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DATA DRIVEN BUSINESS ANALYSIS OF BMW AND VOLKSWAGEN: A STUDY OF SALES AND PROFITABILITY

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ABSTRACT

This abstract provides insights into a business analyst internship at MedTourEasy in Delhi, emphasizing practical application of academic knowledge. It outlines the internship's structure, including an orientation, collaboration with experienced professionals, and tasks such as data analysis and visualization. The internship focused on improving the customer journey and user experience on the company's website, offering valuable learning experiences and skills development in business analysis and communication.

Keywords: Data Analysis, Visualization, Skill Development, Collaboration, Business Analysis

INTRODUCTION

This project report summarizes my experience and findings as a Business Analyst Intern at MedTourEasy, a prominent medical tourism company in Delhi. The report details the tasks and responsibilities I undertook, offering insights into the company's objectives, processes, and industry challenges. Working closely with the Business Analysis team, I applied theoretical knowledge to practical scenarios, enhancing my understanding of the medical tourism sector.

The report documents the tasks, projects, and learning outcomes of my internship, emphasizing the role and methodologies of a business analyst. It also addresses the challenges MedTourEasy faces and the management strategies employed to ensure growth. Additionally, it highlights the skills and competencies developed during my internship, such as data analysis, market research, and cross-functional team collaboration, providing recommendations for the company's continued success in the competitive medical tourism industry.

REVIEW OF LITERATURE

Dewalska - Opitek, Anna. (2020) focuses on the concept of value co-creation, emphasizing the impact of customer engagement in innovation processes within enterprises, exemplified by BMW Group Co-Creation Lab and Volkswagen's People's Car Project in China.

Verma, V. (2018) provides a fundamental analysis of the automotive industry with a focus on European markets, offering investment recommendations for companies like Volkswagen and BMW based on valuation models.

Kaiser, C., Stocker, A., Viscusi, G., Fellmann, M., & Richter, A. (2021) explore the emergence of data-driven services in the automotive industry, identifying key actors and their relationships in data sharing, supported by a conceptual multi-actor model.

Viippola, A. S. (2017) examines the financial repercussions of Volkswagen's 2015 emission scandal, comparing it with BMW's performance, revealing BMW's superior financial health due to better management practices.

Lemonakis, C., Vassakis, K., Garefalakis, A., & Partalidou, X. (2016) analyze the financial performance of manufacturing firms across European, Scandinavian, and Balkan regions, investigating the impact of productivity on export intensity, foreign investments, R&D, and financing costs.

Cheng, J., Singh, H. M., Zhang, Y.-C., & Wang, S.-Y. (2023) study the determinants of sustainability performance in manufacturing companies, highlighting the role of business intelligence and big data analytics,

Dhungana, D., Engelbrecht, G., Parreira, J. X., Schuster, A., Tobler, R., & Valerio, D. (2016) present a conceptual framework for smart city ecosystems, emphasizing the translation of IoT data into innovative services, illustrated by a smart city project in Vienna, Austria.

STATEMENT OF PROBLEM

The internship project focused on conducting a comprehensive data-driven business analysis of BMW and Volkswagen within the context of Medtoureasy company. The primary objective was to scrutinize the sales and profitability aspects of both automotive giants, aiming to identify key patterns, market trends, and contributing factors that influence their performance. The detailed exploration of datasets and the correlation between various variables were integral to unraveling insights crucial for strategic decision-making.

RESEARCH METHODOLOGY

Objectives of Study

1. To identify the key factors influencing sales performance in the automotive industry for both companies.
2. To investigate the role of data-driven approaches in enhancing business analysis for BMW and Volkswagen.
3. To explore customer preferences and their impact on the sales and profitability of BMW and Volkswagen.
4. To draw conclusions about the comparative strengths and weaknesses of BMW and Volkswagen in terms of sales and profitability, informed by a comprehensive data-driven approach.

Need / Significance of the Study

The automotive industry has seen remarkable growth and technological advancements in recent decades. This study examines sales and profitability dynamics in major companies like BMW and Volkswagen, focusing on several critical areas: industry evolution, technological disruptions, data-driven business practices, consumer preferences, and comparative business analysis. By analyzing these aspects, the study provides valuable insights into the factors influencing the industry's growth trajectory, the impact of technological challenges, the role of data analytics, and consumer behavior. Through a comparative analysis of BMW and Volkswagen, the research aims to inform strategic decision-making and enhance competitiveness within the automotive sector.

Scope of the Study

The scope of the study is limited to contacting 60 volunteers across all age groups who were contacted using social media (eg. whatsapp, instagram, facebook). This research period will last for a maximum of 2 months. Each volunteer in the study was asked to complete a short questionnaire in order to seek information regarding the

objectives of the study. The research was focused on volunteers from Satna and Pune.

