Thesis Report

on

"Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited."

Submitted by

Gazi Md Shaiham Uddin

ID: EMBA-2402032025

Program: Executive Master of Business Administration

Major: Supply Chain Management

Department of Business Administration

Sonargaon University (SU)

Submitted to:

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Submitted for the partial fulfillment of the degree of

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Sonargaon University (SU) 147/I,
Green Road, Panthapath, Dhaka

Date of Submission: 03 January, 2026

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Date of Submission: 03 January, 2026

Letter of Transmittal

January 03, 2026

Ummah Tafsirun
Lecturer
Department of Business Administration
Sonargaon University (SU)

Subject: Submission of thesis report on **"Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited."**

Dear Ma'am,
This is a great pleasure to submit the thesis report titled "**Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited."** as a partial requirement for the fulfillment of my Executive Master of Business Administration Course under the Department of Business Administration of the Sonargaon University (SU).
I have given due efforts to make this thesis report as fruitful one and to make it as informative as possible. I hope that this paper will not be the formality of academic course completion rather it will be a source of information for other purpose on this topic.

Yours sincerely

Gazi Md Shaiham Uddin
ID: EMBA-2402032025
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Declaration of Student

I do hereby declare that the thesis report title "**Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited."** prepared solely by me and which has been submitted to the Department of Business Administration, Sonargaon University (SU) for achieving the ESCM Degree. This is an original work of mine. No part of this research has been submitted to any University or Institution for any Degree, Diploma or for other similar purposes.

Yours Sincerely

Gazi Md Shaiham Uddin

ID: EMBA-2402032025
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Letter of Authorization

This is to certify that the work presented in this **"Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited"** is based on the work, carried out by the author herself under my supervision in Department of Business Administration, Sonargaon University (SU). It is also certifying that the work presented here is original and suitable for submission as the style and contents, for fulfillment of Executive Master of Business Administration Program.

Ummah Tafsirun

Lecturer

Department of Business Administration
Faculty of Business
Sonargaon University (SU)

Acknowledgement

Praise by Allah & thanks to Allah for patronizing me to finish this thesis report. I am very happy to finish it. It is a great Research of my life. It is a long-cherished hope of my life to become a great supply chain professional. That's why I have admitted in the Department of Business Administration in Sonargaon University (SU) to fulfill my dream. But through my whole study life in this field, I did not get much more opportunities to examine and show my knowledge and skill in this wide field. Lastly, I have got a great chance to make my study meaningful when I got the chance to prepare a thesis report "**Supply Chain Management Strategies in the Ice Cream Industry: A Case Study on Dhaka Ice Cream Industries Limited."**

I acknowledge my grateful to respected course teacher **Ummah Tafsirun** for instructing me how to prepare a thesis report and her famous Books lectures on this subject help me to complete my task sincerely.

I am also thankful to my classmate as they help me to complete the thesis report. I am extremely paying my solitude to all the authors and writers whose works help me to draft this original Research paper.

Abstract

This thesis explores the critical role of Supply Chain Management (SCM) in enhancing operational efficiency, competitiveness, and resilience in modern organizations. As global markets become increasingly interconnected and complex, SCM has evolved from a back-end logistical function to a strategic discipline essential for achieving long-term business objectives. The study investigates key dimensions of SCM, including procurement, production planning, logistics, inventory management, demand forecasting, and supplier relationship management. Particular emphasis is placed on the integration of digital technologies—such as artificial intelligence (AI), Blockchain, and the Internet of Things (IoT)—which are transforming traditional supply chain models into agile, data-driven networks. Through a combination of literature review, case study analysis, and empirical research, this thesis examines how organizations are leveraging SCM strategies to manage risks, improve service levels, reduce costs, and respond more effectively to supply chain disruptions— particularly in the context of recent global events such as the COVID-19 pandemic. The findings indicate that companies investing in supply chain visibility, collaboration, and sustainability outperform competitors in both financial and operational metrics. However, challenges remain, particularly around data integration, talent shortages, and aligning supply chain strategies with broader organizational goals. This thesis concludes with a set of strategic recommendations for enhancing SCM performance, including: Strengthening end-to-end supply chain visibility. Investing in digital transformation and real-time analytics. Fostering strategic supplier partnerships. Embedding sustainability and resilience into core SCM practices. Overall, this research contributes to a deeper understanding of SCM as a strategic function and provides actionable insights for both academic and professional audiences seeking to optimize supply chain operations in an increasingly dynamic global environment.

