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ARTIFICIAL INTELLIGENCE IMPACTS ELECTRIC MOTORS MARKET POTENTIAL IN INDIA

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Abstract

The research goal is to investigate the commercial and application possibilities of electric motors in India. Market Potential Analysis is a strategic tool for determining the feasibility of a concept and market demand. Electric motors are essential in many industries, including transportation, industrial automation, robotics, renewable energy, and home appliances. They are more efficient, need less maintenance, and have a smaller environmental effect than combustion engines. The rising trend of automation in manufacturing and logistics is likely to enhance demand for electric motors in these areas. Furthermore, the household appliance business, which includes refrigerators, washing machines, vacuum cleaners, and fans, is a key application area for electric motors, boosting energy efficiency and performance.

Keywords: *: market potential, appropriate customer, India, market size, demographics, consumer behavior, digital marketing.*

Introduction

The research aims to assess market potential and identify potential customers for Dharani Motors in India, a rapidly expanding market with diverse client groups and tastes. To expand its presence and enter the Indian automotive industry, Dharani Motors must conduct a comprehensive analysis of standard motors and high-efficiency motors (HEMs). HEMs, introduced in the late 1970s, accounted for 20% of induction motor manufacturing and sales in the US in 1995. However, they still hold a small market share in Europe. HEM technology offers significant energy savings potential, with a favorable investment payback period. India is expected to become one of the top five auto-producing countries by 2015, with increased demand, a growing middle class, and a young population. Market Potential Analysis is a strategic technique for determining the viability of a concept and market demand.

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2. About Automobile Industry

The induction motor market is expected to grow by 5% due to its minimal maintenance requirements and cost-effectiveness. These motors are crucial in industries like mining, cement, automotive, oil and gas, healthcare, and manufacturing. With low emission rates, they are becoming more popular due to environmental consciousness. In June 2021, the European Union announced guidelines to improve energy efficiency in electric motors with power ratings ranging from 0.12 KW to 1000 KW. Motors are crucial in human processes and are increasingly used in equipment, devices, and systems. Induction motors are the most commonly used, boosting the induction motor market. The increasing use of these motors has led to significant growth in the field. India's electric motor market is driven by construction activities, particularly in Gujarat, Maharashtra, and Madhya Pradesh. These states generate significant revenue and are invigorated by government initiatives like the Green Energy Corridor. Electric motors, electro-mechanical devices, are highly efficient, durable, low maintenance, energy-efficient, and can withstand fluctuating voltages. They are also significantly cheaper than fossil-fuel engines.

3. Objectives of the study

- ❖ To identify electric motor types, applications, trends, growth potential, opportunities, market size, distribution channels, marketing strategies, and competition in India.
- ❖ To analyze trends, market potential and effective marketing strategies to reach target customers effectively.

4. Nature and Scope of the Study:

The project aims to understand customer needs, identify market trends, key players, offerings, and solutions, analyze competition, and provide insights for industry improvement to better serve customers in the motors market. Market potential identification involves analyzing market size, trends, customer demographics, competition, and demand for products or services through research, surveys, and focus groups. Suitable customer identification involves analyzing customer behavior, preferences, demographics, and psychographics through profiling, surveys, and sales data.

5. Review of Literature

William Applebaum's 2001 article presents an improved method for determining trade areas and market penetration of existing stores and a various method for estimating potential store sales at different locations. Market potential is defined as digital technology used to improve customer knowledge, behavior, value, and loyalty. Marketing potential has evolved from product development to customer satisfaction, and it can revive the economy and create opportunities

for government efficiency. Garcia & Calantone's 2002 study highlights the importance of innovation in product development projects. Chaston & Mangles' 2003 study examined the influence of marketing style on market potential utilization among small UK manufacturing firms. Wixom & Todd's 2005 article explains the impact of organic listings on organic listings, while Mangold & Faulds' 2009 study highlights the importance of word-of-mouth in marketing communication. Social media sites like Facebook are better than other advertising avenues because they store information on users; ensuring marketing reaches a retailer's specific target market. Shankar's 2011 research found that retailers can increase brand awareness by being creative when engaging customers on social media sites. As more shoppers use social media for marketing, it is crucial for firms in transition economies to learn marketing skills and develop new products. Digital marketing is a more economical and faster way to reach buyers directly, making it ideal for businesses to advertise locally or internationally. Both types of marketing have advantages and disadvantages, with digital marketing introducing goods and services to internet users and being more convenient. Market potential is a new way of marketing a product or service globally, and advertisers need innovation for success. Marketing is a crucial tool in promotion mix, but businesses often lack understanding and implementation. Business models and their relationship with marketing are essential for businesses to improve customer knowledge and match their needs and wants. Blogs have been successful in increasing sales revenue, especially for products where customers can read reviews and write comments about personal experiences. Market potential analysis is a strategic tool for identifying market opportunities and investing resources where they will have the greatest return in the long run. Traditional marketers may be slow to take advantage of new opportunities presented to them. B2B enhances supply chain processes, requiring attention to real-world business processes, adapting automated systems to business behavior, and integrating content and technologies.

