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Green Wheels Initiative: Implementing Electric Transportation for Local Distribution Excellence

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Abstract: The Green Wheels Initiative aims to revolutionize local distribution networks by integrating electric transportation solutions, enhancing sustainability, and optimizing efficiency. This project focuses on replacing conventional fuel-powered vehicles with electric alternatives to reduce carbon emissions, lower operational costs, and comply with evolving environmental regulations. Through strategic planning, infrastructure development, and collaboration with stakeholders, the initiative will establish a reliable electric vehicle (EV) fleet for last-mile deliveries. The project will also explore charging infrastructure, route optimization, and renewable energy integration to maximize sustainability. By implementing data-driven decision-making and leveraging smart logistics technology, the initiative will ensure seamless operations while promoting green urban mobility. The Green Wheels Initiative sets a precedent for eco-friendly distribution models, fostering a cleaner environment and contributing to the global transition toward sustainable transportation.

I. INTRODUCTION

The transportation and logistics sector plays a pivotal role in economic development, enabling the movement of goods and services across the globe. However, this sector is also a major contributor to environmental pollution due to its heavy dependence on fossil fuels. In recent years, the rising concerns over climate change, air pollution, and depleting natural resources have necessitated a shift toward more sustainable practices. The integration of electric vehicles (EVs) into the logistics supply chain has emerged as a viable solution to mitigate environmental degradation and enhance operational efficiency.

The "Green Wheels Initiative" by Safexpress Pvt. Ltd. is a strategic effort to transition from traditional internal combustion engine (ICE) vehicles to electric-powered alternatives. This study aims to analyze the implementation of electric transportation within the company's local distribution network. The focus is on understanding the operational, environmental, and economic impacts of adopting EVs and identifying the key challenges and opportunities associated with this transition.

II. COMPANY PROFILE – SAFEXPRESS PVT. LTD.

Safexpress Pvt. Ltd. is a leading logistics service provider in India, founded in 1997. Headquartered in Delhi, the company has established itself as a trusted partner for logistics solutions across various industries including retail, automotive, healthcare, electronics, and e-commerce. With a strong emphasis on technological innovation and customer satisfaction, Safexpress operates an extensive logistics network covering more than 35,000 PIN codes across the country.

The company's fleet comprises over 7,000 GPS-enabled vehicles, ensuring real-time tracking and timely delivery of consignments. Safexpress has consistently demonstrated its commitment to quality and sustainability through initiatives like zero-emission delivery hubs, green warehousing, and most notably, the Green Wheels Initiative. This program focuses on integrating electric vehicles for local and last-mile delivery operations to reduce carbon footprints and promote eco-friendly logistics.

III. OBJECTIVES OF THE STUDY

1. To analyze the role of electric vehicles (EVs) in reducing carbon emissions within the logistics operations of Safexpress Pvt Ltd.

2. To assess the operational efficiency and cost-effectiveness of EV integration in last-mile delivery services.

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3. To evaluate customer perception and satisfaction regarding the company's shift toward electric transportation.

4. To identify the key challenges and barriers in implementing electric transportation within the logistics sector.5. To suggest practical strategies and improvements for effective adoption and expansion of EVs in Safexpress's supply chain operations.

IV. REVIEW OF LITERATURE

The review of existing literature provides a comprehensive understanding of the electric transportation landscape in logistics. Various studies and scholarly articles emphasize the advantages, limitations, and future scope of EVs in supply chain operations.

Srivastava & Kumar (2022) assert that electric vehicles can significantly reduce greenhouse gas emissions in urban logistics, contributing to improved air quality and reduced noise pollution. Sharma et al. (2021) conducted a comparative study highlighting the cost-effectiveness of EVs in long-term operations, pointing out that despite higher initial investments, EVs offer lower maintenance and operational costs.

Bhattacharya (2020) emphasizes the role of public infrastructure, especially charging stations, as a critical determinant of EV adoption. Patil & Verma (2019) explore technical challenges such as battery degradation and charging time, which can affect the reliability of EVs in long-haul operations. Kumar et al. (2018) underline the importance of workforce training and policy support to ensure the successful integration of electric vehicles in the logistics sector.

Collectively, these studies provide a foundational perspective for evaluating the effectiveness of Safexpress's Green Wheels Initiative.

V. RESEARCH METHODOLOGY

This research is descriptive in nature and aims to provide a detailed evaluation of the Green Wheels Initiative undertaken by Safexpress. The methodology includes the collection and analysis of both primary and secondary data to assess the benefits, limitations, and overall impact of electric transportation.