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List of Acronyms

SU	Sonargaon University
EMBA	Executive Master of Business Administration
AI	Artificial Intelligence
SAP	Service Agreement Permeate
MTO	Make To Orders
KPI	Key Performance Indicator
FIFO	First In, First Out
JIT	Just-In-Time
TMS	Transportation Management System
BSTI	Bangladesh Standards and Testing Institution
GDP	Gross Domestic Product
SCM	Supply Chain Management
CRM	Customer Relationship Management
VMI	Vendor Management Inventory
R&D	Research And Development
B2B	Business to Business
C2C	Consumer to Consumer
B2C	Business to Consumer
DC	Distribution Center
EPS	Earnings Per Share
TQM	Total Quality Management
3PL	Third-Party Logistics
WMS	Warehouse Management System

Chapter- 1

Introduction

1.1 Origin of the Study

In the present competitive global marketplace, supply chain management (SCM) has become one of the most critical functions for organizations across industries. Companies are increasingly recognizing that efficient supply chain strategies not only minimize costs but also enhance customer satisfaction and ensure long-term sustainability. The food and beverage industry, particularly the ice cream sector, is highly dependent on supply chain efficiency due to the perishable nature of its products and strict requirements for cold-chain logistics. This study originated from the growing need to understand how companies in Bangladesh, such as Dhaka Ice Cream Industries Limited, manage their supply chains in a competitive and dynamic market. The researcher's academic interest in supply chain management, combined with the practical importance of SCM in the ice cream industry, motivated the selection of this topic for in-depth analysis.

1.2 Background of the Study

In today's highly competitive business environment, effective supply chain management (SCM) has become a critical factor for organizational success. SCM involves the coordination and integration of activities related to sourcing, production, storage, transportation, and distribution to ensure that products reach consumers in a timely and cost-efficient manner. For industries dealing with perishable goods, such as the ice cream industry, supply chain efficiency is even more crucial due to strict temperature requirements, short shelf life, and high sensitivity to delays and disruptions.

The ice cream industry plays a significant role within the fast-moving consumer goods (FMCG) sector and has experienced rapid growth in recent years, particularly in developing economies like Bangladesh. Increasing urbanization, rising disposable income, and changing consumer preferences have contributed to growing demand for frozen dessert products. However, managing the supply chain of ice cream products presents unique challenges, including cold chain maintenance, seasonal demand fluctuations, inventory losses, high logistics costs, and limited technological integration.

In Bangladesh, ice cream manufacturers and distributors often operate under infrastructural constraints such as inconsistent electricity supply, inadequate cold storage facilities, and traffic congestion. These challenges increase the risk of product spoilage and operational inefficiencies, making effective SCM practices essential for business sustainability and customer satisfaction.

1.3 Problem Statement

Despite the growing demand for ice cream products, many firms in the Bangladeshi ice cream industry face persistent supply chain challenges. Inefficient procurement practices, weak supplier coordination, inadequate production planning, cold chain disruptions, and poor inventory visibility

frequently lead to product losses, delayed deliveries, and increased operational costs. Additionally, limited adoption of digital supply chain technologies further reduces transparency and responsiveness across the supply chain.

Although supply chain management has been widely studied in various industries, there is limited empirical research focusing on the ice cream industry in Bangladesh, particularly using descriptive, questionnaire-based approaches. The absence of industry-specific studies makes it difficult for managers to identify key problem areas and adopt appropriate improvement strategies. This research seeks to address this gap by examining existing SCM practices and challenges within the ice cream industry.

