and responsibilities of businesses in combating climate change.

Climate change has a wide range of impacts on businesses, including operational disruptions caused by extreme weather events, reliability challenges in supply chains, resource scarcity, and the imposition of stricter environmental regulations (Fanzo et al., 2018; Er Kara et al., 2021; Godde et al., 2021). These challenges necessitate that businesses strengthen their sustainability strategies and minimize their environmental impact.

Corporate transformation encompasses the steps businesses take to adapt to these evolving environmental and economic conditions (Prastacos et al., 2002; Dixon et al., 2014; Day and Schoemaker, 2016). This includes initiatives such as adopting renewable energy, reducing carbon footprints, implementing green production and supply chain strategies, and promoting environmental sustainability reporting and transparency (Jabbour et al., 2015; Karaman et al., 2020).

The interplay between climate change and corporate transformation allows businesses to respond effectively to the climate crisis (Park, 2021). Corporate transformation not only helps companies reduce their environmental impact but also provides a competitive advantage, enhances business processes, and ensures long-term sustainability (Müller & Pflieger, 2014; Morioka et al., 2017). Consequently, understanding the relationship between climate change and organizational transformation is essential for businesses to develop effective strategies and ensure resilience.

4. Impacts of Climate Change on Businesses

Climate change has far-reaching impacts on the business world, both directly and indirectly. These effects place significant pressure on businesses' operations, financial structures, strategic orientations, and supply chains, compelling them to seek new opportunities and develop adaptation strategies (Winn et al., 2011). Factors such as rising temperatures, changing precipitation patterns, and extreme weather events driven by climate change impact various sectors, including agriculture, manufacturing, energy consumption, and raw material supply (Leach et al., 2020).

For instance, droughts and water shortages can limit production capacity, escalate costs, and create operational challenges, particularly in water-intensive industries and agriculture (Ingrao et al., 2023). Extreme rainfall and flooding can damage infrastructure, disrupt logistics and distribution networks, and interrupt business continuity (Reddy et al., 2016). Such events necessitate a re-evaluation of supply chain management, the development of more robust and flexible infrastructures, and the implementation of comprehensive risk management strategies (Gölgeci et al., 2023). Similarly, extreme temperatures can increase energy demand, particularly for air conditioning, leading to higher energy costs (Chua et al., 2013). This, in turn, can reduce profit margins and impact operational efficiency, particularly for energy-intensive businesses.

Reputational risks are another critical consideration for businesses in the context of climate change. As consumer and investor interest in environmental sustainability grows, so does the pressure on businesses to reduce their environmental footprint, invest in green technologies, and adhere to environmental, social, and governance (ESG) standards (Baratta et al., 2023). Failure to meet these expectations can damage brand reputation and negatively impact customer loyalty.

Additionally, legal and regulatory pressures are intensifying globally. Governments are introducing stricter environmental regulations to combat climate change and reduce carbon emissions. While complying with these regulations may pose financial challenges and require adopting new processes and technologies, such measures also incentivize businesses to transition to low-carbon technologies, such as through carbon taxes and emissions trading systems (Danish et al., 2020).

Despite these challenges, climate change also presents new opportunities for businesses. Investments in renewable energy, energy efficiency solutions, and sustainable products and services can open new market niches (Sims, 2004; Pinkse & Kolk, 2010). Companies offering environmentally friendly products can capitalize on shifting consumer preferences and strengthen their market positions. Furthermore, businesses that take a leadership role in combating climate change can attract investors and achieve sustainable growth by demonstrating innovation and environmental responsibility (Stern & Valero, 2021).

In conclusion, climate change poses both challenges and opportunities for businesses. To thrive in this new reality, businesses must adopt strategies that address environmental impacts, enhance operational and financial flexibility, proactively meet consumer and regulatory expectations, and produce innovative solutions. By taking a leading role in combating climate change, businesses can gain a competitive advantage and achieve sustainable success in the long term.

5. The Necessity and Opportunities of Organizational Transformation

The imperatives and opportunities presented by climate change emphasize the need for businesses to intensify their sustainability efforts and build more resilient business models for the future (Brenner, 2018). Faced with challenges such as extreme weather conditions, resource scarcity, and stringent environmental regulations, businesses are increasingly compelled to embrace sustainability-oriented transformation. This involves reducing carbon emissions, improving energy efficiency, investing in green technologies,

and enhancing processes for monitoring and reporting environmental impacts (Hariram et al., 2023).

While combating climate change presents challenges, organizational transformation also offers significant opportunities for businesses. Sustainability-focused business models, investments in green technologies, and the introduction of environmentally friendly products and services can provide companies with a competitive advantage and open new market opportunities. Moreover, businesses that fulfill their environmental and social responsibilities often experience increased consumer and investor demand, boosting their brand value (Geissdoerfer et al., 2018).

The challenges posed by climate change due to global warming require organizations to reevaluate their strategies, operations, and even entire business models. In this context, adopting environmentally friendly technologies, such as electric vehicles, has emerged as both a necessity and a strategic opportunity (Boiral, 2006). The adoption of electric vehicles (EVs) is not only an environmental obligation for companies but also a transformative tool that offers economic and social advantages.

