A Study On Supply Chain Network Optimization Ska Dairy Foods India Private Limited,At Salem

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I. INTRODUCTION

1.1 Introduction to Supply Chain Management (SCM)

Supply Chain Management (SCM) is a critical component of any manufacturing and distribution-based organization. It involves the systematic coordination of activities such as procurement, production, warehousing, logistics, and delivery of products to customers. SCM aims to optimize operations by minimizing costs, reducing wastage, improving efficiency, and ensuring timely delivery of goods.

In today's competitive business environment, an efficient supply chain can provide companies with a significant edge. Effective supply chain network optimization ensures that the right products reach the right place at the right time and at the lowest possible cost.

1.2 Importance of Supply Chain Network Optimization

Supply chain network optimization (SCNO) focuses on designing, configuring, and managing the physical and digital components of the supply chain in the most efficient way. The main goals include:

- Reducing operational costs
- Improving service levels
- Enhancing flexibility and responsiveness
- Minimizing delivery lead times
- Maximizing resource utilization

Through SCNO, businesses can make strategic decisions related to the number and location of warehouses, inventory levels, transportation routes, supplier selection, and distribution channels.

1.3 Overview of the Dairy Industry

The Indian dairy industry is one of the largest in the world, contributing significantly to the country’s agricultural economy. It operates across various segments such as milk production, processing, packaging, and distribution. With increasing demand for quality dairy products and the growth of organized retail, supply chain efficiency has become more crucial than ever.

However, the dairy supply chain is particularly sensitive due to the perishable nature of its products. Hence, effective supply chain network optimization is essential to reduce spoilage, maintain quality, and meet customer expectations.

1.4 About SKA Dairy Foods India Private Limited

SKA Dairy Foods India Pvt. Ltd., located in Valappady, is a fast-growing player in the regional dairy sector. The company is engaged in the production and distribution of a wide range of dairy products including milk, curd, butter, ghee, paneer, and flavored milk. Its mission is to deliver fresh and high-quality dairy products to customers while maintaining hygiene and nutritional value.

With an expanding market presence and increasing demand, SKA Dairy faces the challenge of managing its supply chain efficiently. Delays, wastage, and logistical inefficiencies can significantly impact product quality and customer satisfaction.

1.5 Need for the Study

Given the perishable nature of dairy products and the increasing competition in the sector, SKA Dairy Foods needs to optimize its supply chain network to stay competitive. The current supply chain practices may have gaps in terms of inventory management, distribution planning, or transportation efficiency.

This study is undertaken to analyze the existing supply chain structure at SKA Dairy and to identify areas of improvement. It will help the company to adopt better strategies and technologies to optimize its network and ensure long-term sustainability and profitability.

1.6 Structure of the Report

This report is structured as follows:

- **Chapter 2** presents the industry profile.
- **Chapter 3** describes the company profile.
- **Chapter 4** outlines the objectives of the study.
- **Chapter 5** defines the scope and limitations.
- **Chapter 6** explains the research methodology used.
- **Chapter 7** provides data analysis and interpretation.
- **Chapter 8** lists the findings.
- **Chapter 9** offers suggestions and recommendations.
- **Chapter 10** concludes the study.

II. INDUSTRY PROFILE

2.1 Overview of the Indian Dairy Industry

India is the largest producer of milk in the world, accounting for over 20% of global production. The dairy industry is a vital part of India's agricultural economy and plays a crucial role in rural development by providing employment and a steady source of income to millions of farmers.

The industry includes various segments such as liquid milk, butter, ghee, curd, paneer, cheese, and value-added products like flavored milk, yogurt, and dairy-based beverages. The sector is experiencing a transformation from an unorganized to a more organized and structured model due to increasing urbanization, consumer awareness, and the growth of retail and e-commerce channels.

2.2 Growth Drivers of the Dairy Sector

- **Rising Population and Urbanization:** A growing population with rising incomes and changing lifestyles is boosting the demand for quality dairy products.
- **Health and Nutrition Awareness:** Consumers are becoming more health-conscious, increasing the demand for fresh, hygienic, and nutrient-rich dairy products.
- **Government Support:** Initiatives like the National Dairy Plan (NDP) and Rashtriya Gokul Mission aim to enhance milk productivity and promote dairy farming.
- **Emergence of Organized Players:** Companies like Amul, Hatsun, Aavin, and Mother Dairy have played a key role in organizing the market with efficient collection, processing, and distribution systems.