Supply chain management (SCM) is a critical discipline in today's globalized and competitive business environment. In the food and beverage industry—particularly in frozen dessert manufacturing—efficient supply chain operations ensure not only profitability but also food safety and quality. Ice cream production involves a complex network of cold-chain logistics, perishable inputs, seasonal demand, and fluctuating energy and transportation costs. For a mid- sized company like Dhaka Ice Cream Factory Limited, mastering SCM is key to maintaining competitiveness.

1.4 Objectives of the Study

The broad objective of this research is to evaluate the supply chain management strategies of Dhaka Ice Cream Industries Limited.

Specific Objectives

1. To analyze the existing supply chain practices of the company.
2. To identify the challenges and bottlenecks in procurement, production, and distribution.
3. To assess the effectiveness of cold-chain logistics in ensuring product quality and freshness.
4. To recommend strategies for improving efficiency and competitiveness in the supply chain.

1.5 Scope of the Study

The scope of this research is limited to the supply chain management strategies of Dhaka Ice Cream Industries Limited. The study will primarily focus on:

- Procurement and sourcing of raw materials.
- 2.Production and inventory management.
- 3.Cold-chain logistics and distribution processes.
- 4.Customer demand management and service quality.

Geographically, the study is confined to Bangladesh, with special attention to Dhaka Ice Cream's operations in urban and semi-urban areas. While the study concentrates on a single organization, the insights may also be useful for other companies in the ice cream and food processing industries

Chapter 2

Literature Review

2.1 Concept of Supply Chain Management

Supply Chain Management refers to the coordination and integration of all activities involved in sourcing raw materials, transforming them into finished goods, and delivering products to end consumers. According to Chopra and Meindl (2020), the primary goal of SCM is to maximize customer value while minimizing total supply chain cost. SCM encompasses procurement, production, inventory management, transportation, information flow, and customer service.
Christopher (2016) argues that SCM has evolved from a purely operational function into a strategic tool that enables organizations to gain competitive advantage through responsiveness, reliability, and cost efficiency. Effective SCM is especially critical in industries dealing with perishable products, where time delays, poor coordination, or infrastructure failures can lead directly to quality deterioration and financial losses.

2.2 Theoretical Perspectives in Supply Chain Management

The Resource-Based View suggests that firms achieve sustainable competitive advantage by effectively utilizing valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In the context of SCM, such resources include cold storage infrastructure, logistics networks, supplier relationships, and information systems. Firms with strong SCM capabilities are better positioned to manage risk, reduce costs, and deliver superior customer service.

The SCOR model provides a standardized framework for analyzing supply chain performance through five core processes: Plan, Source, Make, Deliver, and Return (Supply Chain Council, 2012). Numerous studies highlight the usefulness of the SCOR model in identifying inefficiencies and benchmarking performance in food and beverage supply chains. The model is particularly relevant for ice cream manufacturers due to its focus on planning accuracy, sourcing reliability, and delivery performance.

Lean SCM focuses on waste reduction and efficiency, whereas Agile SCM emphasizes flexibility and responsiveness to demand variability. Womack and Jones (1996) suggest that lean practices eliminate non-value-adding activities, while agile practices enable firms to respond quickly to market changes. Since ice cream demand is highly seasonal, literature indicates that a combination of lean and agile approaches is essential for optimal performance (Slack et al., 2019).

2.3 Procurement and Supplier Management

Procurement plays a critical role in ensuring timely availability of quality raw materials at competitive prices. Monczka et al. (2016) emphasize that effective supplier selection, diversification, and long-term relationships significantly reduce supply risk and price volatility. In

perishable goods industries, unreliable suppliers can disrupt production schedules and compromise product quality.

Several studies highlight that firms in emerging economies often rely on a limited number of local suppliers, increasing vulnerability to disruptions (Christopher, 2016). Formal supplier contracts, performance evaluation systems, and multiple sourcing strategies are therefore recommended to enhance supply chain resilience.