Environmental regulations and government policies increasingly mandate companies to reduce greenhouse gas emissions, with the automotive sector experiencing a profound transformation to comply with stringent emission standards (Li & Nam, 2022). Meeting these regulations through the adoption of electric vehicles allows companies to significantly reduce their carbon footprints. Additionally, EVs require less maintenance and are more energy-efficient compared to traditional internal combustion engine vehicles, offering considerable cost savings, especially for fleet management companies (Gao et al., 2023). The integration of EVs also enhances operational efficiency while lowering fuel costs.

As consumers and investors become more environmentally conscious, businesses that actively work to minimize their environmental impact benefit from increased brand value and customer loyalty (Qadir et al., 2024). The adoption of electric vehicles serves as a tangible demonstration of companies' investments in green technologies and their commitment to environmental responsibility.

Furthermore, the rapid development of EV technology expands the innovation capacity of businesses. Such investments not only lead to the creation of new products and services but also reinforce companies' technological leadership and enable the development of new business models. The adoption of electric vehicles should therefore be viewed as both a necessary and strategic step in corporate transformation. By integrating EVs, companies can achieve their environmental, economic, and social objectives while contributing to a sustainable future.

This transformation extends beyond individual companies, impacting supply chains, consumer behaviors, and broader market dynamics. As such, the integration of electric vehicles represents a vital force in reshaping industries and fostering long-term sustainability.

6. Environmental Impacts and Advantages of Electric Vehicles

The environmental impacts and advantages of electric vehicles (EVs) are distinct from those of fossil-fueled vehicles and hold significant potential for promoting environmental sustainability (Hawkins et al., 2012). EVs contribute to improving local air quality and reducing air pollution, as they do not produce direct exhaust emissions. This is particularly beneficial in densely populated cities, where the widespread use of electric vehicles can help decrease air pollution, ultimately leading to reductions in respiratory diseases and other health problems (Rizza et al., 2021). Additionally, the quieter operation of electric vehicles provides a more comfortable and peaceful driving experience in urban environments.

The use of electric vehicles also plays a crucial role in combating climate change. By reducing the greenhouse gas emissions associated with fossil fuel vehicles, EVs contribute positively to mitigating global warming and climate change (Alanzi, 2023). When electric

vehicles are charged using renewable energy sources, their environmental impact is further minimized, as their carbon footprint is reduced even more.

However, it is essential to consider the environmental impacts associated with the production and recycling of EV batteries. Advancements in battery technology and the use of more sustainable materials can further enhance the environmental performance of electric vehicles (Guzek et al., 2024). The environmental advantages of electric vehicles stem not only from the reduction of direct emissions but also from indirect factors, such as energy efficiency and the use of renewable energy.

Therefore, the widespread adoption and proliferation of electric vehicles represent a significant step toward achieving environmental sustainability goals and making meaningful progress toward a greener future (Costa et al., 2021).

6.1. Carbon Emissions and Electric Vehicles

Carbon emissions are one of the primary drivers of climate change, and fossil-fueled vehicles are a major source of these emissions. Vehicles with conventional internal combustion engines emit carbon dioxide (CO₂) and other greenhouse gases during the combustion process, creating a greenhouse effect that contributes to global warming (Seyitoglu, 2024). In contrast, electric vehicles do not produce these harmful emissions, or they reduce them to near-zero levels. Electric vehicles operate using electrical energy stored in their batteries, with the energy typically derived from renewable sources. Therefore, the use of electric vehicles plays a crucial role in reducing carbon emissions (Šehovic & Bibić, 2024). While there are no direct CO₂ emissions during the operation of electric vehicles, emissions may occur if fossil fuels are used for electricity generation. However, electricity generated from renewable energy sources can further enhance the environmental benefits of electric vehicles by reducing their carbon footprint (Barman et al., 2023). Nonetheless, it is essential to consider the full environmental impact of electric vehicles, including factors such as battery production and recycling. Battery production involves the extraction and processing of various materials, which leads to environmental impacts. However, advancements in battery technology and the use of more sustainable materials can help mitigate these challenges (Niri et al., 2024). Electric vehicles play a significant role in reducing carbon emissions and combating climate change. However, to fully realize this potential, electric vehicles must be produced and used in a fully sustainable manner. This includes the continued development of electric vehicle technology and the strengthening of energy infrastructure based on renewable sources.

6.2. Advantages of Electric Vehicles Compared to Fossil Fuelled Vehicles

Electric vehicles offer significant advantages over fossil-fueled vehicles in environmental, economic, and technological aspects. Environmentally, electric vehicles produce almost zero emissions compared to fossil-fueled vehicles, leading to a reduction in harmful emissions, particularly carbon dioxide, nitrogen oxides, and particulate matter (Sanguesa et al., 2021). This contributes significantly to improving urban air quality and supports the reduction of greenhouse gas emissions in the fight against global warming (Hewitt et al., 2020). Electric vehicles can further minimize their environmental footprint when powered entirely by renewable energy, depending on the source of the electricity used. Economically, electric vehicles offer advantages in terms of operation and maintenance costs (Tie & Tan, 2013). They contain fewer moving parts than conventional vehicles, which reduces the need for maintenance and lowers associated costs (Hawkins et al., 2013). Additionally, electricity is a more cost-effective energy source than gasoline or diesel fuels. The energy efficiency of electric vehicles is higher than that of comparable fossil-fueled vehicles, meaning they consume less energy per kilometer, which leads to lower operating costs (Verma et al., 2022). Technologically, electric vehicles generally offer higher performance characteristics. Electric motors are known for their ability to provide instant torque, enabling faster acceleration. Furthermore, electric vehicles offer a platform that is highly compatible with innovative technologies, such as smart vehicle technologies and autonomous driving systems. This technological integration not only improves the

driving experience but also enhances vehicle safety (Mo et al., 2022). Electric vehicles also provide strategic advantages for national policies regarding energy independence and security. Countries can achieve greater energy security and economic stability by reducing their dependence on oil imports (Farghali et al., 2023). This is especially important for nations dependent on foreign energy resources. In this context, electric vehicles stand out as the transport solution of the future, offering superior features compared to fossil-fueled vehicles. For both individuals and policymakers, the adoption of electric vehicles should be viewed as a strategic choice in terms of environmental sustainability, economic savings, and technological progress.