Data Collection – Primary/Secondary and Chapter Scheme

a. Type of Data - Primary and Secondary data
b. Type of research - Descriptive research
c. Population Sample Size - 60 people
d. Method of Sampling - Non Probability Convenience Sampling
e. Method of Data Collection - Questionnaire

Tools of Analysis

The following tools were used for analysis during the research -

a. Google Forms for collecting responses via questionnaire
b. Pie chart
c. Bar graph
d. Likert Scale

Limitations of the Study

Due to limited resources, the research is only being conducted in the cities of Satna and Pune. Due to paucity of time, the research is conducted only for 60 respondents. The study may only cover a short period of time, which could make it difficult to draw conclusions about long-term effects of the study.The study may rely on self-reported data from participants, which could be subject to bias or exaggeration.

ANALYSIS AND INTERPRETATION OF DATA

The investigator has taken a survey with the help of a questionnaire which was made on Google forms. There are a total 60 responses to the questionnaire which is explained in brief in this chapter. A sample questionnaire is attached in the Appendix.

Q1 Occupation

In this question the investigator wanted to know the different occupations of the respondents. 45% (27 out of 60 respondents) belong to the student category. 31.7% (19 out of 60 respondents) are from other categories. 23.3% (14 out of 60 respondents) are working professionals.

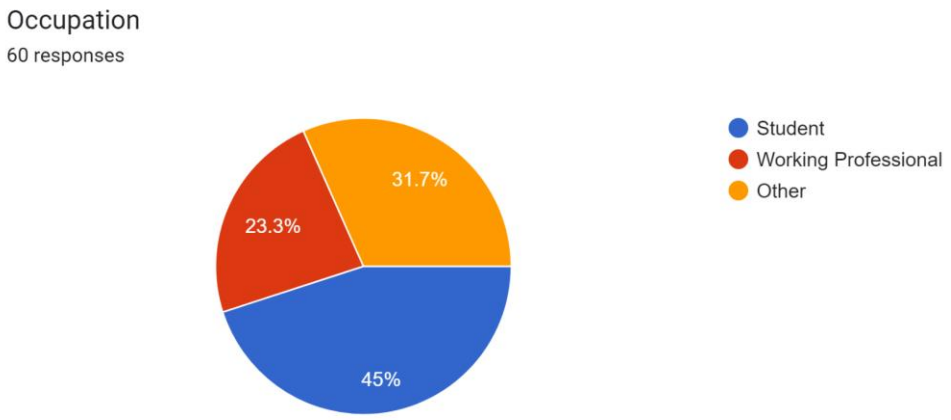

Fig 5.1 Occupation

Q2 To what extent do you believe brand reputation influences the sales of BMW and Volkswagen?

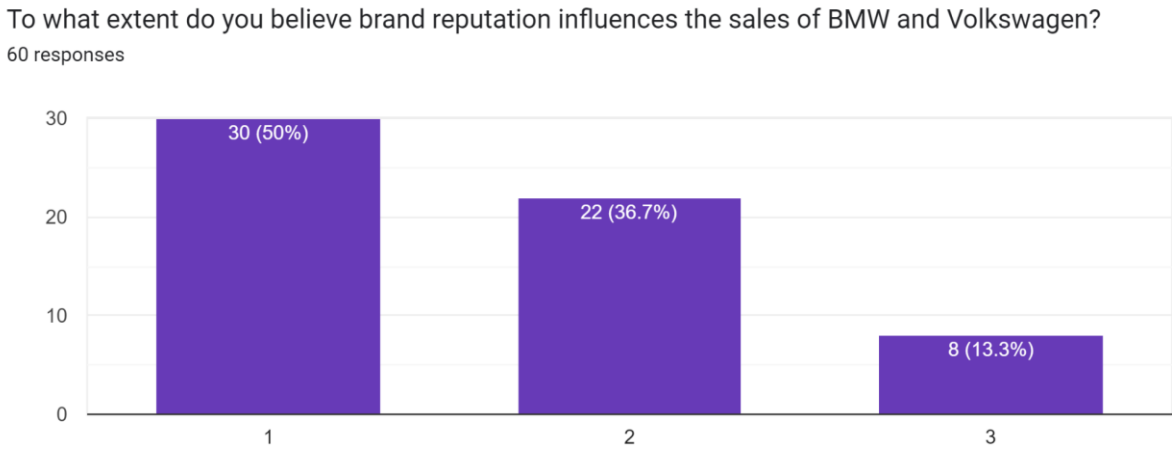

Fig 5.2 To what extent customers believe brand reputation influences the sales of BMW and Volkswagen

In this question, the responder wanted to know To what extent customers believe brand reputation influences the sales of BMW and Volkswagen? The respondents have given a scale from 1 to 3 , 1 means significant influence, 2 means some influence , 3 means no impact. The numbers suggest that 50% believe it has a significant influence, 36.7% think it has some influence, and 13.3% believe it has little to no impact.

Q3. In your opinion, how important are technological advancements in influencing the sales of BMW and Volkswagen?

