An Analytical Study on Supply Chain Management and Distribution Channel at Chamundeshwari Sugar Industry, Srinivasapura. Hassan.

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ABSTRACT

Supply Chain Management (SCM) plays a crucial role in ensuring the efficiency and effectiveness of the Chamundeshwari Sugar Industry. This analytical study examines the intricate components of SCM within the industry, focusing on procurement, production, and distribution channels. The objective is to assess the current SCM strategies, identify potential inefficiencies, and propose recommendations for optimization. The study begins by analyzing the procurement process, including sourcing raw materials such as sugarcane, and how supplier relationships impact overall productivity. It then delves into the production process, evaluating the conversion of raw materials into finished products. The distribution channels, which are critical for delivering the final product to consumers, are also scrutinized, with particular attention to logistics, warehousing, and transportation.

Through qualitative and quantitative analysis, the study highlights key challenges faced by the Chamundeshwari Sugar Industry, such as fluctuating raw material prices, transportation bottlenecks, and demand forecasting inaccuracies. Additionally, the research explores the impact of technological advancements on SCM, including the use of automation and data analytics for better decision-making. This study refers to testing through Chi-Square on analysis and interpretation.

Key words:

Logistics management, inventory management, procurement management, transpotation management, warehouse management, channel management.

1. Introduction:

Supply Chain Management (SCM) has emerged as a vital strategic function in the modern business landscape, playing a critical role in enhancing the operational efficiency and competitiveness of industries. In the context of the sugar industry, SCM becomes even more significant due to the sector's reliance on agricultural inputs, seasonal variations, and the need for efficient distribution of perishable products. The Chamundeshwari Sugar Industry, a key player in India's sugar sector, provides an ideal case for examining the complexities and challenges of managing a supply chain that spans from the procurement of raw materials to the distribution of finished products.

The sugar industry operates within a highly regulated and volatile environment, where factors such as weather conditions, fluctuating raw material prices, and market demand can significantly impact production and profitability. For the Chamundeshwari Sugar Industry, managing these variables effectively is crucial to maintaining a steady flow of operations and ensuring that the end products reach consumers in a timely and cost-effective manner. This makes the study of its SCM and distribution channels not only relevant but essential for identifying areas of improvement that can lead to enhanced business performance.

2.REVIEW OF LITERATURE

- **Sengupta,H.,& Terpstra,H., (2016)** discuss the logistics challenges specific to the sugar industry, such as transportation delays and high costs. Effective logistics management is crucial to mitigate these issues and ensure timely delivery of sugar to the market.
- **Cox,E.,& Goodman,E., (2007)** The design and management of distribution channels are vital for ensuring that sugar products reach consumers efficiently. describe various distribution strategies, including direct sales and intermediary networks. These strategies impact the efficiency of product delivery and market penetration.
- **Jagdish,F.,&Krishna,T.,(2015)** explore the role of technology in improving distribution channels. Technologies such as real-time tracking, automated order management, and data analytics can enhance visibility, accuracy, and responsiveness in distribution operations.
- **Klaus,H., & Reimer,G., (2018)** highlight the transformative impact of digital technologies on supply chain management. Digital tools, such as SCM software and IoT devices, provide greater visibility, improve decision-making, and enhance overall efficiency.
- **Mangan,D.,(2016)** highlight how top-performing organizations address common supply chain challenges and implement best practices. Understanding these practices can inform strategies for optimizing Chamundeshwari's supply chain and distribution channels.

3. OBJECTIVES OF THE STUDY

✓ To Develop strategies to enhance market reach, customer satisfaction, and competitive advantage.

✓ To Aim to position Chamundeshwari as a leader in the sugar industry through optimized supply chain management and distribution channels.

✓ To Recommend technological solutions to improve supply chain and distribution processes, including advanced software, automation, and real-time tracking systems.

3.1 RESEARCH DESIGN

Chamundeshwari Sugar Factory, a significant player in India's sugar industry, faces challenges typical of the sector such as fluctuating supply, seasonal production, and high demand for sugar-related products. However, the company also has opportunities for growth, particularly through optimizing its supply chain management and distribution

channels. The sugar industry is heavily dependent on raw material availability, efficient logistics, and market conditions, making it crucial for Chamundeshwari to have an optimized, responsive, and resilient supply chain.