7. Corporate Strategies and Electric Vehicle Integration

Corporate strategies are the plans and methods developed by businesses to achieve their long-term goals. Electric vehicle (EV) integration refers to the process of incorporating electric vehicles into business fleets or operations, aligned with objectives such as environmental sustainability and cost-effectiveness (Mohammed et al., 2024). The increasing popularity of electric vehicles and advancements in technology require businesses to rethink their corporate strategies and assess the role EVs can play in achieving these strategies (Zimm, 2021). Many businesses use electric vehicles as a strategic tool to set and meet environmental sustainability goals. The use of electric vehicles is a crucial step in reducing carbon footprints and minimizing environmental impacts. As a result, businesses can develop strategies such as renewing their fleets with electric vehicles or promoting the use of electric vehicles (Pardo-Bosh et al., 2021). They can also establish long-term environmental goals, such as developing EV charging infrastructure and investing in renewable energy sources.

From an economic perspective, electric vehicles can reduce operating costs in the long run. The low operating costs of electric vehicles are attributed to their lower maintenance requirements and lower energy consumption compared to traditional internal combustion engine vehicles. Therefore, businesses can realize long-term cost savings by adopting electric vehicles, which encourages their inclusion in corporate strategies (Carlsson & Johansson-Stenman, 2003). Technological advancements and market trends also influence the integration of electric vehicles into corporate strategies. The continuous development of EV technology offers advantages such as longer ranges, faster charging options, and reduced costs (Kumar et al., 2023). These developments make it more appealing for businesses to strategically adopt electric vehicles, potentially giving them a competitive edge in the market.

The relationship between corporate strategies and EV integration is becoming increasingly important. Businesses can leverage electric vehicles as a strategic tool to achieve goals such as environmental sustainability, economic efficiency, and technological innovation (Nanjundaswamy et al., 2023). In the fight against global climate change, strategic decisions made by businesses play a critical role. For instance, the integration of electric vehicles has become a central component of corporate sustainability strategies (Hill et al., 2019). Therefore, integrating EVs into corporate strategies is an essential step to enhancing a business's competitive advantage and building a sustainable future.

The adoption of electric vehicles also presents an opportunity for businesses to create new business models and revenue streams. In the automotive industry, traditional manufacturers are no longer limited to selling vehicles but are also offering integrated energy solutions to add value for their customers (Nian et al., 2019). For example, a vehicle manufacturer might provide renewable energy solutions, such as home charging stations and solar panel systems, to encourage electric vehicle purchases. This strategic move helps businesses achieve environmental sustainability goals while fostering brand loyalty (Ziegler & Abdelkafi, 2022).

Electric vehicles have the potential to enhance operational efficiency. By renewing their fleets with electric vehicles, businesses can save on fuel costs and comply more easily

with emission regulations (Mohammed & Villegas, 2023). For instance, a logistics company can reduce both operational costs and its carbon footprint by converting its fleet entirely to electric vehicles. Furthermore, since the maintenance costs of electric vehicles are lower than those of conventional vehicles, they have a positive impact on the total cost of ownership (Sandaka & Kumar, 2023).

The integration of electric vehicles can significantly improve the environmental performance of businesses. Electric vehicles offer tangible benefits to businesses, such as reducing carbon emissions, improving local air quality, and promoting the sustainable use of resources (Jansen & Petrova, 2023). Likewise, electric vehicles play a key role in corporate social responsibility projects. In sustainability reports, the adoption of electric vehicles is used as a tool to demonstrate companies' positive impacts on the environment (Patel et al., 2022).

8. Strategies to Promote Electric Vehicle Use

The integration of electric vehicles at the enterprise level should be seen as both a responsibility and a strategic opportunity for businesses (Cao et al., 2021). The operational efficiency, cost savings, and environmental benefits offered by electric vehicles not only enhance business competitiveness but also contribute to the broader effort in fighting climate change (Hossain et al., 2022). It is essential for businesses to approach this transformation strategically in order to achieve a sustainable future.

Developing effective strategies to promote the use of electric vehicles is crucial for increasing environmental sustainability and energy efficiency. First, governments and local authorities can make purchasing electric vehicles more attractive by offering financial incentives such as tax rebates, direct subsidies, and low-interest loans to electric vehicle owners (Li & Wang, 2023). Additionally, tax benefits could be provided to companies that build electric vehicle fleets, encouraging the adoption of commercial electric vehicles. These financial incentives stimulate market growth by increasing consumer interest in electric vehicles (Zhang et al., 2022).