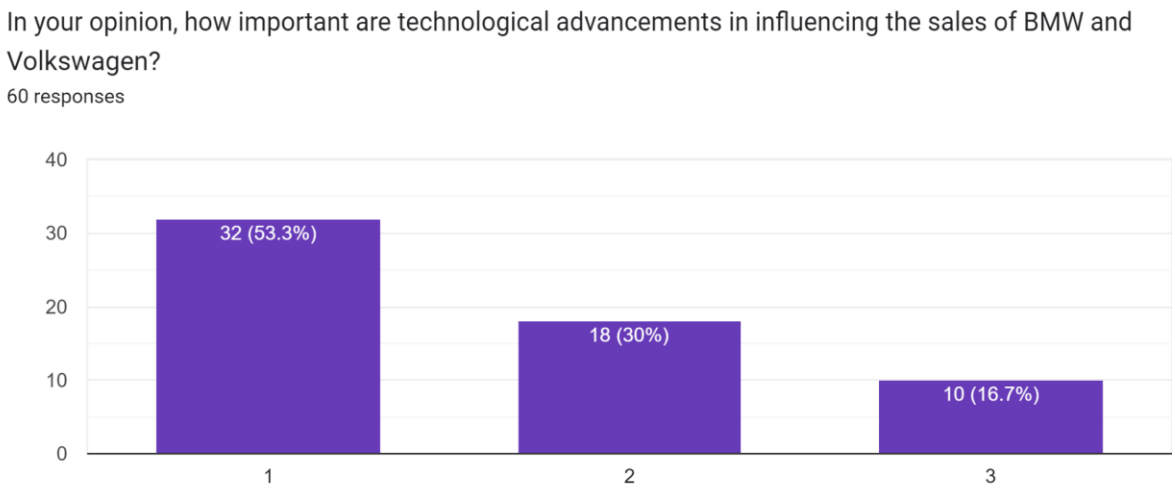

Fig 5.3 In your opinion, how important are technological advancements in influencing the sales of BMW and Volkswagen?

In this question, the responder wanted to know how important are technological advancements in influencing the sales of BMW and Volkswagen? The respondents have given a scale from 1 to 3 , 1 means very important, 2 means somewhat important , 3 means not important. The numbers suggest that 53.3% believe it has great importance, 30% think it has some importance, and 16.7% believe it has little to no importance.

Q4.Do you think pricing strategy plays a significant role in the sales performance of BMW and Volkswagen?

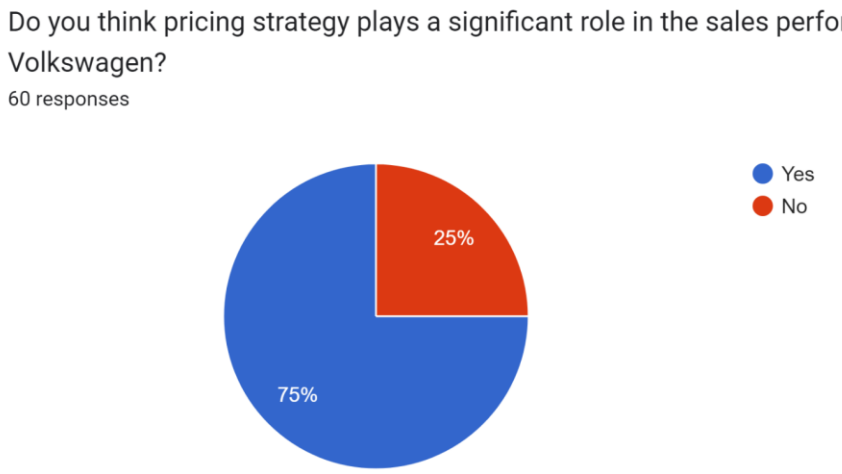

Fig 5.4 Do you think pricing strategy plays a significant role in the sales performance of BMW and Volkswagen?

In this question reponder wanted to know about pricing strategy plays a significant role in the sales performance of BMW and Volkswagen? Number suggest 75% (45 out of 60 respondents) believe yes it plays a significant role whereas 25% (15 out of 60 respondents) believe no it does not play significant role in sales performance of BMW and Volkswagen.

Q5.How aware are you of the use of data-driven approaches in the automotive industry for business analysis?