6. Research Methodology

Research methodology is the core of a project, as it helps to systematically solve research problems and gather data for conclusions. The project was based on a survey plan, with the main objective of collecting data to draw conclusions and obtain results. Research methodology discusses the logic of methods used in the context of the study and why a particular method was chosen over others. The research design indicates the type of methodology used to gather information for the study. The researcher used a descriptive research design, which focuses on describing the current state of affairs through surveys and fact-finding. This type of research is used to market potential and study frequencies and statistical calculations. The sample design, which can be simple or complex, provides the basic plan and methodology for selecting the sample. Convenience sampling techniques were used for analysis, which is a non-probability

method, allowing researchers to determine the sample's representation of the population as a whole with one hundred and fifty respondents.

7. Analysis and Interpretation:

Table no : 1 Factors for determining Market Potential

Items	Category (Respondents)	Percentage
Types of the Customer	Manufacture(118)	78.7%
Types of Products Manufacture	Gear Box (119)	79.3%
Types of Application	Industries (132)	92.7%
Quantity using per Month – Dharani Brand	101 Nos – 200 Nos (89)	59.3%
Motor Usage	Three Phase (148)	98.7%
Voltage Usage	380 – 480 V(141)	94.0%
Fequency Usage	50Hz (143)	95.0%
Required RPM	4 Pole – 1440 RPM (109)	72.7%
Required Mounting	B3 – Foot Mounting (78)	52.0%
Preferred Construction	Casting (92)	61.3%
Location of Selling – Machinery	Outside Coimbatore (85)	56.7%

The main findings of the study are interpreted from the data collected from the respondents to the offline survey questionnaire shared with them (Table 1). As per the factors, 78% of the respondents are from the manufacturer portfolio with the major product of manufacturing 70% of Gear box supplied to the (92%) industries exclusively outside the Coimbatore region (56%) . The highlighted market potential demanding specifications identified by the respondents of this study are three phase motor followed by 380 to 480 vollts with 50Hz comprised of 4pole 1440 rpm mounted by B3 foot mounting by cast iron.

Chi-square tests: Types of the customer and voltage used by the customer.

Ho: There is no significant difference between types of the customer and voltage used.

H1: There is significant difference between types of the customer and voltage used.

Table no : 2 Customer and voltage used

Content	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	3.047 ^a	1	.081
Continuity Correction ^b	1.758	1	.185
Likelihood Ratio	2.579	1	.108
Linear-by-Linear Association	3.027	1	.082
N of Valid Cases	150		

Condition: Significant level 5% ($p > 0.05$), Not significant level at 5% ($p < 0.05$)

The Pearson chi square significant value from table no :2 is 0.081 which is greater than 0.05. Hence accept null hypothesis and reject alternative hypothesis. There is no significant difference between types of the customer and voltage used.

8. Findings:

The majority of respondents (78.7%) are from the manufacturing sector, while 79.3% belong to other industries. 92.7% are from industries, and 80.7% belong to No. The majority of respondents are in three phases, with 94% of them belonging to 380-480V, 95% to 50Hz, and 72.7% to 4 Pole – 1440 RPM. 52% of respondents are B3 – Foot Mounting, and 61.3% are from IE2. The majority of respondents are in casting standard, outside Coimbatore, and quality. There is no significant difference between customer types and voltage used, preferences, or between groups or within groups in terms of customer preferences in products. There is no significant difference between customer types and preferences in products.

9. Suggestions:

To effectively target Indian customers, it is crucial to understand their needs, preferences, and buying behavior. Customize offerings to meet these preferences, invest in marketing and advertising to create awareness and establish a brand presence. Analyze the market and set competitive pricing strategies, focusing on exceptional customer service to build trust, loyalty, and positive word-of-mouth recommendations. Consider factors like competition, customer affordability, and perceived value when determining the most suitable pricing strategies for Dharani Motors. Invest in brand building activities to increase awareness and recognition, such as developing a strong brand identity, engaging marketing campaigns, and leveraging digital platforms. Building a positive brand image will attract suitable customers and enhance market potential.

Conclusion

The electric motors market in India is significant due to factors like industrialization, infrastructure development, and government initiatives promoting clean energy and electric mobility. Dharani Motors Coimbatore can capitalize on this demand by providing reliable and efficient electric motor solutions tailored to specific industrial sectors. Electric motors offer higher energy efficiency compared to traditional combustion engines, reducing operational costs and environmental impact. To attract customers seeking sustainable solutions, Dharani Motors should emphasize the energy-saving benefits of electric motors. Despite competition from domestic and international manufacturers, Dharani Motors should focus on innovation, quality, and customer services to differentiate itself. Collaboration with research institutions and industry

partners can foster technological advancements and market expansion. In conclusion, Dharani Motors Coimbatore can capitalize on the growing market potential of electric motors in India by understanding market trends, addressing industry needs, emphasizing energy efficiency, embracing technological advancements, and leveraging the motors to achieve a competitive edge and establish itself as a leading player in the electric motors industry.

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