Second, the development of charging infrastructure is necessary to support the widespread adoption of electric vehicles. Installing fast charging stations in urban areas and along highways enables electric vehicle owners to conveniently charge their vehicles (Mastoi et al., 2022). Furthermore, adding more charging points in public spaces, shopping malls, and workplaces offers added convenience to daily electric vehicle use (LaMonaca & Ryan, 2022). Mobile applications and streamlined payment systems, enhanced by technological innovations, can also encourage the adoption of electric vehicles by simplifying the charging experience.

Finally, organizing comprehensive educational and awareness campaigns is essential to increase public understanding of electric vehicles and provide accurate information (Qadir et al., 2024). Advertising campaigns that emphasize the environmental benefits and long-term cost savings of electric vehicles can capture consumers' attention (Schuitema et al., 2013). Hosting educational programs and test-drive events at schools and universities can help engage younger generations and generate more interest in electric vehicles. Such awareness initiatives play a key role in fostering wider societal acceptance of electric vehicles (Thøgersen & Ebsen, 2019).

Contribution of Electric Vehicles to Corporate Sustainability Strategies

Electric vehicles make significant contributions to corporate sustainability strategies. First, they reduce the carbon footprint of businesses by decreasing fossil fuel consumption. This helps companies achieve their environmental sustainability goals and lower carbon emissions (Zhao et al., 2023). Electric vehicle fleets contribute to the reduction of greenhouse gas emissions, which companies report in their sustainability reports, creating a more favorable impression among customers, investors, and other stakeholders (Zimm, 2021).

Second, adopting electric vehicles for corporate use can help businesses reduce energy costs. Compared to traditional internal combustion engines, electric vehicles offer

substantial savings in fuel and maintenance costs (Sanguesa et al., 2021). By using electric vehicle fleets, companies can cut operational costs and reallocate these savings to other sustainability initiatives or business development areas. This not only enhances the competitiveness of companies but also reduces their environmental impact (Maradin et al., 2022).

Finally, integrating electric vehicles into corporate sustainability strategies strengthens a company's position as a leader in innovation and technology (Jagani et al., 2024). Electric vehicles are regarded as part of advanced technology and innovative practices, and companies can stay ahead of industry trends by investing in such green technologies (Demartini et al., 2023). This strengthens the company's brand image and helps position it as a leader in sustainability. Furthermore, the use of electric vehicles by companies encourages the adoption of environmentally friendly practices among employees and within society, contributing to a broader culture of sustainability.

9. Conclusion and Future Predictions

The future of electric vehicles (EVs) looks promising, thanks to ongoing technological innovations. Advances in battery technology and charging infrastructure are addressing consumer concerns by improving the range and charging speed of EVs. In the near future, the number of fast-charging stations is expected to increase, and EVs are likely to become more affordable. These developments will accelerate the transition of businesses to electric vehicles and foster their wider adoption.

In addition to environmental benefits, electric vehicles are expected to play a pivotal role in enhancing the efficiency of energy networks. With the integration of smart charging systems, EVs can contribute to balancing energy supply and demand. Furthermore, EV batteries can support the integration of renewable energy sources by offering energy storage and feedback capabilities, making energy networks more resilient and sustainable. Adopting electric vehicles as part of the response to the climate change crisis could significantly contribute to corporate transformation. Many businesses are already taking steps to electrify their fleets to meet sustainability targets. This transition will not only reduce their environmental impact but also align with corporate social responsibility (CSR) objectives. Additionally, the widespread adoption of EVs can enhance businesses' reputations by positively influencing public perception.

Corporate transformation through the adoption of electric vehicles also presents a competitive advantage for businesses. In the face of increasing demands for sustainability and lower carbon footprints, companies that embrace EVs can position themselves as both environmentally responsible and cost-efficient. This advantage can drive long-term profitability and sustainable growth. As such, the future of EVs is at the forefront of corporate strategies to combat the climate change crisis. Supported by technological advancements and government policies, this transformation will enable businesses to achieve their sustainability goals while contributing to more efficient and eco-friendly energy networks. Investments in electric vehicles not only deliver environmental benefits but also provide competitive advantages and long-term growth potential. Therefore, EVs will remain an important component of corporate strategies against the climate crisis.

Despite their many advantages, electric vehicles also face several challenges and limitations in the current landscape. These barriers can impact the adoption of EVs by both consumers and businesses. For instance, the initial purchase cost of EVs remains a significant hurdle, particularly in developing countries. Although the cost of battery technology is declining, EVs are generally more expensive than comparable internal combustion engine vehicles. Additionally, while the number of charging stations is growing in urban and developed areas, rural regions or those with underdeveloped infrastructure still lack adequate charging facilities, contributing to range anxiety among users. Although fast-charging stations are becoming more prevalent, EV charging times are still considerably longer than the refuelling times of traditional vehicles, potentially causing inconvenience during long trips.

Another concern is the long-term durability of EV batteries. Over time, batteries lose capacity, and the high cost of replacement can be a significant drawback for users. Insufficiently developed battery recycling processes also pose environmental risks. Moreover, the growing adoption of EVs could increase electricity demand, potentially overloading energy networks. While integrating renewable energy sources can mitigate this burden, many existing grids require substantial investment to support these changes. Cold weather conditions also affect EV performance, as low temperatures reduce battery efficiency, impacting range and user experience. Finally, since EV technology is still relatively new, spare parts and servicing options are limited in many areas, often leading to higher maintenance costs compared to traditional vehicles.

