

Report On
Procurement and Supply Chain Management of
Navana CNG Limited

By
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An internship report submitted to the BRAC Institute of Governance and Development (BIGD), BRAC University, in partial fulfillment of the requirements for the degree of
‘Masters in Procurement and Supply Management’

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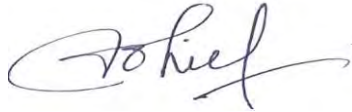
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Declaration

It is declared that

1. The internship report submitted is my/our original work while completing my degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Letter of Transmittal

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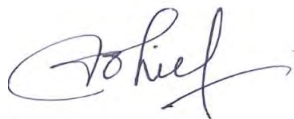
Subject: Submission of PSM-665: Supply Chain Management in Practice-Report/Practicum.

Dear Sir

With due respect and humble submission, I would like to take the privilege to submit my report entitled 'Procurement and Supply Chain Management of Navana CNG Limited' as partial requirement to fulfillment of my master's degree in Procurement and Supply Management (MPSM), BIGD, BRAC University.

I have tried my best to complete the report with the essential information and suggested proposition in an exceedingly vital compact and comprehensive manner as possible. I believe that this report will be meeting the benchmark of academic paper in best possible manner.

Sincerely yours,



Md. Tohidur Rahman

Student ID: 21382010

BRAC Institute of Governance & Development (BIGD)

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Date: September 19, 2024

Non-Disclosure Agreement

This agreement has made and entered into by and between Navana CNG Limited as the First Party and the undersigned student at BRAC Institute of Governance and Development (BIGD), BRAC University as the Second Party. The First Party has allowed the Second Party to prepare a report on the former Inventory Management and Warehousing in partial fulfillment of the requirements for the degree of Masters of Procurement and Supply Management. The Second Party will have the opportunity to work closely with the officials of the organization and have access to official data and information. Based on work experience, data, and information collected the Second Party will prepare a report. The Second Party will use all sorts of data and information for academic purposes and will not disclose to any party against the interests of the First Party.

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Special thanks to the supply chain team members of Navana CNG Ltd. for helping me to bring the practical working scenario in my report. I am grateful for their excellent co-operation, positive attitude and knowledge sharing approach which made it possible to finish my report successfully.

Executive Summary

This report exhibits the procurement and supply management of Navana CNG Limited. Based on the findings on Procurement and Supply Management of Navana CNG Limited, it engages in several CNG-related activities, such as cylinder retesting, CNG conversion workshops, importation of CNG kits and cylinders, and CNG refuelling stations across Bangladesh.

The supply chain of Navana CNG Limited is set up to guarantee the effective sourcing, warehousing, and distribution of goods and services associated with compressed natural gas. To continue leading the industry, the company purchases premium CNG kits, cylinders, and related equipment from reliable foreign vendors.

The company ensures conformity with international standards by importing CNG kits, cylinders, and other equipment from global suppliers. To ensure prompt availability and distribution of imported commodities, Navana CNG has warehouses at strategic locations. Customers can utilize the company's extensive distribution network, which spans Bangladesh and consists of CNG refuelling stations and conversion workshops.

Navana CNG uses strict quality control procedures to guarantee the dependability and safety of its goods and services. Navana CNG keeps buffer supplies and diversifies its supplier base to reduce the risk of supply chain disruptions. To minimize operating costs, the organization prioritizes economical sourcing and good inventory management. In addition to using environmentally friendly products and lowering carbon emissions through effective logistics, Navana CNG is dedicated to sustainable practices. Because of its supply chain management, Navana CNG has been able to stay ahead of the competition and maintain excellent customer satisfaction and operational efficiency.

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Chapter 1

Introduction

1.1 Background of Navana CNG Limited

Navana CNG Limited is a part of the Navana Group and one of Bangladesh's leading CNG service providers in Bangladesh. Navana CNG Limited is involved in various departments of CNG Industries, including refueling stations and related services. Navana CNG Limited is leading the CNG industry in Bangladesh. In the CNG industry, Navana CNG Limited is known as the key wholesaler of CNG and LPG conversion kits manufactured by Lanireno (Italy) in Bangladesh.

On 19 April 2004, Navana CNG Limited was incorporated under the Companies Act, 1994. This company was converted into a public company on 8 March 2009. The company's registered address is Islam Chamber (4th Floor), 125/A, Motijheel Commercial Area, Dhaka - 1000, Bangladesh. The Company renders its services through its nine CNG Conversion Centres located at Tejgaon I/A, Purana Paltan, Dipnagar (Kallyanpur), Gabtoli and Uttara in Dhaka; Noya Bazar and Chandgaon in Chittagong; Sylhet and Bogra and fifteen CNG Gas Stations situated at Motijheel C/A, Bakshi Bazar, Jurain, Ashulia, Baipal, Mirpur and Savar in Dhaka; Sonargaon in Narayangonj; Thanapara and Kalihati in Tangail; Dampara and Sitakunda in Chittagong; Bhairab in Kishoregonj; Sylhet; and Bogra. The Company has also four CNG Conversion Booking Centres at Jatrabari in Dhaka; Chowrasta in Gazipur; New Bus Stand in Tangail; and Sehda in Mymensingh.