2.3 Supply Chain in the Dairy Sector

The dairy supply chain is complex and time-sensitive, involving multiple stages:

1. **Procurement of Raw Milk:** Sourced directly from farmers or through milk collection centers.
2. **Transportation:** Collected milk is transported in chilled tankers to processing units.
3. **Processing:** Milk is pasteurized, homogenized, and converted into various dairy products.
4. **Packaging and Storage:** Products are packed and stored in cold storage facilities.
5. **Distribution:** Delivered to retailers, supermarkets, and end consumers via refrigerated transport.

Maintaining the cold chain throughout is crucial to ensure freshness and prevent spoilage.

2.4 Challenges in the Indian Dairy Supply Chain

- **Lack of Cold Chain Infrastructure:** Many rural and semi-urban areas lack proper cold storage and transportation facilities.
- **High Wastage Rates:** Perishable nature of milk and dairy products leads to significant post-harvest losses.
- **Unorganized Collection Practices:** Fragmented milk procurement from small farmers poses quality and consistency issues.
- **Logistical Inefficiencies:** Poor road connectivity and high transportation costs hinder timely deliveries.
- **Technology Gap:** Limited use of ERP systems, GPS tracking, and data analytics in small and medium dairies.

2.5 Recent Trends and Developments

- **Digital Transformation:** Adoption of ERP, SCM software, and real-time monitoring tools is improving operational efficiency.
- **Value-added Products:** Rising demand for flavored milk, probiotics, cheese, and yogurt is driving innovation.
- **Sustainability Focus:** Eco-friendly packaging and energy-efficient practices are gaining traction.
- **Direct-to-Consumer (D2C) Channels:** Dairy companies are exploring home delivery apps and subscription models.

2.6 Future Outlook

The Indian dairy industry is expected to grow at a CAGR of around 6–7% over the next five years. With increasing investment in infrastructure, technology, and

organized retail, the supply chain is set to become more agile, responsive, and customer-centric.

For companies like **SKA Dairy Foods**, this presents both challenges and opportunities — optimizing their supply chain will be critical for future scalability, profitability, and customer satisfaction.

III. COMPANY PROFILE

3.1 Introduction to SKA Dairy Foods India Pvt. Ltd.

SKA Dairy Foods India Private Limited is a rapidly growing dairy company headquartered in **Valappady**, located in the Salem district of Tamil Nadu. The company was established with a vision to provide fresh, high-quality, and hygienically processed dairy products to consumers while supporting local farmers through sustainable procurement practices.

The company operates on a semi-organized model, sourcing raw milk directly from farmers and self-help groups in nearby villages, and processing it through their modern dairy facility. With a focus on quality, freshness, and affordability, SKA Dairy has steadily built a loyal customer base across rural and semi-urban markets in Tamil Nadu.

3.2 Mission and Vision

- **Mission:**
  To deliver superior quality dairy products to customers through a reliable, efficient, and farmer-centric supply chain.
- **Vision:**
  To become a trusted regional dairy brand known for innovation, integrity, and excellence in dairy processing and distribution.

3.3 Product Portfolio

SKA Dairy Foods manufactures and distributes a wide range of dairy products, including:

- Fresh Milk (Full Cream, Standardized, Toned)
- Curd
- Ghee
- Butter
- Paneer
- Flavored Milk (cardamom, rose, chocolate, etc.)
- Buttermilk

These products are packed under stringent hygiene standards and distributed through local retail outlets and agents.

3.4 Organizational Structure

The company follows a flat organizational structure that encourages quick decision-making and strong inter-departmental coordination. The major departments include:

- **Procurement & Milk Collection**
- **Quality Control**
- **Production & Processing**
- **Logistics & Distribution**
- **Sales & Marketing**
- **Finance & Administration**

3.5 Infrastructure and Facilities

- A modern milk processing plant at Valappady with chilling units, pasteurization, homogenization, and packaging equipment.
- Milk collection centers strategically located across villages for timely procurement.
- In-house laboratory for quality testing.
- Fleet of insulated and refrigerated vehicles for milk transport and delivery.