To address these challenges, collaboration between governments and the private sector is essential. Expanding charging infrastructure, improving battery recycling technologies, and offering financial incentives to consumers are critical steps. With continued technological advancements and strategic planning, the disadvantages of electric vehicles can be mitigated over time, making them more appealing to a broader audience.

References

- Agrawala, S., Carraro, M., Kingsmill, N., Lanzi, E., Mullan, M. & Prudent-Richard, G. (2011). private sector engagement in adaptation to climate change: Approaches to managing climate risks. *OECD Environment Working Papers*, 39, OECD Publishing. <http://dx.doi.org/10.1787/5kg221jkf1g7-en>
- Ahmad, T. & Zhang, D. (2021). Using the internet of things in smart energy systems and networks. *Sustainable Cities and Society*, 68, 102783.
- Alanazi, F. (2023). Electric vehicles: Benefits, challenges, and potential solutions for widespread adaptation. *Applied Sciences*, 13(10), 6016.
- Baratta, A., Cimino, A., Longo, F., Solina, V. & Verteramo, S. (2023). The impact of ESG practices in industry with a focus on carbon emissions: Insights and future perspectives. *Sustainability*, 15(8), 6685.
- Barman, P., Dutta, L., Bordoloi, S., Kalita, A., Buragohain, P., Bharali, S. & Azzopardi, B. (2023). Renewable energy integration with electric vehicle technology: A review of the existing smart charging approaches. *Renewable and Sustainable Energy Reviews*, 183, 113518.
- Bican, P. M. & Brem, A. (2020). Digital Business Model, Digital Transformation, Digital Entrepreneurship: Is there a sustainable “digital”? *Sustainability*, 12(13), 5239.
- Bohnsack, R., Pinkse, J. & Kolk, A. (2014). Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles. *Research policy*, 43(2), 284-300.
- Boiral, O. (2006). Global Warming: Should Companies Adopt a Proactive Strategy?. *Long Range Planning*, 39(3), 315-330.
- Brenner, B. (2018). Transformative Sustainable Business Models in the Light of the Digital Imperative-A Global Business Economics Perspective. *Sustainability*, 10(12), 4428.
- Breuer, H., Fichter, K., Lüdeke-Freund, F. & Tiemann, I. (2018). Sustainability-oriented business model development: Principles, criteria and tools. *International Journal of Entrepreneurial Venturing*, 10(2), 256-286.
- BYD. (2023). BYD and China's green future: Electric vehicle vision. BYD Official Reports.
- Cao, J., Chen, X., Qiu, R. & Hou, S. (2021). Electric vehicle industry sustainable development with a stakeholder engagement system. *Technology in Society*, 67, 101771.
- Carlsson, F. & Johansson-Stenman, O. (2003). Costs and benefits of electric vehicles. *Journal of Transport Economics and Policy (JTEP)*, 37(1), 1-28.
- Chua, K. J., Chou, S. K., Yang, W. M. & Yan, J. (2013). Achieving better energy-efficient air conditioning-a review of technologies and strategies. *Applied Energy*, 104, 87-104.
- Costa, C. M., Barbosa, J. C., Castro, H., Gonçalves, R. & Lanceros-Méndez, S. (2021). Electric vehicles: To what extent are environmentally friendly and cost effective?-Comparative study by European countries. *Renewable and Sustainable Energy Reviews*, 151, 111548.