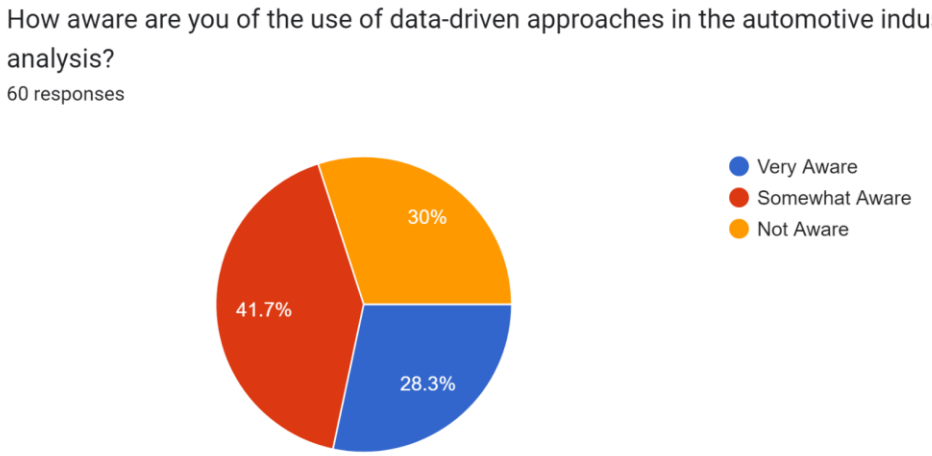

Fig 5.5 How aware are you of the use of data-driven approaches in the automotive industry for business analysis?

In this question responder wanted to know how aware respondents are about the use of data-driven approaches in the automotive industry for business analysis?

The Numbers suggest 28.3% (17 out of 60 respondents) are very aware 41.7% (25 out of 60 respondents) are somewhat aware and 30% (18 out of 60 respondents) are not at all aware about it.

Q6 In your opinion, to what extent can data-driven approaches enhance business analysis for companies like BMW and Volkswagen?

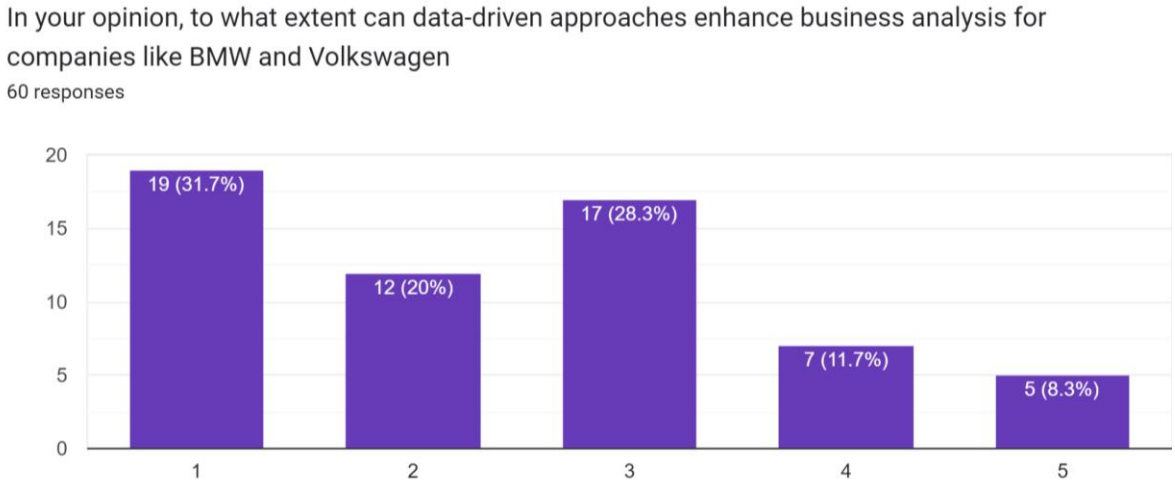

Fig 5.6 To what extent can data-driven approaches enhance business analysis for companies like BMW and Volkswagen?

In this question the investigator wanted to know to what extent can data-driven approaches enhance business analysis for companies like BMW and Volkswagen?

The respondents have given a range from 1 to 5, 1 means very significantly and 5 means no impact. 31.7% (19 out of 60 respondents) believe that it has great significance, 8.3%(5 out of 60 respondents) believe that it has no impact.

Q7. Have you observed any specific instances where data-driven approaches have positively impacted business decisions in the automotive industry

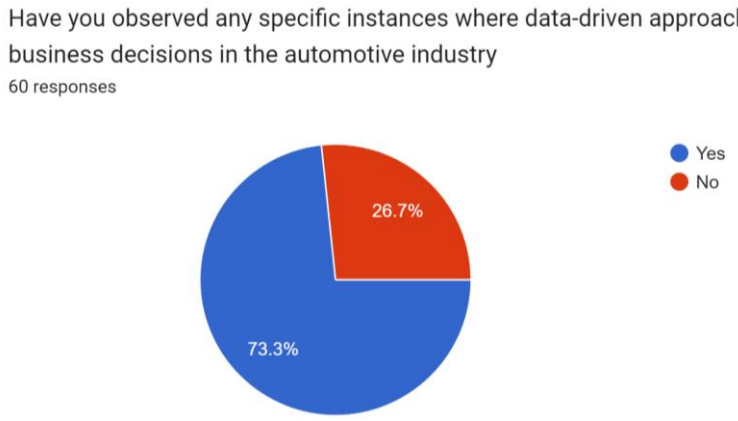

Fig 5.7 Have you observed any specific instances where data-driven approaches have positively impacted business decisions in the automotive industry?