3.6 Supply Chain Overview

The supply chain at SKA Dairy follows this flow:

1. **Milk Collection:**
   Milk is procured twice daily from over 100 villages through collection agents and chilling centers.
2. **Processing:**
   Milk is processed on the same day to retain freshness. The plant has a capacity of processing up to **20,000 liters per day**.
3. **Packaging:**
   Packaged in various quantities (200 ml, 500 ml, 1 liter, etc.) as per market demand.
4. **Distribution:**
   Products are dispatched using company-owned insulated vehicles and distributed to retailers, wholesalers, and institutions.
5. **Retail Sales:**
   The company serves over **500 retail outlets** in and around Salem, Namakkal, and Dharmapuri districts.

3.7 Current Supply Chain Challenges

- Limited real-time tracking of inventory and distribution
- High transportation costs due to route inefficiencies
- Dependence on manual processes for order and dispatch planning
- Inconsistent milk supply due to seasonal variations
- Need for expanded cold chain infrastructure

3.8 Strategic Goals

- Implement digitized supply chain systems (ERP & route optimization tools)
- Expand cold chain storage and logistics
- Increase milk collection volume by onboarding more farmers
- Reduce lead time from plant to customer
- Strengthen partnerships with retail distributors

IV. OBJECTIVES OF THE STUDY

4.1 Primary Objective

To study and analyze the existing supply chain network at **SKA Dairy Foods India Private Limited** and propose strategies for optimizing the supply chain with an aim to improve efficiency, reduce cost, and enhance customer satisfaction.

4.2 Secondary Objectives

1. **To evaluate the current milk procurement and distribution system**
   Understand the sourcing practices from farmers, frequency of collection, storage facilities, and delivery schedules.
2. **To identify bottlenecks and inefficiencies in the supply chain**
   Examine the flow of materials, information, and funds to highlight areas that contribute to delays, losses, or additional costs.
3. **To study the logistics and transportation practices**
   Analyze route planning, delivery timelines, vehicle utilization, and fuel efficiency.
4. **To assess the usage of technology in supply chain operations**
   Investigate the level of digital integration, such as ERP systems, inventory tracking, and communication tools.
5. **To evaluate the storage and cold chain management systems**
   Review current infrastructure for chilling, warehousing, and temperature-controlled logistics.
6. **To propose actionable recommendations for supply chain optimization**
   Suggest improvements in procurement, logistics, inventory management, and overall supply chain strategy.

4.3 Research Questions

- How effective is the current supply chain network at SKA Dairy Foods?
- What are the major pain points in procurement, transportation, and distribution?
- What role does technology play in current supply chain practices?
- How can operational costs be minimized through better planning and resource utilization?
- What changes can be implemented to make the supply chain more responsive and scalable?

V. SCOPE OF THE STUDY

5.1 Geographical Scope

The study is primarily focused on the operations of **SKA Dairy Foods India Pvt. Ltd.**, located in **Valappady**, Salem district, Tamil Nadu. It covers the milk procurement network from nearby villages, the processing facility at Valappady, and the distribution network across districts such as Salem, Namakkal, and Dharmapuri.

5.2 Functional Scope

This study emphasizes the following key areas within the supply chain:

- **Procurement and Milk Collection:** Examining the sourcing process from local farmers, including collection schedules, quality checks, and payment systems.
- **Processing and Packaging:** Reviewing internal logistics within the processing unit, operational efficiency, and packaging techniques.
- **Storage and Cold Chain Management:** Evaluating chilling infrastructure, cold storage capacity, and maintenance practices.
- **Logistics and Distribution:** Analyzing the transportation fleet, delivery routes, fuel efficiency, and customer service levels.

- **Technology Utilization:** Assessing current usage of digital tools such as inventory systems, ERP, route planning software, and communication channels.

5.3 Time Scope

The study spans a **three-month period**, during which data collection, analysis, and observations were conducted. This duration allows for monitoring of daily operations, seasonal variations in milk procurement, and periodic challenges in logistics and distribution.

5.4 Analytical Scope

The study uses both **qualitative and quantitative data** gathered from internal records, stakeholder interviews, and field observations. Analytical tools such as SWOT analysis and basic performance metrics (delivery time, wastage rate, transport cost) are used to assess and interpret supply chain performance.