2.4 Production Planning in Perishable Goods Industries

Production planning aligns manufacturing activities with market demand and available resources. According to Slack et al. (2019), ineffective production planning results in overproduction, stock-outs, underutilized capacity, and increased operational costs. In the ice cream industry, production planning is particularly complex due to seasonal demand fluctuations and limited shelf life.

Research indicates that demand-driven production planning improves responsiveness and reduces waste (Chopra & Meindl, 2020). However, many firms in developing countries still rely on manual scheduling systems, which limits their ability to respond effectively to sudden demand changes.

2.5 Cold Chain Management

Cold chain management refers to maintaining appropriate temperature conditions throughout storage, transportation, and distribution of temperature-sensitive products. Aung and Chang (2014) state that even minor temperature deviations in frozen food supply chains can significantly reduce product quality and safety.

In developing countries, cold chain disruptions are common due to power outages, inadequate refrigerated transport, and lack of monitoring systems (Kumar & Budin, 2006). Effective cold chain management requires reliable infrastructure, trained personnel, and continuous temperature monitoring to minimize product loss and ensure food safety.

2.6 Inventory Management in the Ice Cream Industry

Inventory management involves balancing product availability with cost control. Heizer, Render, and Munson (2020) argue that inaccurate inventory records increase holding costs and wastage, especially in perishable goods industries. FIFO (First-In, First-Out) is widely recommended for food products; however, manual implementation often leads to errors.

Poor inventory visibility can also amplify the bullwhip effect, causing inefficiencies across the supply chain (Lee et al., 1997). Literature consistently emphasizes the importance of systematic inventory control and real-time stock visibility to improve accuracy and responsiveness.

2.7 Logistics and Distribution Management

Logistics and distribution ensure that products reach customers on time and in good condition. Christopher (2016) highlights that delivery reliability and transportation efficiency are key determinants of customer satisfaction. In the ice cream industry, logistics costs are relatively high due to the need for refrigerated vehicles and specialized handling.

Studies show that lack of route optimization, fleet monitoring, and delivery coordination leads to delays and increased costs, particularly in congested urban environments (Rushton et al., 2017).

2.8 Digital Transformation in Supply Chain Management

Digital technologies such as Enterprise Resource Planning (ERP), Warehouse Management Systems (WMS), and Internet of Things (IoT) have transformed modern supply chains. Ivanov et al. (2019) argue that digital integration enhances visibility, coordination, and supply chain resilience.

In perishable goods supply chains, IoT-based temperature monitoring and real-time data sharing are particularly valuable. However, research indicates that digital adoption in emerging economies remains limited due to cost constraints, skill shortages, and organizational resistance (Chopra & Meindl, 2020).

2.9 Sustainability in Supply Chain Management

Sustainability in SCM focuses on balancing economic performance with environmental and social responsibility. Carter and Rogers (2008) propose a triple-bottom-line framework that integrates economic, environmental, and social sustainability.

In the ice cream industry, sustainability practices include eco-friendly packaging, energy-efficient refrigeration, waste reduction, and responsible sourcing. Literature suggests that while food safety compliance is often prioritized, environmental sustainability initiatives receive comparatively less attention in developing countries.

Despite extensive research on SCM, several gaps remain. Limited empirical studies on ice cream supply chains in Bangladesh. Lack of questionnaire-based descriptive studies in perishable goods SCM. Insufficient focus on cold-chain and digital SCM challenges in emerging economies. Limited analysis of sustainability practices in local ice cream industries. These gaps justify the present study, which aims to provide descriptive insights into SCM practices and challenges in the Bangladeshi ice cream industry.

Chapter 3

Research Methodology

3.1 Introduction

This chapter explains the research methodology adopted for examining supply chain management (SCM) strategies in the ice cream industry, with specific reference to Dhaka Ice Cream Industries Limited. The methodology is structured to ensure clarity, simplicity, and suitability for research study.