A highly regarded manufacturer of CNG refuelling station technology SAFE (ITALY) is represented by Navana CNG Limited. OMNITEK (USA) is also collaborating with it to convert diesel-driven vehicles to run on compressed natural gas. Fast-filling system solutions are provided by Navana CNG partners WEH (GERMANY) and OMB Saleri (ITALY). With AIRBLAST S.A's (ARGENTINA) help, the company has developed a modern testing facility for CNG cylinders. Furthermore, NGV MOTORI (ITALY) is collaborating with Navana CNG Limited to convert diesel engines into diesel gas systems. Their procurement and supply chain management are crucial for ensuring the smooth operation of these services.

1.2 Brief Growth History of Navana CNG Limited

June 2001	Established Navana Limited (CNG unit).
February 2002	Inaugurated Petrol / Octane driven automobile conversion into C
April 2002	The journey as the main distributor of Landirengo, s.p.a, Italy, in Bangladesh.
July 2002	The main distributor of Safe, s.r.l, Italy in Bangladesh.
February 2003	Inaugurated the operation of CNG refuelling station.
July 2003	Established the CNG conversion workshop in Chittagong.
March 2004	Inaugurated the 3-wheeler automobile conversion into CNG.
April 2004	Formed as Navana CNG Limited.
July 2004	Established the CNG conversion workshop at kallaynpur, Mirpur, Dhaka.
August 2004	Inaugurated Diesel driven automobile conversion into CNG
March 2005	Established a CNG conversion workshop in Sylhet district.
April 2005	Started first unit of CNG Cylinder re-testing center at kallaynpur, Mirpur, Dhaka.
May 2005	Inaugurated conversion of petrol/octane-driven automobiles into LPG.
May 2006	Established CNG conversion workshop at Uttar, Dhaka.
July 2006	Established CNG conversion workshop in Bogra.
February 2007	Established CNG conversion workshop at Paltan, Dhaka.
July 2007	Inaugurated a dedicated diesel conversion workshop at Dipnagar, Gabtoli, Dhaka.
February 2008	Acting as the exclusive agent of WEH, Germany & OMB, Italy products in Bangladesh.
March 2008	Started the second unit of CNG Cylinder re-testing center at Gabtoli, Dhaka.
June 2008	Started Diesel Generator conversion into Diesel Gas System.
January 2009	Established Daughter Station on test at Gabtoli, Dhaka.
February 2009	Established the CNG conversion workshop at Kalurghat, Chittagong.
March 2009	Converted into 1st public limited company in the CNG industry of Bangladesh.

1.3 Vision of Navana CNG Limited

The vision of Navana CNG Limited is to be the point of orientation for an ample CNG solution.

1.4 Mission of Navana CNG Limited

The mission of Navana CNG Limited is to provide flawless services to end customers and uphold an outlook of "do it right, at the first time".

1.5 Slogan of Navana CNG Limited

"For a clean alternative"

1.6 Goals of Navana CNG Limited

- To accomplish customer satisfaction and defect less services (CNG Conversion, re-fueling station, and cylinder re-testing) on time.
- Execution of policies to make it essential so that each person be committed to performing exactly as stated.
- Fundamental operating strategy is to focus on preventative measures to establish quality as a way of life and to uphold the notion of "do it right the first time."
- Dedicated to accomplishing this by offering sufficient resources and skilled labor that scrupulously follow the ISO 9001:2008 Quality Management System (QMS) protocol.
- Navana CNG Limited's top management is dedicated to continuously enhancing its QMS procedures.

1.7 Values and Managerial Principles of Navana CNG Limited

1.7.1 Values

Their self-preservation, growth, and evolution are guided by the concepts that characterize them.

Ethics	Despite this, they remain committed to their objectives and do the task correctly in the face of difficulty. They are accountable for and abide by the laws of the nation. Strong moral values are upheld by them throughout their business.
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Commitment	They deliver on their commitment to offer excellent customer service. In addition, they go above and beyond to give their clients the security they promise.
Honesty	They are grateful for their clients' trust. They are honest in their beliefs and actions.
Administration	To create a long-lasting business, they take ownership of their actions and actively look for new chances.
Technology	They understand the value of different points of view in assisting businesses in generating creative ideas. They place a high importance on foresight in terms of business readiness.
Compassion	The customer base is their most valuable asset. This is possible because they respect and care for each other and the greater goals that they both support with their clients.
Team building	They work together to accomplish a common objective that advances their mission. They believe that teamwork is crucial to success as a whole.