- Dall-Orsoletta, A., Ferreira, P. & Dranka, G. G. (2022). Low-carbon technologies and just energy transition: Prospects for electric vehicles. *Energy Conversion and Management: X*, 16, 100271.
- Danish, Ulucak, R., Khan, S.U.D., Baloch, M.A. & Li, N. (2020). Mitigation pathways toward sustainable development: Is there any trade-off between environmental regulation and carbon emissions reduction?. *Sustainable Development*, 28(4), 813-822.
- Das, H. S., Rahman, M. M., Li, S. & Tan, C. W. (2020). Electric vehicles standards, charging infrastructure, and impact on grid integration: A technological review. *Renewable and Sustainable Energy Reviews*, 120, 109618.
- Day, G. S. & Schoemaker, P. J. (2016). Adapting to fast-changing markets and technologies. *California Management Review*, 58(4), 59-77.
- Demartini, M., Ferrari, M., Govindan, K. & Tonelli, F. (2023). The transition to electric vehicles and a net zero economy: A model based on circular economy, stakeholder theory, and system thinking approach. *Journal of Cleaner Production*, 410, 137031.
- Dixon, S., Meyer, K. & Day, M. (2014). Building dynamic capabilities of adaptation and innovation: A study of micro-foundations in a transition economy. *Long Range Planning*, 47(4), 186-205.
- Er Kara, M., Ghadge, A. & Bititci, U. S. (2021). Modelling the impact of climate change risk on supply chain performance. *International Journal of Production Research*, 59(24), 7317-7335.
- Fanzo, J., Davis, C., McLaren, R. & Choufani, J. (2018). The effect of climate change across food systems: Implications for nutrition outcomes. *Global Food Security*, 18, 12-19.
- Farghali, M., Osman, A. I., Chen, Z., Abdelhaleem, A., Ihara, I., Mohamed, I. M., Yap, P-S. & Rooney, D. W. (2023). Social, environmental, and economic consequences of integrating renewable energies in the electricity sector: A review. *Environmental Chemistry Letters*, 21(3), 1381-1418.
- Gao, Z., Xie, H., Yang, X., Zhang, L., Yu, H., Wang, W., Liu, Y., Xu, Y., Ma, B., Liu, X. & Chen, S. (2023). Electric vehicle lifecycle carbon emission reduction: A review. *Carbon Neutralization*, 2(5), 528-550.
- Geissdoerfer, M., Vladimirova, D. & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production*, 198, 401-416.
- Godde, C. M., Mason-D'Croz, D., Mayberry, D. E., Thornton, P. K. & Herrero, M. (2021). Impacts of climate change on the livestock food supply chain: A review of the evidence. *Global Food Security*, 28, 100488.
- Gölgeci, I., Gligor, D. M., Bayraktar, E. & Delen, D. (2023). Reimagining global value chains in the face of extreme events and contexts: Recent insights and future research opportunities. *Journal of Business Research*, 160, 113721.
- Guzek, M., Jackowski, J., Jurecki, R. S., Szumska, E. M., Zdanowicz, P. & Żmuda, M. (2024). Electric vehicles-an overview of current issues-part 1-Environmental impact, source of energy, recycling, and second life of battery. *Energies*, 17(1), 249.
- Hariram, N. P., Mekha, K. B., Suganthan, V. & Sudhakar, K. (2023). Sustainalism: An integrated socio-economic-environmental model to address sustainable development and sustainability. *Sustainability*, 15(13), 10682.
- Hawkins, T. R., Gausen, O. M. & Strømman, A. H. (2012). Environmental impacts of hybrid and electric vehicles-a review. *The International Journal of Life Cycle Assessment*, 17, 997-1014.
- Hawkins, T. R., Singh, B., Majeau-Bettez, G. & Strømman, A. H. (2013). Comparative environmental life cycle assessment of conventional and electric vehicles. *Journal of Industrial Ecology*, 17(1), 53-64.
- Helveston, J. P., Liu, Y., Feit, E. M., Fuchs, E., Klampfl, E. & Michalek, J. J. (2015). Will subsidies drive electric vehicle adoption? Measuring consumer preferences in the US and China. *Transportation Research Part A: Policy and Practice*, 73, 96-112.
- Herrmann, K. K. (2004). Corporate social responsibility and sustainable development: The European Union initiative as a case study. *Ind. J. Global Legal Stud.*, 11, 205.
- Hewitt, C. N., Ashworth, K. & MacKenzie, A. R. (2020). Using green infrastructure to improve urban air quality (GI4AQ). *Ambio*, 49(1), 62-73.
- Hill, G., Heidrich, O., Creutzig, F. & Blythe, P. (2019). The role of electric vehicles in near-term mitigation pathways and achieving the UK's carbon budget. *Applied Energy*, 251, 113111.
- Hossain, M. S., Kumar, L., Islam, M. M. & Selvaraj, J. (2022). A comprehensive review on the integration of electric vehicles for sustainable development. *Journal of Advanced Transportation*, 2022(1), 3868388.
- Hyundai. (2023). Hyundai's electric vehicle revolution and sustainability goals. Hyundai Global.
- Ingrao, C., Strippoli, R., Lagioia, G. & Huisingh, D. (2023). Water scarcity in agriculture: An overview of causes, impacts and approaches for reducing the risks. *Heliyon*. 9(8), e18507. <https://doi.org/10.1016/j.heliyon.2023.e18507>