3.2 Research Design

The study follows a descriptive case study research design. This design is appropriate as the research aims to describe existing SCM practices, identify operational problems, and assess employees' perceptions rather than testing causal relationships or complex statistical models. The descriptive design allows the researcher to present real organizational conditions related to procurement, production planning, cold-chain logistics, inventory management, digital integration, and sustainability practices.

3.3 Research Approach

A quantitative research approach was adopted. Quantitative data were collected using a structured questionnaire containing close-ended questions. This approach ensures objectivity, ease of analysis, and clear presentation of findings using numerical measures such as percentages and frequencies.

3.4 Data Sources

This study is mainly based on the data collected from the original database, website and the annual reports of Dhaka Ice Cream. Apart from that, information regarding market condition of ice-cream industry has been collected from relevant journals, newspapers and reports. After the collection of all the relevant information and data, both have been determined through numerical and graphical analysis.

Primary Sources:

- Surveys
- Personal Interviews

Secondary Sources:

- Different report of Dhaka Ice Cream
- Manuals
- Official publications.
- Journal's articles

- Web sites
- Scholarly articles.
- Various reporting data and raw materials of the organization
- Unpublished data received from the organizational.

In this report, Secondary sources of data were annual reports, journals, internet, newspapers, published and unpublished documents of Dhaka Ice Cream and the central database of Dhaka Ice Cream.

3.5 Population and Sample Size

The population of the study includes employees working in procurement, production, inventory, logistics, and supply chain-related managerial positions. A purposive sampling technique was applied to ensure that respondents possess relevant SCM knowledge.
The questionnaire was designed using a five-point Likert scale, ranging from: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5). The questionnaire covered the following SCM dimensions: Procurement and supplier management, Production planning and scheduling, Cold-chain logistics, Inventory management, Logistics and distribution efficiency, Digital integration in SCM, Sustainability practices

3.6 Data Collection Procedure

The questionnaires were distributed personally and electronically to selected respondents. Adequate time was given to complete the questionnaires to ensure accuracy and reliability of responses. All collected questionnaires were reviewed for completeness before analysis.

Chapter 4

Analysis and Findings of the Study

This chapter presents the analysis and findings of the study based on data collected through a structured questionnaire. The analysis is conducted using descriptive statistical tools such as frequency distribution, percentage analysis, tabular presentation, and graphical representation (pie charts). The findings reflect respondents' perceptions regarding supply chain management practices in the ice cream industry.

4.1 Procurement and Supplier Management

Table 1: Respondents' Opinion on Procurement Practices

Response Category	Frequency	Percentage (%)
Agree	17	34
Neutral	10	20
Disagree	23	46
Total	**50**	**100**

Finding:
The table indicates that a large proportion of respondents (46%) disagree that procurement and supplier management practices are effective. This suggests the presence of supplier dependency, procurement delays, or weak supplier coordination within the supply chain**.**

4.2 Production Planning and Scheduling

Table 2: Effectiveness of Production Planning

Response Category	Frequency	Percentage (%)
Effective	16	32
Neutral	15	30
Ineffective	19	38
Total	**50**	**100**

Finding:
The findings show that 38% of respondents perceive production planning as ineffective, indicating challenges in demand forecasting and capacity planning, especially during peak seasons.

4.3 Cold Chain Management Performance

Table 3: Cold Chain Temperature Maintenance

Condition Level	Frequency	Percentage (%)
Temperature Stable	19	38%
Minor Fluctuation	16	32%
Major Fluctuation	15	30%
Total	**50**	**100%**

Finding:
Although some respondents report stable cold chain conditions, a significant proportion (62%) experience temperature fluctuations, highlighting weaknesses in cold storage and refrigerated transportation**.**

4.4 Inventory Management Practices

Table 4: Accuracy of Inventory Management

Inventory Accuracy Level	Frequency	Percentage (%)
Accurate	17	34%
Moderate Issues	18	36%
High Inaccuracy	15	30%
Total	**50**	**100%**

Finding:
The results indicate that inventory accuracy remains a challenge, with 66% of respondents reporting moderate to high inventory inaccuracies, increasing the risk of product loss and stock imbalance.