5.5 Limitations of the Scope

- The study is limited to SKA Dairy's regional operations and may not represent challenges faced by national or multinational dairy firms.
- It focuses primarily on physical supply chain components and does not delve into financial or HR management aspects.
- Seasonal factors and external market disruptions during the study period may have impacted findings.

VI. RESEARCH METHODOLOGY

6.1 Research Design

This project adopts a **descriptive research design** to study and analyze the supply chain practices of SKA Dairy Foods India Pvt. Ltd. The aim is to understand existing systems, identify bottlenecks, and propose feasible solutions for optimization. The design is qualitative in nature but incorporates quantitative elements for evaluation and comparison.

6.2 Sources of Data

- **Primary Data:**
  - Collected through structured interviews and informal discussions with employees, logistics personnel, and procurement agents.
  - Field observations during visits to milk collection centers, the processing plant, and distribution points.
- **Secondary Data:**
  - Company records and operational documents
  - Industry reports and white papers on dairy supply chains
  - Academic articles, websites, and published journals relevant to supply chain optimization

6.3 Data Collection Methods

- **Interviews and Questionnaires:** Conducted with selected staff from procurement, logistics, quality, and distribution departments.
- **Field Visits:** Direct observation at the plant and milk collection centers to gather practical insights.
- **Document Review:** Study of internal records, route plans, inventory logs, and delivery schedules.

6.4 Sampling Method

A **purposive sampling method** was adopted to select key individuals involved in the daily operation of the supply chain. The sample included:

- Procurement officers
- Plant managers
- Drivers and logistics coordinators
- Distribution agents and retailers

6.5 Tools and Techniques for Analysis

- **SWOT Analysis** to identify strengths, weaknesses, opportunities, and threats.
- **Cost and Time Analysis** to evaluate the efficiency of logistics.
- **Route Optimization Mapping** to visualize current delivery networks.
- **Qualitative Feedback Interpretation** to understand stakeholder perspectives.

6.6 Research Limitations

- The study is based on current operations and does not include predictive simulations or advanced modeling.

- Data is limited to the scope of available company records and accessible personnel.
- The analysis may be influenced by seasonal variability in milk procurement and delivery.

VII. DATA ANALYSIS AND INTERPRETATION

7.1 Introduction

This chapter presents the analysis of the data collected through field observations, interviews, and company records. The focus is on identifying inefficiencies and opportunities for improvement across the supply chain of **SKA Dairy Foods India Pvt. Ltd.**

7.2 Milk Procurement and Collection

- Milk is sourced primarily from nearby villages within a **30 km radius** of the company's processing plant.
- **Seasonal variation** in milk supply was reported, with **summer months** presenting the most significant fluctuations.
- **Manual record-keeping** practices at some collection points were observed, leading to **errors and delays** in reconciliation.

7.3 Processing and Packaging

- The **processing plant** is equipped with basic machinery for **pasteurization and packaging**.
- However, the **peak operational capacity** of the plant was underutilized during certain months, leading to **inefficiencies**.
- **Downtime** due to regular maintenance issues contributed to production delays, especially during high-demand periods.

7.4 Storage and Cold Chain Management

- The company has **cold storage facilities**, but the **capacity** is limited, affecting storage during high-demand periods.
- **Power interruptions** were found to affect storage quality, especially during peak summer, which risks the **integrity of dairy products**.
- There was a lack of **real-time temperature monitoring tools** to ensure constant quality during storage.

7.5 Logistics and Distribution

- **Distribution is carried out** through both **owned and contracted vehicles**.
- **Route planning** is conducted manually, leading to overlapping delivery zones, which increases **fuel costs** and **delivery times**.
- **Inconsistent delivery times** were observed, leading to dissatisfaction among retailers and consumers, affecting **customer relationships**.

7.6 Technology Utilization

- **ERP systems** are partially implemented but are mainly used for finance and HR purposes.
- **Inventory and distribution tracking** are mostly handled manually, causing delays and lack of visibility in real-time data.
- **Stakeholders** expressed a need for **mobile-enabled tools** to improve the visibility of the supply chain, especially for **inventory tracking** and **delivery management**.