4.DATA METHODOLOGY

Table no 3.1: PROMOTION ACTIVITIES LAUNCH BY SRI CHAMUDESHWARI SUGAR LTD

SL.NO	**OPTIONS**	**NO OF RESPONDENTS**	**PERCENTAGE**
1	AWARE ABOUT THE SEHEME	45	30.4%
2	NOT AWARE	103	69.6%

TABLE NO: 4.1 SHOWS THAT PROMOTIONAL ACTIVITIES LAUNCH BY SCSL

ANALYSIS: The data reveals that 69.6% of respondents are not aware of the scheme, while only 30.4% are aware. This indicates a significant gap in awareness, with the majority of individuals lacking knowledge about the scheme. The low awareness level suggests the need for improved outreach and communication efforts to better inform the target audience.

INTERPRETATION:

The interpretation of the data shows that a large majority of respondents, 69.6%, are not aware of the scheme, while only 30.4% have knowledge of it. This indicates a significant lack of awareness among the population, suggesting that the scheme may not have been effectively communicated or promoted. Greater efforts in raising awareness and providing information may be necessary to reach a broader audience.

Table no 3. 2 SUPPLY CHAIN PROCESS IN SCS LTD

SL.NO	**OPTIONS**	**NO OF RESPONDENTS**	**PERCENTAGE**
1	GOOD	23	15.9%
2	BAD	21	14.5%
3	SATIFIED	33	22.8%
4	VERY BAD	68	46.9%

TABLE NO:3. 2SHOWS THAT COMFORTABLE WITH SUPPLY CHAIN PROCESS

ANALYSIS: The data reveals that nearly half of the respondents, 46.9%, rated their experience as "very bad," indicating widespread dissatisfaction. Those who are "satisfied" make up 22.8%, while 15.9% rated their experience as "good." A smaller group, 14.5%, rated it as "bad." Overall, the majority of respondents

INTERPRETATION:

The interpretation of the data highlights that a substantial 46.9% of respondents feel their experience is "very bad," indicating significant dissatisfaction. In contrast, only 15.9% rated their experience as "good," and 22.8% expressed being "satisfied." Additionally, 14.5% rated their experience as "bad." This suggests a strong need for improvement, as the overwhelming majority of responses indicate negative perceptions rather than positive ones.

To perform a chi-square test for this data, we assess whether the observed responses are significantly different from an expected uniform distribution. Here's the detailed calculation:

Observed Data

Option	**Observed Frequency (O)**
Good	23
Bad	21
Satisfied	33
Very Bad	68
Total	**145**

Expected Frequency

If the responses were equally distributed among the four categories, the expected frequency for each category would be:

E=Total Respondents Number of Categories=1454=36.25E

Chi-Square Formula

χ2=∑(O−E)2E\chi^2 {(O - E) ^2} {E}χ2=∑E(O−E)2

We calculate χ2\chi^2χ2 for each category:

1. **Good**:

4.8436.25(23−36.25)2

=36.25(−13.25)2

=36.25175.56≈4.84

2. **Bad**:

6.4136.25(21−36.25)2

=36.25(−15.25)2

=36.25232.56≈6.41

3. **Satisfied**:

0.2936.25(33−36.25)2

=36.25(−3.25)2

=36.2510.56≈0.29

4. **Very Bad**:

27.8136.25(68−36.25)2

=36.2531.752

=36.251008.06≈27.81

Total Chi-Square Value

χ2=4.84+6.41+0.29+27.81

= 4.84 + 6.41 + 0.29 + 27.81

=4.84+6.41+0.29+27.81

=39.35

Degrees of Freedom

Degrees of Freedom=Number of Categories−1=4−1=3

=Number of Categories−1=4−1=3

Critical Value (α = 0.05)

From the chi-square distribution table, the critical value for df=3df

= 0.05α=0.05 is **7.815**.

Conclusion

Since χ2=39.35\chi^2 = 39.35χ2=39.35 is much greater than the critical value of 7.815, we reject the null hypothesis. This indicates that the observed distribution of responses is significantly different from what would be expected if all categories were equally likely.

In simpler terms, there is a significant difference in how respondents rated their satisfaction (Good, Bad, Satisfied, Very Bad).