- Jabbour, C. J. C., Neto, A. S., Gobbo Jr, J. A., de Souza Ribeiro, M. & de Sousa Jabbour, A. B. L. (2015). Eco-innovations in more sustainable supply chains for a low-carbon economy: A multiple case study of human critical success factors in Brazilian leading companies. *International Journal of Production Economics*, 164, 245-257.
- Jagani, S., Marsillac, E. & Hong, P. (2024). The electric vehicle supply chain ecosystem: Changing roles of automotive suppliers. *Sustainability*, 16(4), 1570.
- Jaguar Land Rover. (2023). Jaguar Land Rover's commitment to a sustainable future. JLR Annual Sustainability Report.
- Jansen, I. & Petrova, S. (2023). Driving towards sustainability: Electric vehicles' contribution to environmental and public health. *Journal of Sustainable Technologies and Infrastructure Planning*, 7(1), 25-45.
- Karaman, A. S., Kilic, M. & Uyar, A. (2020). Green logistics performance and sustainability reporting practices of the logistics sector: The moderating effect of corporate governance. *Journal of Cleaner Production*, 258, 120718.
- Kester, J., Noel, L., de Rubens, G. Z. & Sovacool, B. K. (2018). Policy mechanisms to accelerate electric vehicle adoption: A qualitative review from the Nordic region. *Renewable and Sustainable Energy Reviews*, 94, 719-731.
- Kumar, M., Panda, K. P., Naayagi, R. T., Thakur, R. & Panda, G. (2023). Comprehensive review of electric vehicle technology and its impacts: Detailed investigation of charging infrastructure, power management, and control techniques. *Applied Sciences*, 13(15), 8919.
- Kumar, R. R. & Alok, K. (2020). Adoption of electric vehicle: A literature review and prospects for sustainability. *Journal of Cleaner Production*, 253, 119911.
- LaMonaca, S. & Ryan, L. (2022). The state of play in electric vehicle charging services-A review of infrastructure provision, players, and policies. *Renewable and Sustainable Energy Reviews*, 154, 111733.
- Leach, F., Kalghatgi, G., Stone, R. & Miles, P. (2020). The scope for improving the efficiency and environmental impact of internal combustion engines. *Transportation Engineering*, 1, 100005.
- Li, J., Jiao, J. & Tang, Y. (2020). Analysis of the impact of policies intervention on electric vehicles adoption considering information transmission-based on consumer network model. *Energy Policy*, 144, 111560.
- Li, K. & Wang, L. (2023). Optimal electric vehicle subsidy and pricing decisions with consideration of EV anxiety and EV preference in green and non-green consumers. *Transportation Research Part E: Logistics and Transportation Review*, 170, 103010.
- Li, X. & Nam, K. M. (2022). Environmental regulations as industrial policy: Vehicle emission standards and automotive industry performance. *Environmental Science & Policy*, 131, 68-83.
- Loorbach, D. & Wijsman, K. (2013). Business transition management: Exploring a new role for business in sustainability transitions. *Journal of cleaner production*, 45, 20-28.
- Maradin, D., Malnar, A. & Kaštelan, A. (2022). Sustainable and clean energy: The case of Tesla company. *Journal of Economics, Finance and Management Studies*, 5(12), 3531-3542.
- Mastoi, M. S., Zhuang, S., Munir, H. M., Haris, M., Hassan, M., Usman, M., Bukari, S. S. H. & Ro, J. S. (2022). An in-depth analysis of electric vehicle charging station infrastructure, policy implications, and future trends. *Energy Reports*, 8, 11504-11529.
- Mo, T., Li, Y., Lau, K. T., Poon, C. K., Wu, Y. & Luo, Y. (2022). Trends and emerging technologies for the development of electric vehicles. *Energies*, 15(17), 6271.
- Mohammed, A., Saif, O., Abo-Adma, M., Fahmy, A. & Elazab, R. (2024). Strategies and sustainability in fast charging station deployment for electric vehicles. *Scientific Reports*, 14(1), 283.
- Mohammed, J. & Villegas, J. (2023). Total impact of electric vehicle fleet adoption in the logistics industry. *Frontiers in Sustainability*, 4, 1158993.
- Morioka, S. N., Bolis, I., Evans, S. & Carvalho, M. M. (2017). Transforming sustainability challenges into competitive advantage: Multiple case studies kaleidoscope converging into sustainable business models. *Journal of Cleaner Production*, 167, 723-738.
- Müller, A. L. & Pfleger, R. (2014). Business transformation towards sustainability. *Business Research*, 7, 313-350.
- Mwasilu, F., Justo, J. J., Kim, E. K., Do, T. D. & Jung, J. W. (2014). Electric vehicles and smart grid interaction: A review on vehicle to grid and renewable energy sources integration. *Renewable and Sustainable Energy Reviews*, 34, 501-516.
- Nanjundaswamy, A., Kulal, A., Dinesh, S. & Divyashree, M. S. (2023). Electric vehicles in the business processes and sustainable development. *Management Matters*, 20(1), 95-113.
- Newell, P. (2004). Climate change and development: A tale of two crises. *IDS Bulletin*, 35(3), 120-126.