In this question reponder wanted to know respondents have observed any specific instances where data-driven approaches have positively impacted business decisions in the automotive industry Number suggest 73.3% (44 out of 60 respondents) had observed whereas 26.7% (16 out of 60 respondents) had not observed any specific instances where data-driven approaches have positively impacted business decisions in the automotive industry

Q8.What factors do you believe influence customer preferences when purchasing vehicles from BMW and Volkswagen?

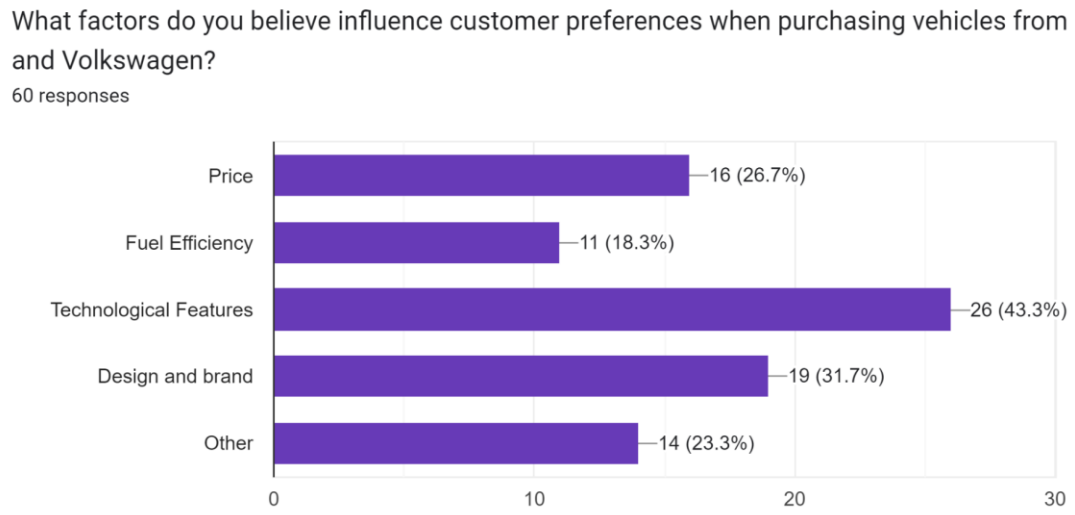

Fig 5.8 What factors do you believe influence customer preferences when purchasing vehicles from BMW and Volkswagen?

In this question the responder wanted to know What factors influence customer preferences when purchasing vehicles from BMW and Volkswagen? This chart represents factors influencing customer preferences when purchasing vehicles from BMW and Volkswagen, based on 60 responses. Price: 16 respondents (26.7%) consider price a significant factor, Fuel Efficiency: 11 respondents (18.3%) prioritize fuel efficiency,Technological Features:

26 respondents (43.3%) find technological features influential,Design and Brand: 19 respondents (31.7%) focus on design and brand,Other: 14 respondents (23.3%) indicated other factors.

Q9.How important is environmental sustainability in influencing your or others' decisions to purchase vehicles from BMW and Volkswagen?

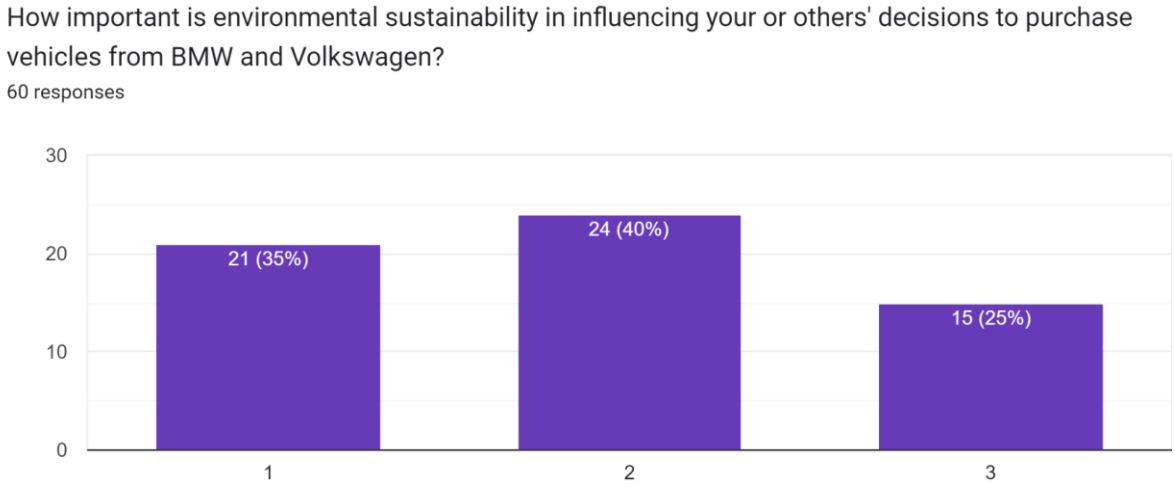

Fig 5.9 How important is environmental sustainability in influencing your or others' decisions to purchase vehicles from BMW and Volkswagen?