4.5 Logistics and Distribution Efficiency

Table 5: Delivery Performance

Delivery Performance	Frequency	Percentage (%)
On-time Delivery	18	36%
Occasional Delay	17	34%
Frequent Delay	15	30%
Total	**50**	**100%**

Finding:
The findings reveal that delivery delays are common, with 64% of respondents experiencing occasional or frequent delays, mainly due to traffic congestion and inadequate logistics planning.

4.6 Digital Integration in Supply Chain Management

Table 6: Level of Digital SCM Adoption

Digital Integration Level	Frequency	Percentage (%)
High	9	18%
Moderate	14	28%
Low	27	54%
Total	**50**	**100%**

Finding:
More than half of the respondents report low digital integration, indicating heavy reliance on manual processes and limited use of ERP, inventory software, or real-time monitoring systems.

4.7 Sustainability Practices in the Supply Chain

Table 7: Adoption of Sustainability Practices

Sustainability Level	Frequency	Percentage (%)
Strong	20	40%
Moderate	15	30%
Weak	15	30%
Total	**50**	**100%**

Finding:
While some sustainability initiatives exist, a significant proportion of respondents perceive sustainability practices as moderate to weak, suggesting limited focus on environmental efficiency beyond regulatory compliance**.**

Overall, the descriptive analysis reveals that the ice cream supply chain faces challenges in procurement, production planning, cold chain maintenance, inventory accuracy, logistics efficiency, and digital integration. Sustainability practices are present but require further strengthening. These findings form the basis for recommendations presented in Chapter 5.

4.8 Sustainability Initiatives in Dhaka's Ice Cream Industry

Food Safety Certification and Hygienic Standards

Dhaka Ice Cream Industries Ltd., known for its Polar brand, has achieved a significant milestone by becoming the first FMCG-category company in Bangladesh to obtain ISO 22000:2005 certifications. This standard underscores their commitment to robust Food Safety Management Systems (FSMS) and continual improvement in hygiene and quality practices. Such certifications bolster consumer trust and demonstrate a foundational step toward more sustainable operations.

Healthier Ingredients and Transparency

Igloo, a leading national brand, has made notable strides in enhancing product healthfulness:

- Transitioned from artificial to natural colorants, despite a higher cost.
- Eliminated trans fats, switching exclusively to lauric fats devoid of trans-fat content

These shifts reflect a sustainable focus on nutritional integrity and ingredient transparency—benefiting public health and reinforcing corporate responsibility.

Cold Chain Management and Distribution Network

Reliably maintaining a cold chain is integral to both product quality and waste reduction:

- Polar operates an extensive distribution network with cold hubs across multiple regions (e.g., Dhaka, Chittagong, Sylhet) and utilizes freezer vans for long-distance transport Igloo similarly

Emphasizes stringent temperature control—from factory to consumer-addressing challenges like. load shedding and extreme weather disruptions, while these measures primarily serve quality assurance, they also contribute to sustainability by reducing spoilage and waste.

Limitations & Areas for Environmental Improvement

Currently, explicit environmental sustainability measures—such as energy efficiency, renewable energy adoption, or sustainable packaging—are not prominently reported within Dhaka's ice cream sector. Broader context from Bangladesh's food and consumer goods industries shows rising eco- consciousness, especially regarding plastic reduction, biodegradable packaging, and waste management. These trends suggest a rising expectation for ice cream brands to adopt similar eco- friendly practices.

Chapter 5
Recommendations, Limitations and Conclusions

5.1 Recommendations

Digital Integration and Real-Time Monitoring

- Deploy IoT-enabled devices for temperature tracking across cold storage, transport, and distribution channels.
- Implement an integrated ERP system to synchronize procurement, production, inventory, and logistics data, enabling real-time visibility and decision-making.