- Nian, V., Hari, M. P. & Yuan, J. (2019). A new business model for encouraging the adoption of electric vehicles in the absence of policy support. *Applied Energy*, 235, 1106-1117.
- Nilsson, M. & Nykvist, B. (2016). Governing the electric vehicle transition-near term interventions to support a green energy economy. *Applied Energy*, 179, 1360-1371.
- Niri, A. J., Poelzer, G. A., Zhang, S. E., Rosenkranz, J., Pettersson, M. & Ghorbani, Y. (2024). Sustainability challenges throughout the electric vehicle battery value chain. *Renewable and Sustainable Energy Reviews*, 191, 114176.
- Palit, T., Bari, A. M. & Karmaker, C. L. (2022). An integrated principal component analysis and interpretive structural modeling approach for electric vehicle adoption decisions in sustainable transportation systems. *Decision Analytics Journal*, 4, 100119.
- Pardo-Bosch, F., Pujadas, P., Morton, C. & Cervera, C. (2021). Sustainable deployment of an electric vehicle public charging infrastructure network from a city business model perspective. *Sustainable Cities and Society*, 71, 102957.
- Park, S. K. (2021). Legal strategy disrupted: Managing climate change and regulatory transformation. *American Business Law Journal*, 58(4), 711-749.
- Patel, A. R., Vyas, D. R., Markana, A. & Jayaraman, R. (2022). A conceptual model for integrating sustainable supply chain, electric vehicles, and renewable energy sources. *Sustainability*, 14(21), 14484.
- Pietrzak, K. & Pietrzak, O. (2020). Environmental effects of electromobility in a sustainable urban public transport. *Sustainability*, 12(3), 1052.
- Pinkse, J. & Kolk, A. (2010). Challenges and trade-offs in corporate innovation for climate change. *Business Strategy and the Environment*, 19(4), 261-272.
- Prastacos, G., Söderquist, K., Spanos, Y. & Van Wassenhove, L. (2002). An integrated framework for managing change in the new competitive landscape. *European Management Journal*, 20(1), 55-71.
- Qadir, S. A., Ahmad, F., Al-Wahedi, A. M. A., Iqbal, A. & Ali, A. (2024). Navigating the complex realities of electric vehicle adoption: A comprehensive study of government strategies, policies, and incentives. *Energy Strategy Reviews*, 53, 101379.
- Reddy, V. J., Hariram, N. P., Maity, R., Ghazali, M. F. & Kumarasamy, S. (2024). Sustainable vehicles for decarbonizing the transport sector: A comparison of biofuel, electric, fuel cell and solar-powered vehicles. *World Electric Vehicle Journal*, 15(3), 93.
- Reddy, V. R., Singh, S. K. & Anbumozhi, V. (2016). Food supply chain disruption due to natural disasters: entities, risks, and strategies for resilience. *ERIA Discussion Paper*, 18, 1-37.
- Renault. (2023). Renault's green strategy: The path to 2030. Renault Group Sustainability.
- Richardson, D. B. (2013). Electric vehicles and the electric grid: A review of modeling approaches, impacts, and renewable energy integration. *Renewable and Sustainable Energy Reviews*, 19, 247-254.
- Rizza, V., Torre, M., Tratzi, P., Fazzini, P., Tomassetti, L., Cozza, V., Naso, F., Marcozzi, D. & Petracchini, F. (2021). Effects of deployment of electric vehicles on air quality in the urban area of Turin (Italy). *Journal of Environmental Management*, 297, 113416.
- Roome, N. & Louche, C. (2016). Journeying toward business models for sustainability: A conceptual model found inside the black box of organisational transformation. *Organization & Environment*, 29(1), 11-35.
- Sandaka, B. P. & Kumar, J. (2023). Alternative vehicular fuels for environmental decarbonization: A critical review of challenges in using electricity, hydrogen, and biofuels as a sustainable vehicular fuel. *Chemical Engineering Journal Advances*, 14, 100442.
- Sanguesa, J. A., Torres-Sanz, V., Garrido, P., Martinez, F. J. & Marquez-Barja, J. M. (2021). A review on electric vehicles: Technologies and challenges. *Smart Cities*, 4(1), 372-404.
- Schaltegger, S. & Hörisch, J. (2017). In search of the dominant rationale in sustainability management: Legitimacy-or profit-seeking?. *Journal of Business Ethics*, 145, 259-276.
- Schuitema, G., Anable, J., Skippon, S. & Kinnear, N. (2013). The role of instrumental, hedonic and symbolic attributes in the intention to adopt electric vehicles. *Transportation Research Part A: Policy and Practice*, 48, 39-49.
- Šehovic, J. & Bibić, D. (2024). Energy sources as a function of electric vehicle emission: The case of Bosnia and Herzegovina. *Environmental Research and Technology*, 7(2), 149-159.
- Seyitoglu, S. S. (2024). The influence of road transport on carbon footprint: A case study of the Black Sea region. *International Journal of Automotive Science and Technology*, 8(1), 37-43.
- Sims, R. E. (2004). Renewable energy: A response to climate change. *Solar Energy*, 76(1-3), 9-17.
- Stern, N. & Valero, A. (2021). Innovation, growth and the transition to net-zero emissions. *Research Policy*, 50(9), 104293.

- Tesla. (2023). Tesla's sustainability and electric vehicle strategy. Tesla Official Website.
- Thøgersen, J. & Ebsen, J. V. (2019). Perceptual and motivational reasons for the low adoption of electric cars in Denmark. *Transportation Research Part F: Traffic Psychology and Behaviour*, 65, 89-106.
- Tie, S. F. & Tan, C. W. (2013). A review of energy sources and energy management system in electric vehicles. *Renewable and Sustainable Energy Reviews*, 20, 82-102.
- Toyota. (2023). Toyota's green innovations and carbon neutrality commitment. Toyota Corporate Reports.
- Un-Noor, F., Padmanaban, S., Mihet-Popa, L., Mollah, M. N. & Hossain, E. (2017). A comprehensive study of key electric vehicle (EV) components, technologies, challenges, impacts, and future direction of development. *Energies*, 10(8), 1217.
- Upadhyay, R. K. (2020). Markers for global climate change and its impact on social, biological and ecological systems: A review. *American Journal of Climate Change*, 9(03), 159.
- Verma, S., Dwivedi, G. & Verma, P. (2022). Life cycle assessment of electric vehicles in comparison to combustion engine vehicles: A review. *Materials Today: Proceedings*, 49, 217-222.
- Volkswagen. (2023). Volkswagen's road to carbon neutrality. Volkswagen Group.
- Winn, M., Kirchgeorg, M., Griffiths, A., Linnenluecke, M. K. & Günther, E. (2011). Impacts from climate change on organizations: A conceptual foundation. *Business Strategy and the Environment*, 20(3), 157-173.
- Zhang, J., Xu, S., He, Z., Li, C. & Meng, X. (2022). Factors influencing adoption intention for electric vehicles under a subsidy deduction: From different city-level perspectives. *Sustainability*, 14(10), 5777.
- Zhao, X., Hu, H., Yuan, H. & Chu, X. (2023). How does adoption of electric vehicles reduce carbon emissions? Evidence from China. *Heliyon*, 9(9). <https://doi.org/10.1016/j.heliyon.2023.e20296>
- Ziegler, D. & Abdelkafi, N. (2022). Business models for electric vehicles: Literature review and key insights. *Journal of Cleaner Production*, 330, 129803.
- Zimm, C. (2021). Improving the understanding of electric vehicle technology and policy diffusion across countries. *Transport Policy*, 105, 54-66.

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