1.7.2 Guiding Principles

The fundamental actions that support their values and enable them to fulfill their goal and vision are known as their guiding principles.

- Be a Navana Way person.
- Respect inclusion and diversity.
- Gain by merit.
- contests the current situation.
- Set an example for others.

1.8 Products and Services of Navana CNG Limited

1.8.1 Products

- CNG Re-fueling Stations: 19 CNG refueling stations are now in operation in Bangladesh.
- Vehicle Conversion: Converting gasoline, octane, and diesel cars to compressed natural gas (CNG).
- Retesting Cylinders: Offering CNG cylinder retesting services.
- Auto Repair Services: Providing upkeep and repairs for automobiles.
- Diesel Generator Conversion: Converting diesel generators to run on compressed natural gas (CNG).
- Vehicle Fitness Check: Verifying that automobiles adhere to environmental and safety regulations.
- Direct Spare components Sales: Offering CNG system replacement components.

1.8.2 Additional Services

After-Sale Support: All-encompassing assistance upon conversion.

Training Courses: Providing instruction on CNG conversion and refueling station procedures.

Chapter 2

Supply Chain Management of Navana CNG Limited

2.1 Introduction

In the CNG industry, supply chain management greatly impacts the company's productivity, like Navana CNG Limited. The supply chain gives attention to the development of products that have shorter life cycles. Additionally, to ensure customers' high expectations, the supply chain has compelled businesses to invest and give more attention. A supply chain is called the net of trades, people, technological advancements, information sharing, and resources used to deliver goods or services from production to consumption (Ibrahim, S. B., 2014).

The supply chain's organizations are "linked" to one another via information and physical flows. The movement, transformation, and storage of materials and things are all considered physical fluxes. They are the link in the supply chain that is most visible. However, flows of information are as significant. Information flows enable the different supply chain participants to manage the daily flow of goods and materials up and down as well as to coordinate their long-term objectives (Meijboom, 2011).

The procurement professional can play a significant role in the success of the organization by taking advantage of opportunities provided by supply chain management, which includes the responsibility of forestalling and satisfying end consumer demands (Ibrahim, S. B., 2014). Adding values for the end consumers and supply chain networks are the goals of supply chain management. Synchronization of procedures between the supply chain participants is essential for effective supply chain management (Jabbour, 2011).

The term "supply chain" can be defined as the organizational functions that link business operations & strategies to supply chain management, like inventory control, warehousing, and inbound and outgoing transportation are linked to business objectives (Mensah, 2014). The procedures of supply chain management include planning, forecasting, order processing, customer service and production scheduling. Supply chain management can monitor and adjust the cost throughout the business and supply chain (Thoo, A. C., 2017).

2.2 Supply Chain Management

Supply chain is known as the network of stockholders and goods which is involved in procuring raw materials, work-in-process inventory, finished goods, suppliers, production facilities, warehouses, distribution centers, and retail stores that are all near one another. Resources or raw materials are converted through the supply chain. This process turns raw materials into a finished product & shipped to the final consumer.

The organizations must integrate the processes which are adopted to conduct within and outside of the organizations. Simplifying inter-company procedures represents the next big opportunity to cut expenses, improve quality, and expedite operations. The productivity battles of this decade will be waged there. Those will emerge victorious. The supply chain management ensures that all the internal & external elements are integrated throughout business operations (Thoo, A. C., 2017).

According to conventional wisdom, supply chain management lies somewhere between fully vertically integrated companies, in which a single entity controls the whole material flow, and companies in which each channel member conducts business autonomously (Meijboom, 2011). As a result, cooperation between the many actors is essential to the chain's efficient administration. One way to think of supply chain management is like a balanced, well-trained relay squad. The team becomes more competitive when each player can position themselves for the hand-off with skill. Players who pass the ball directly to one another develop the strongest ties, yet winning calls for cooperation from the entire team.

2.3 Stages of Supply Chain in Navana CNG Limited

Manufacturers, suppliers, carriers, warehouses, retailers, and consumers are the key elements in a supply chain. All departments that are engaged in completing a client request are included in Navana CNG Limited's supply chain (product development, marketing, operations, distribution, finance, customer service). An essential link in the supply chain is the client. It involves the transfer of goods from suppliers to manufacturers to distributors, as well as the transfer of money, information, and goods in both ways. The terms "supply network" or "supply web" are more appropriate (Bode, C., 2017).