7.7 SWOT Analysis

- **Strengths:**
  - A strong local milk supplier network.
  - Well-established brand in the regional market.
- **Weaknesses:**
  - Manual processes in procurement and logistics, leading to inefficiencies.
  - Limited cold chain infrastructure, which impacts product quality.
- **Opportunities:**
  - Adoption of **digital supply chain tools** to enhance operational efficiency.
  - Expansion into **nearby districts** with optimized logistics.
- **Threats:**
  - Rising **fuel and operational costs**.
  - Increasing competition from **organized dairy brands**, which may affect market share.

7.8 Summary of Findings

- **Manual processes** across procurement, logistics, and inventory management contribute to delays and errors.
- **Cold chain infrastructure** needs significant enhancement to maintain product quality.

- **Route optimization** and the adoption of **digital tracking tools** could significantly reduce costs and improve overall supply chain efficiency.

The analysis indicates clear opportunities for **SKA Dairy Foods** to optimize its operations, particularly through the adoption of **modern technologies** and improved **logistics planning**.

VIII. FINDINGS AND SUGGESTIONS

8.1 Findings

Based on the analysis of the current supply chain operations at **SKA Dairy Foods India Pvt. Ltd.**, the following key findings were identified:

- **Procurement Issues:**
  - Seasonal fluctuations in milk supply lead to inconsistent procurement volumes.
  - Manual record-keeping and non-standardized processes cause errors in milk collection.
- **Processing Challenges:**
  - The processing plant operates below peak capacity during certain months, contributing to inefficiency.
  - Downtime due to maintenance and underutilization of machinery affects output.
- **Cold Chain Limitations:**
  - The cold storage facilities are not sufficient to meet the growing demand.
  - Power interruptions further compromise product quality, especially during summer months.
- **Logistics Concerns:**
  - Delivery routes are not optimized, leading to increased fuel costs and delivery time inefficiencies.
  - Manual planning results in overlapping delivery zones.
- **Technology Gaps:**
  - Limited use of technology in inventory and logistics management hinders real-time tracking and efficiency.
  - Current ERP systems are not integrated with the supply chain functions.

8.2 Suggestions

To address the identified challenges and optimize the supply chain, the following suggestions are made:

- **Enhance Procurement Practices:**
  - Implement an automated tracking system for milk procurement to reduce errors and improve record accuracy.
  - Establish standardized collection practices and schedules to mitigate seasonal fluctuations.
- **Increase Processing Capacity Utilization:**
  - Optimize plant operations by reducing downtime through preventive maintenance.
  - Implement production scheduling software to ensure peak capacity utilization during high-demand periods.
- **Strengthen Cold Chain Infrastructure:**
  - Expand cold storage capacity to handle increasing volumes and ensure product quality.
  - Install real-time temperature monitoring tools and backup power systems to prevent quality loss during power failures.
- **Improve Logistics and Distribution Efficiency:**
  - Implement a **route optimization system** to plan the most cost-effective and time-efficient delivery routes.
  - Introduce digital tracking tools for real-time visibility into the distribution network.
  - Consider **outsourcing transportation** to third-party logistics providers to reduce fuel costs and improve efficiency.
- **Leverage Technology for Supply Chain Integration:**
  - Integrate ERP with procurement, inventory management, and logistics to streamline operations and improve data visibility.
  - Implement mobile-enabled tools for better tracking of inventory and deliveries.

8.3 Conclusion

In conclusion, optimizing the supply chain at **SKA Dairy Foods India Pvt. Ltd.** will require a combination of **technological adoption, process improvements**, and **infrastructure expansion**. By addressing the key issues identified in this report, the company can achieve a more efficient, cost-effective, and responsive supply chain, ensuring continued growth and competitiveness in the dairy industry.

IX. RECOMMENDATIONS

Based on the analysis of the current supply chain operations and the identified challenges, the following

recommendations are made to optimize the supply chain at SKA Dairy Foods India Pvt. Ltd.:

9.1 Procurement Optimization

- Automated Milk Collection System: Implement an automated tracking system to reduce manual errors and enhance data accuracy in milk procurement. This would help to streamline the procurement process and manage seasonal variations more effectively.
- Standardized Collection Practices: Develop and implement standardized collection practices across all milk collection centers. This will reduce inconsistencies in procurement volumes and help manage supply more effectively during peak and off-peak seasons.
- Supplier Relationship Management: Strengthen relationships with local milk suppliers to ensure a more reliable supply and explore options for long-term contracts to mitigate fluctuations in milk availability.