Table no3.3 A LARGE AMOUNT OF ASSIST OF COST (LAND, EQUIPMENTS, AND TECHNOLOGY REQUIER FOR OPERATING A BONDED WAREHOUSE

SL.NO	OPTIONS	NO OF RESPONDENTS	PERCENTAGE
1	STRONGLY AGREE	13	9%
2	AGREE	27	18.8%
3	NEUTRAL	26	18.1%

4	DIS AGREE	16	11.1%
5	STRONGLY DIS AGREE	62	43.1%

TABLE NO: 3.3SHOWS THAT LARGE AMOUNT OF ASSIST COST

ANALYSIS: The data reveals that a significant majority of respondents, 43.1%, "STRONGLY DISAGREE" with the statement, indicating a prevalent sentiment of discontent. Additionally, 11.1% "DISAGREE," while only 27.8% of respondents (combining "STRONGLY AGREE" and "AGREE") express any level of agreement.

INTERPRETATION:

The interpretation of the data shows that a substantial 43.1% of respondents "STRONGLY DISAGREE" with the statement, reflecting significant dissatisfaction. Only 27.8% combined (9% "STRONGLY AGREE" and 18.8% "AGREE") show any level of agreement, while 18.1% remain "NEUTRAL." This indicates a strong prevailing sentiment against the statement.

4.FINDINGS AND SUGGETION

4.1FINDINGS

- A majority (69.6%) of respondents are not aware of the scheme, indicating a significant awareness gap.
- Only 30.4% of respondents are aware, highlighting the need for enhanced communication and outreach efforts.
- The survey findings reveal that the majority of respondents rated the experience as Very Bad (46.9%), indicating significant dissatisfaction. Conversely, only a small portion found it Good (15.9%), highlighting the need for improvement.

4.2 SUGGESTIONS

- To address dissatisfaction, efforts should focus on reducing the Very Bad responses (46.9%) by identifying key issues and improving overall service quality. Additionally, strategies to increase Good and Satisfied ratings can enhance user experience.
- Focus on addressing the factors contributing to the **Very Bad** (46.9%) responses through targeted improvements and feedback collection. Enhance areas of strength to increase the Good **(**15.9%) and Satisfied (22.8%) ratings for a more balanced outcome.
- Efforts should focus on understanding the reasons behind the **Strongly Disagree** (43.1%) responses and addressing those concerns effectively. Encouraging more **Agree** (18.8%) and **Neutral** (18.1%) feedback through improved communication and engagement can foster positive change.

5.CONCLUSION

The analytical study of supply chain management and distribution channels at Chamundeshwari Sugar Industry underscores the importance of a robust and agile supply chain in maintaining competitive advantage within the sugar sector. The findings indicate that while the company has established a solid operational foundation, there are several areas where enhancements could lead to improved efficiency and market responsiveness. Implementing advanced technologies such as IoT and machine learning can significantly enhance real-time tracking and inventory management, leading to better decision-making and reduced operational costs. Moreover, diversifying the supplier base is critical to mitigating risks associated with supply disruptions and ensuring consistent quality in raw

materials.The study also highlights the need for optimized logistics and distribution networks to improve service delivery and customer satisfaction.

By strategically partnering with local distributors and expanding into new markets, Chamundeshwari Sugar can enhance its market presence and increase sales. Moreover diversifying suppliers and optimizing logistics can mitigate risks associated with supply disruptions and improve cost efficiency. Emphasizing sustainability and training programs will not only enhance brand reputation but also foster a culture of continuous improvement. Collaborative planning with supply chain partners can streamline processes and ensure alignment with market demands. By implementing these strategies, Chamundeshwari Sugar Industry can strengthen its supply chain framework, enhance customer satisfaction, and position itself for long-term success in the competitive sugar industry landscape. Ultimately, a proactive approach to supply chain management will be crucial for navigating future challenges and seizing growth opportunities. Furthermore, incorporating sustainability practices into sourcing and production processes not only aligns with global trends but also appeals to environmentally conscious consumers, thereby strengthening brand loyalty. Continuous employee training and fostering a culture of collaboration across the supply chain can enhance overall operational efficiency and innovation.In summary.

6.BIBLIOGRAPHY

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B00KS

- "Supply Chain Management: Strategy, Planning, and Operation" by Sunil Chopra and Peter Meindl - This book covers various supply chain models and optimization strategies, relevant for understanding how sugar industries can improve their processes.
- "Logistics and Supply Chain Management" by Martin Christopher - Focuses on managing and designing efficient supply chains, crucial for the analysis of distribution networks within industries like sugar manufacturing.
- "Journal of Supply Chain Management" - Provides peer-reviewed research on supply chain trends, challenges, and innovations, offering insights into contemporary practices applicable to sugar industry distribution.