In this question, the responder wanted to know How important is environmental sustainability in influencing your or others' decisions to purchase vehicles from BMW and Volkswagen? The respondents have given a scale from 1 to 3 , 1 means very important, 2 means somewhat important , 3 means not important. The numbers suggest that 35% believe it has great importance, 40% think it has some importance, and 25% believe it has little to no importance.

Q10 What weaknesses, if any, do you associate with Volkswagen in terms of sales and profitability?

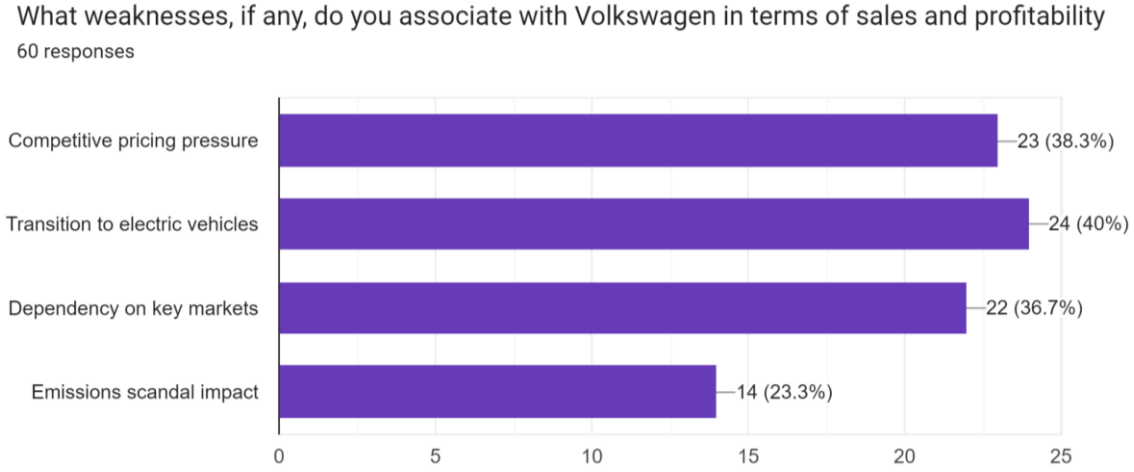

Fig 5.10 Weaknesses that you associate with Volkswagen in terms of sales and profitability

This figure illustrates customer-perceived weaknesses in Volkswagen's sales and profitability. The key areas identified are:Competitive Pricing Pressure (38.3%): Challenges in maintaining profit margins due to competition.Transition to Electric Vehicles (40%): Costs and disruptions related to adapting to electric

vehicles.Dependency on Key Markets (36.7%): Vulnerability to economic or geopolitical issues in crucial markets.Emissions Scandal Impact (23.3%): Ongoing concerns about the long-term effects of the emissions scandal on reputation and sales.These percentages reflect the proportion of respondents who see each area as a weakness**.**

Q11.What weaknesses do you associate with BMW in terms of sales and profitability?

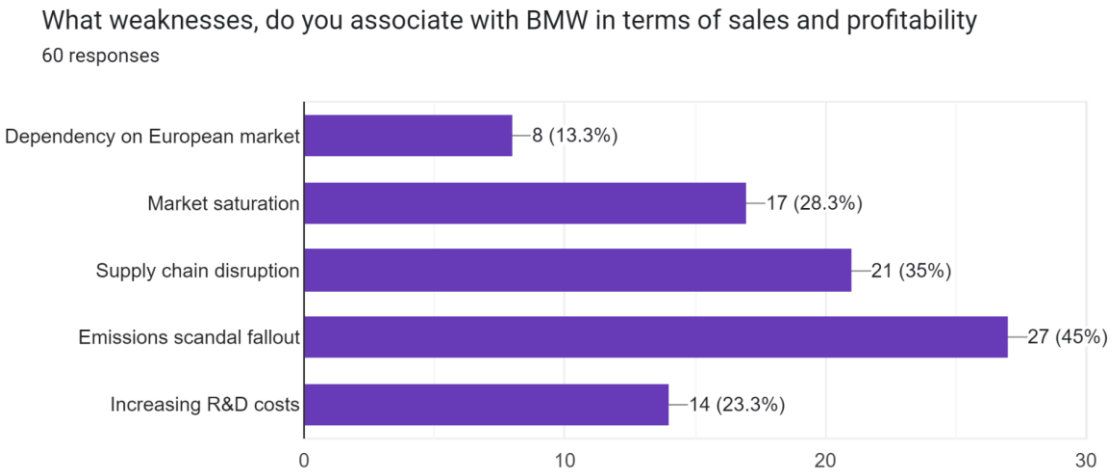

Fig 5.11 What weaknesses do you associate with BMW in terms of sales and profitability?