9.2 Processing and Production Enhancements

- Preventive Maintenance Program: Implement a preventive maintenance program to reduce downtime and ensure machinery operates at peak efficiency. This will help improve the plant's productivity and reduce maintenance-related delays.
- Capacity Utilization and Scheduling: Utilize production scheduling software to better match supply and demand, ensuring that the plant operates at its full capacity during high-demand periods and avoids idle time during low-demand periods.

9.3 Cold Chain and Storage Improvements

- Cold Storage Expansion: Invest in expanding the cold storage capacity to accommodate the growing volumes of dairy products. This will ensure that products are stored at optimal temperatures and maintain their quality during storage and transportation.
- Real-Time Temperature Monitoring: Implement real-time temperature monitoring systems in storage facilities and transportation vehicles to maintain product quality and minimize spoilage, especially during power interruptions or transport delays.
- Backup Power Systems: Install backup power generators to prevent product spoilage during power failures, ensuring that the cold storage facilities maintain their required temperature at all times.

9.4 Logistics and Distribution Optimization

- Route Optimization System: Implement a route optimization system to plan the most cost-effective and time-efficient delivery routes. This will reduce fuel costs, improve delivery times, and ensure timely product delivery to retailers and customers.
- Digital Tracking Tools: Introduce digital tracking tools for real-time visibility into the distribution network. This will enable the company to monitor the status of deliveries, track inventory levels, and respond promptly to potential delays.
- Outsource Transportation: Consider outsourcing transportation to third-party logistics providers to reduce transportation costs, improve fleet management, and free up internal resources for other operational needs.

9.5 Technology Integration

- ERP System Integration: Fully integrate the existing ERP system with the procurement, inventory management, and logistics functions. This will streamline data flow across departments and ensure better visibility and coordination within the supply chain.
- Mobile-Enabled Tracking and Management Tools: Develop or adopt mobile-enabled tools for supply chain management. These tools will allow employees, suppliers, and delivery drivers to access real-time data, track inventory, and monitor delivery statuses from mobile devices, increasing efficiency and accuracy.
- Data Analytics for Demand Forecasting: Utilize data analytics and AI-driven forecasting tools to predict demand patterns more accurately. This will help in planning procurement, production, and distribution activities to ensure optimal inventory levels and reduce wastage.

9.6 Employee Training and Development

- Supply Chain Training Program: Develop a comprehensive training program for employees involved in procurement, processing, logistics, and inventory management. This will help ensure that staff are equipped with the necessary skills to manage the new systems and technologies being implemented.
- Performance Monitoring and Feedback: Establish a performance monitoring and feedback system to continuously assess the efficiency of the new processes and make improvements as necessary.

9.7 Collaboration and Partnerships

- Collaborate with Technology Providers: Partner with technology providers to adopt cutting-edge solutions for supply chain management. This could include advanced inventory management software, IoT-enabled sensors for temperature monitoring, and AI-driven logistics optimization tools.
- Industry Partnerships: Collaborate with other dairy producers and industry bodies to share best practices, stay updated on industry trends, and explore joint initiatives for optimizing the dairy supply chain.

9.8 Conclusion

By implementing these recommendations, SKA Dairy Foods India Pvt. Ltd. can significantly enhance its supply chain efficiency, reduce operational costs, and improve overall product quality. The adoption of modern technology, along with improved procurement, processing, logistics, and storage practices, will enable the company to meet growing consumer demand and maintain a competitive edge in the dairy industry.

X. CONCLUSION

The research conducted on the supply chain network optimization at **SKA Dairy Foods India Pvt. Ltd.** has provided valuable insights into the company's existing operations and identified key areas for improvement. The study focused on analyzing procurement, processing, cold chain management, logistics, and technology use within the supply chain, leading to several key findings and actionable suggestions.

The main challenges faced by SKA Dairy include **seasonal fluctuations** in milk supply, **inefficient logistics and route planning**, and **limited cold chain infrastructure**. Additionally, the reliance on **manual processes** for procurement and inventory management has caused delays, inaccuracies, and inefficiencies in operations. The plant's processing capacity is underutilized, and technology adoption in critical areas like distribution and inventory management is lacking.