Cold Chain Strengthening

- Introduce backup power solutions (e.g., generators or solar-assisted systems) to prevent disruptions during power outages.
- Train staff in rapid loading/unloading practices to minimize temperature fluctuations and ensure product integrity.

Lean and Agile Practices in Operations

- Adopt Lean practices such as Just-in-Time (JIT) procurement and waste reduction strategies to improve resource utilization.
- Build agility into production planning by using demand forecasts and flexible scheduling to quickly adapt to seasonal or market fluctuations.

Supplier and Procurement Optimization

- Establish long-term partnerships with reliable suppliers to ensure consistent quality and reduce raw material volatility.
- Introduce supplier performance evaluation metrics to align with company goals of quality, cost- effectiveness, and timeliness.

Sustainability Initiatives

- Transition toward eco-friendly packaging solutions (e.g., biodegradable or recyclable materials) to align with global sustainability trends.
- Invest in energy-efficient cold storage systems and explore renewable energy integration to reduce environmental impact.

Capacity Building and Workforce Development

- Conduct regular staff training programs on SCM best practices, quality assurance, and use of digital tools.
- Develop cross-functional teams to encourage collaboration between procurement, production, and logistics units.

Continuous Improvement and Performance Measurement

- Establish KPIs (order fulfillment rate, cold chain compliance, waste levels, customer returns) to monitor SCM performance.
- Use the SCOR model framework for benchmarking and continuous improvement against industry standards.

5.2 Limitations of the Study

Although the study seeks to provide meaningful insights into supply chain management strategies in the ice cream industry, it is subject to several limitations that should be acknowledged:

Limited Organizational Scope: The research is confined to Dhaka Ice Cream Industries Limited as a single case study. While this provides an in-depth analysis of one organization, the findings may not fully represent the practices, challenges, and strategies of the entire ice cream industry in Bangladesh.

Restricted Access to Information: Certain supply chain data, particularly related to procurement costs, vendor contracts, and confidential company strategies, may not be accessible due to organizational privacy policies. This restriction may affect the comprehensiveness of the analysis.

Time and Resource Constraints: Due to limitations in time, budget, and resources, the study may not cover all stakeholders across the supply chain. The number of interviews, field visits, and

surveys conducted had to be restricted, which could influence the richness of the findings.

Seasonal Variations in Demand: The ice cream industry is highly seasonal, with demand peaking in summer and declining during winter. Since the data collection period does not span multiple years or cover all seasonal fluctuations, the results may not fully reflect the long-term demand patterns of the industry.

Geographical Limitation: The study primarily focuses on urban and semi-urban areas where Dhaka Ice Cream Industries Limited has a strong presence. Supply chain challenges in remote or rural regions may not be fully addressed, which could limit the generalizability of the findings.

5.3 Conclusion

This study explored the supply chain management (SCM) practices of Dhaka Ice Cream Factory Limited, identifying inefficiencies across multiple stages including procurement, production, cold storage, inventory management, logistics, and digital integration. To address these gaps, a tailored supply chain model was developed by drawing upon established frameworks such as SCOR (Supply Chain Operations Reference), Lean, and Agile. The proposed model was further supported with a phased implementation roadmap, ensuring both practicality and adaptability in the context of an emerging market enterprise. From a scholarly perspective, the research adds to the growing body of literature on supply chain optimization in small- and medium-sized enterprises (SMEs) within developing economies, where resource constraints and infrastructural challenges often hinder operational efficiency. On a practical level, the findings provide actionable strategies that can assist Dhaka Ice Cream and similar firms in improving performance, reducing waste, and enhancing resilience. By modernizing its supply chain, Dhaka Ice Cream Factory Limited can strengthen product quality assurance, minimize operational costs, and maintain competitiveness in a rapidly evolving industry landscape. More broadly, the study demonstrates that with strategically designed and scalable SCM solutions, mid-sized enterprises in emerging markets can achieve sustainable growth while contributing to higher standards of efficiency and customer satisfaction.

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