In this question, the responder wanted to know What weaknesses customers associate with BMW in terms of sales and profitability?The figure presents the weaknesses associated with BMW in terms of sales and profitability based on 60 responses. The percentages indicate the proportion of respondents who identified each weakness. The weaknesses highlighted include:Dependency on the European market (13.3%), Market saturation (28.3%), Supply chain disruption (35%), Fallout from emissions scandal(45%), Increasing research and development (R&D) costs (23.3%)

Q12 In your perception, what are the perceived strengths of BMW in terms of sales and profitability?

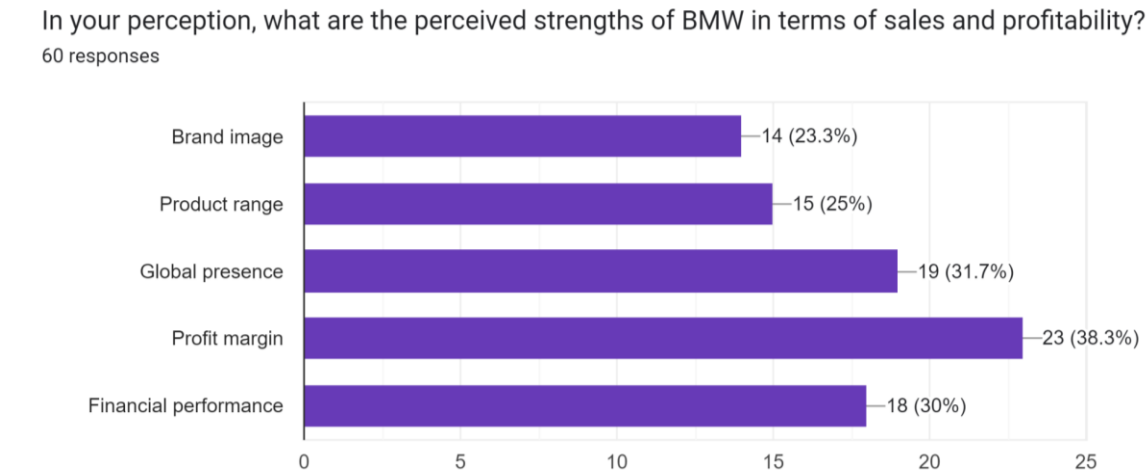

Fig 5.12 What are the perceived strengths of BMW in terms of sales and profitability?

In this question, the responder wanted to know about perceived strengths of BMW in terms of sales and profitability. The figure outlines the perceived strengths of BMW in terms of sales and profitability based on 60 responses, with percentages indicating the proportion of respondents identifying each strength. The strengths highlighted include:

Brand image (23.3%), Product range (25%), Global presence (31.7%), Profit margin (38.3%), Financial performance (30%)

Q13. Similarly, what are the perceived strengths of Volkswagen in terms of sales and profitability?

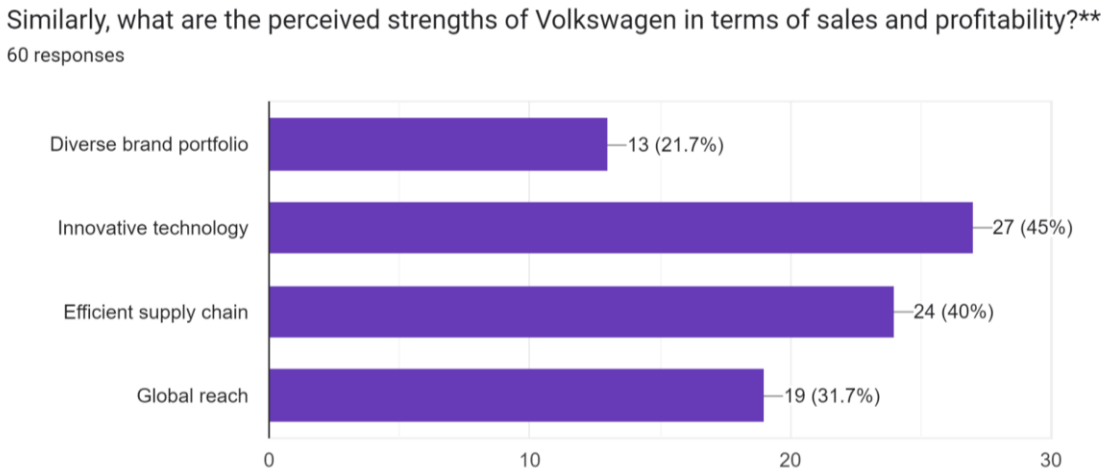

Fig 5.13 Similarly, what are the perceived strengths of Volkswagen in terms of sales and profitability?