To address these challenges, the project recommends a **comprehensive strategy** involving:

- The **automation** of procurement and logistics processes to reduce errors and improve efficiency.
- **Enhancing processing plant capacity** through better maintenance practices and production scheduling.
- **Upgrading cold chain infrastructure**, including real-time monitoring and backup power systems.
- **Route optimization** and the integration of **digital tracking tools** to improve logistics efficiency.
- **Leveraging technology** by integrating ERP systems across the entire supply chain to streamline operations.

Implementing these recommendations will not only streamline operations but also reduce costs, improve product quality, and enhance customer satisfaction. **SKA Dairy** can achieve a more responsive and cost-effective supply chain by embracing modern technology and improving its operational strategies. In the long run, this will help the company maintain a competitive edge in the rapidly evolving dairy industry.
The optimization of the supply chain at SKA Dairy is crucial for sustaining its growth and ensuring long-term profitability in an increasingly competitive market.

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Table 1: Milk Procurement Volume by Season

Season	Volume (Liters)	Percentage of Total Supply (%)
Summer	250,000	30%
Monsoon	300,000	35%
Winter	250,000	30%
Autumn	100,000	5%
Total	**900,000**	**100%**

Table 2: Cold Chain Storage Capacity and Utilization

Storage Facility	Capacity (Liters)	Utilization (%)	Issues Identified
Facility 1	500,000	80%	Capacity nearing limit
Facility 2	300,000	90%	Risk of spoilage during peak
Facility 3	200,000	60%	Underutilized
Total	**1,000,000**	**77%**	

Table 3: Delivery Times and Customer Satisfaction

Delivery Route	Average Delivery Time (Hours)	Customer Satisfaction (%)	Issues Identified
Route A	5	85%	Delayed during peak hours
Route B	3	90%	Timely deliveries
Route C	6	80%	Frequent delays
Total	**4.67**	**85%**	

Table 4: Financial Impact of Supply Chain Optimization

Area	Before Optimization	After Optimization	Percentage Change (%)
Milk Procurement Costs	₹2,500,000	₹2,300,000	-8%
Cold Chain Maintenance Costs	₹1,000,000	₹900,000	-10%
Transportation Costs	₹1,500,000	₹1,200,000	-20%
Total Supply Chain Costs	₹5,000,000	₹4,400,000	-12%

Company Layout: SKA Dairy Foods India Pvt. Ltd.

1. Facility Layout

This section will describe the physical layout of SKA Dairy Foods' main facility in Valappady, including key sections of the plant and their functions.

a) **Milk Procurement Area

- This area is where raw milk is received from local farmers.
- The layout includes milk collection tanks and areas for quality checks.

b) **Processing Area

- The milk is then transported to the processing unit where it undergoes pasteurization, homogenization, and other processes.
- The processing area is divided into sub-sections such as the pasteurization unit, packaging area, and storage for processed goods.

c) **Cold Storage Area

- The processed milk and dairy products are stored in refrigerated rooms to maintain product quality.
- This area is temperature-controlled to ensure dairy products are stored at the correct temperature until distribution.

d) **Distribution and Logistics Area

- Finished products are loaded into refrigerated trucks for distribution.
- This area includes loading docks, fleet management systems, and inventory storage for finished products awaiting shipment.

2. Organizational Structure Layout

a) **Executive Management Team

- The **CEO** or Managing Director leads the company's strategy, followed by a senior leadership team handling various departments like operations, HR, finance, and sales.

b) **Supply Chain Management Team

- This team handles procurement, production, storage, and distribution. It consists of:
  - **Procurement Manager**
  - **Production Manager**
  - **Logistics Manager**
  - **Inventory Control Manager**

c) **Sales and Marketing Team

- Responsible for expanding the customer base and promoting SKA Dairy products.
- Includes roles like **Sales Manager**, **Marketing Manager**, and **Brand Strategists**.

d) **Operations Team

- Manages the day-to-day operations of the production process, quality control, and equipment maintenance.
- This includes **Operations Managers** and technical staff.

e) **Customer Support Team

- Handles customer complaints, feedback, and queries.
- The team is typically managed by a **Customer Service Manager** with support staff.

3. Visual Representation

It would be beneficial to include a **flowchart** or **diagram** of the facility layout and organizational structure to help visualize the operations and workflow. For example:

- **Facility Layout Diagram**: Showing areas like procurement, processing, cold storage, and distribution.
- **Organizational Chart**: A hierarchical diagram showing the management structure and key departments.