Primary Data Collection:

Structured questionnaires and interviews were conducted with logistics personnel, including drivers, fleet managers, and sustainability officers of Safexpress.

Secondary Data Collection:

Data was gathered from corporate reports, academic journals, government publications, and industry research papers related to green logistics and electric vehicle adoption.

Sample Size and Sampling Technique:

A sample of 100 respondents was selected using a random sampling method to ensure a diverse representation of opinions.

Tools for Analysis:

Quantitative data was analyzed using statistical tools such as pie charts, bar graphs, and percentage analysis. The findings were interpreted to understand trends, challenges, and potential improvements.

VI. DATA ANALYSIS AND INTERPRETATION

The primary data collected was analyzed and interpreted to derive meaningful insights into the adoption of electric vehicles by Safexpress.

1. Awareness Level:

72% of the respondents were aware of Safexpress's efforts to integrate electric vehicles into its operations.

2. Environmental Impact:

85% of participants recognized the potential of EVs in reducing carbon emissions and improving urban air quality.

3. Cost Efficiency:

68% of the respondents stated that EVs offer lower fuel and maintenance costs compared to conventional vehicles.

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4. Charging Infrastructure:

62% expressed concerns over the lack of adequate charging stations, especially in semi-urban and rural areas.

5. Delivery Efficiency:

58% indicated that electric vehicles might affect delivery schedules if battery range and charging downtime are not properly managed.

The data clearly indicates a positive perception toward the use of EVs in logistics while highlighting the infrastructural challenges that need to be addressed.

VII. FINDI NGS

1. The Green Wheels Initiative aligns with global trends toward sustainable logistics.

2. Employees show a high level of awareness and positive attitude towards the use of EVs.

3. Significant reductions in operational costs and emissions have been observed with the adoption of electric vehicles.

4. Infrastructure limitations and lack of fast-charging stations remain a major barrier.

5. More investment in training and awareness programs is required to ensure seamless EV integration.

VIII. SUGGESTIONS

1. Strengthen Charging Infrastructure: Collaborate with private and public stakeholders to establish a robust EV charging network.

2. Invest in Advanced Battery Technology: Support research and adoption of fast-charging and long-range batteries to overcome performance issues.

3. Leverage Government Incentives: Utilize subsidies, tax rebates, and policy incentives to offset the high initial investment in EVs.

4. Conduct Training Programs: Regularly train drivers and maintenance personnel to handle electric vehicles efficiently.

5. Promote Sustainability Culture: Encourage a company-wide shift in mindset toward green logistics through workshops, seminars, and performance-based incentives.

IX. ANALYSIS

Safexpress's Green Wheels Initiative is a testament to the company's commitment to environmental sustainability and technological innovation. The initiative not only enhances the company's brand image but also improves operational efficiency through reduced fuel costs and lower maintenance requirements. While infrastructural challenges persist, the overall analysis suggests that electric transportation is a promising avenue for the future of logistics in India.

Moreover, the initiative offers insights for other logistics companies aiming to adopt similar strategies. The combination of employee training, stakeholder engagement, and policy support can significantly enhance the viability and scalability of electric logistics operations.

X. CONCLUSION

The study concludes that the adoption of electric vehicles in the logistics sector, as exemplified by Safexpress's Green Wheels Initiative, is both an environmentally responsible and economically beneficial decision. While challenges related to infrastructure, battery technology, and training remain, the long-term benefits far outweigh the initial hurdles.

Safexpress's proactive approach serves as a model for other organizations looking to integrate sustainability into their logistics operations. With continued innovation, investment, and support from government and private stakeholders, electric transportation can revolutionize the logistics sector and pave the way for a cleaner, greener future.

REFERENCES

- [1]. Srivastava, P., & Kumar, N. (2022). Electric Vehicles in Logistics: Opportunities and Challenges. International Journal of Supply Chain Management.
- [2]. Sharma, R., Mehta, T., & Agarwal, V. (2021). Green Logistics and Cost Savings. Transport Innovation Journal.
- [3]. Bhattacharya, S. (2020). Infrastructure Needs for EV Adoption. Indian Transport Review.
- [4]. Patil, D., & Verma, R. (2019). EV Performance Challenges in India. Logistics Times.
- [5]. Kumar, H., Shah, P., & Roy, A. (2018). Skill Development for EV Logistics. Sustainable Logistics Journal.