In this question, the responder wanted to know about What are the perceived strengths of Volkswagen in terms of sales and profitability?The figure illustrates the perceived strengths of Volkswagen in terms of sales and profitability based on 60 responses. The percentages represent the proportion of respondents who identified each strength. The strengths highlighted include: Diverse brand portfolio (21.7%), Innovative technology (45%), Efficient supply chain (40%), Global reach (31.7%)**.** These insights offer a snapshot of the strengths identified by respondents, providing an overview of Volkswagen's competitive advantages in the context of sales and profitability.

Findings related to the study

The data-driven business analysis of BMW and Volkswagen, based on a questionnaire of 60 respondents, revealed key insights. Most respondents preferred BMW for its brand image, quality, and technological innovation, while Volkswagen was praised for affordability and fuel efficiency. Sales trends showed BMW's premium positioning led to higher profit margins per unit, whereas Volkswagen's broad market appeal resulted in higher sales volumes. Brand perception significantly influenced purchase decisions, highlighting the importance of aligning marketing strategies with consumer expectations. Digital marketing, especially social media, emerged as vital for brand engagement. The analysis emphasizes the critical roles of brand perception, digital marketing, and product positioning in shaping sales and profitability for both companies, providing actionable insights for enhancing market strategies.

Recommemdations

To boost BMW and Volkswagen's performance, the following recommendations are proposed: Boost cash flow, reduce liabilities, and optimize inventory management,Reduce debt, increase equity, and optimize capital structure,Expand market share, invest in R&D, and leverage emerging trends, Reduce costs, improve inventory turnover, enhance productivity, and optimize marketing, Adapt to technological advancements, changing consumer

preferences, and competitor initiatives, Reduce carbon emissions, promote renewable energy, and use eco-friendly materials.

Conclusion and Future Scope

My internship and subsequent report on MedTourEasy, BMW, and Volkswagen revealed how these companies thrive in India's competitive market and internationally. MedTourEasy's diverse subsidiaries and associates help stabilize it during economic downturns. The financial analysis of BMW and Volkswagen showed that BMW excels in liquidity and profitability, indicating efficient resource management, while Volkswagen displays strong solvency ratios, indicating resilience against financial challenges. However, BMW's solvency is weaker compared to Volkswagen, which struggles with liquidity and profitability despite its solvency strength.

BIBLIOGRAPHY

- Dewalska - Opitek, Anna. (2020). Customers' Value Co-creation in Automotive Sector – the Case Studies of BMW Co-creation Lab and Volkswagen's People's Car Project in China. 10.1007/978-3-030-59270-7_17. https://www.researchgate.net/publication/346201589_Customers'_Value_Co-creation_in_Automotive_Sector_-_the_Case_Studies_of_BMW_Co-creation_Lab_and_Volkswagen's_People's_Car_Project_in_China
- Verma, V. (2018). The Fundamental Analysis of Automobile Industry with Reference to the Selected Companies. Masaryk University, Faculty of Economics and Administration. https://is.muni.cz/th/x9bgl/Fundamental_Analysis_of_Automobile_Industry_VW_BMW.pdf
- Kaiser, C., Stocker, A., Viscusi, G., Fellmann, M., & Richter, A. (2021). Conceptualising value creation in data-driven services: The case of vehicle data. *International Journal of Information Management, 59*, 102335. doi: 10.1016/j.ijinfomgt.2021.102335. https://www.sciencedirect.com/science/article/pii/S0268401221000281#abs0010
- Viippola, A. S. (2017). Comparative Financial Statement Analysis of Car Manufacturing Companies Based on Volkswagen Group and BMW Group During Years 2012–2016. Tallinn University of Technology.
- Lemonakis, C., Vassakis, K., Garefalakis, A., & Partalidou, X. (2016). Manufacturing Firms' Performance and Productivity: Evidence from North and South European, Scandinavian and Balkan Countries. Greece: Scientific Research Publishing Inc. 789-797. https://www.researchgate.net/publication/306410449_Manufacturing_Firms'_Performance_and_Productivity_Evidence_from_North_and_South_European_Scandinavian_and_Balkan_Countries
- Cheng, J., Singh, H. M., Zhang, Y.-C., & Wang, S.-Y. (2023). The impact of business intelligence, big data analytics capability, and green knowledge management on sustainability performance. *Journal of Cleaner Production, 429*, 139410. doi: 10.1016/j.jclepro.2023.139410 https://www.x-mol.net/paper/article/1715556782380437504
- Kauffman, R. J., Srivastava, J., & Vayghan, J. (2012). Business and data analytics: New innovations for the management of e-commerce. *Electronic Commerce Research and Applications, 11*(2), 85-88. https://www.sciencedirect.com/science/article/abs/pii/S1567422312000051
- Dhungana, D., Engelbrecht, G., Parreira, J. X., Schuster, A., Tobler, R., & Valerio, D. (2016). Data-driven ecosystems in smart cities: A living example from Seestadt Aspern. In *2016 IEEE 3rd World Forum on Internet of Things (WF-IoT)* (pp. 82-87). doi: 10.1109/WF-IoT.2016.7845434. https://ieeexplore.ieee.org/document/7845434