Figure 1. Basic Stages of Supply Chain in Navana CNG Limited

2.4 The Goal of a Supply Chain in Navana CNG Limited

Maximizing the total value created or added is the supply chain's primary goal. The net value is the distinction between the costs of the supply chain and the value added to the final products offered to the buyer. The whole profit split among a supply chain's links and intermediates is known as the supply chain surplus. The success of the supply network increases when the supply network has a supply surplus (Büyüközkan, 2011). However, the success of the supply network is calculated based on the total surplus of the supply chain, but not on the profit made at each stage.

2.4.1 Maximize the overall value created in Navana CNG Limited

The value of the supply chain is determined by subtracting the effort required by the supply chain to fulfill the customer's request from the final product's value to the customer. Value addition and success of supply chain are related to the difference between the total cost and revenue generated from customers. Every facility that affects costs and contributes to matching the product to consumer requirements is considered by supply chain management, from manufacturing and supplier facilities to warehouses and distribution centers to retailers and storefronts.

2.4.2 Maximize total supply chain profitability

The reduction of inventories of raw materials, work-in-process, and finished goods, as well as distribution and transportation, are all critical components of an efficient and cost-effective supply chain management system. Instead, then concentrating only on reducing inventory levels and transportation costs, supply chain management is being approached from a systems perspective. The supply chain (information, components, assembly, transit, storage, etc.) incurs costs. Supply chain effectiveness is based on the total turnover allocated throughout all the

stages of the supply chain. The overall profitability of the supply chain should be utilized to determine success rather than individual-stage earnings. Sources of income from the supply chain: the customer. The sources of supply chain expenses are the exchanges of goods, money, and information between supply chain stages.

2.5 Activities of Supply Chain Management in Navana CNG Limited

Three activities occurred in the supply chain management in Navana CNG Limited where various departments of the company focus on:

2.5.1 Strategic Activity

The Strategic choices made by the board of management imply that the entire business strategy is made at this level, including those involving the number and location of manufacturing plants, distributors, products to be produced, and target markets. These decisions do have a great effect on the future of the company. Decisions such as distributor selections, merchandise strategy, internal & external manufacturing strategic alliances, and the movement of merchandise throughout the logistics network are included (Hossain, S. R., 2021).

2.5.2 Tactical Activity

The management adopts strategies for cost savings as the focus of tactical decisions. Examples of tactical strategies include leveraging best practices in the industry, creating a plan with preferred distributors, and collaborating with logistics partners to design an affordable delivery and warehouse system to lower the cost. Updates to these decisions usually occur once a quarter or once a year. The management makes contingency decisions about production and purchases, inventory control procedures, and transportation plans, such as how frequently to visit clients (Hossain, S. R., 2021).

2.5.3 Operational Activity

All the decisions at this level are taken to ensure that the supply chain management is enabled to move products along the supply flow. The operational activities are fundamentally involved in making changes to production, formulating agreements with suppliers, moving products into the warehouse and taking & delivering orders to customers. Such decisions are changed daily to ensure that decisions are up-to-date with everyday needs such as scheduling, lead time quotations, routing, and truck loading (Hossain, S. R., 2021).

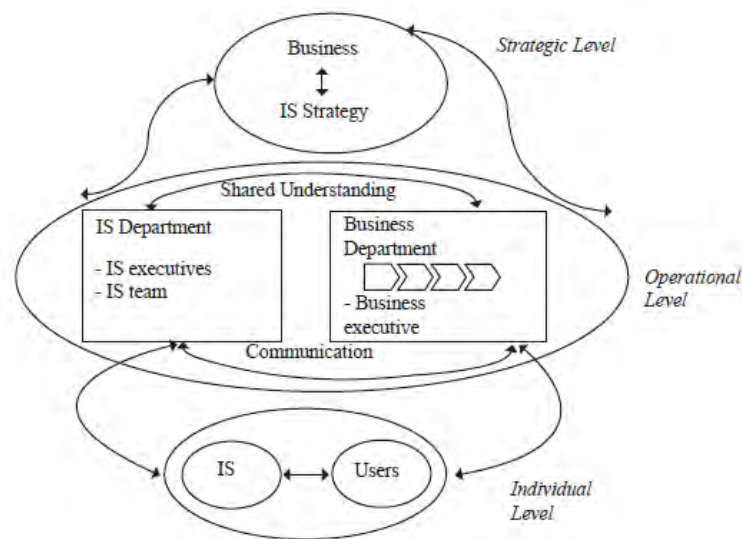


Figure 2. Activities of Supply Chain Management in Navana CNG Limited

2.6 Supply Chain Decision-making Framework in Navana CNG Limited

Supply chain drivers are responsible for the performance of a supply chain. Navana CNG Limited has a good understanding of supply chain drivers to understand supply chain performance. The absence or weakness of some drivers can be an obstacle to the supply chain decision-making framework. Therefore, we need to examine logistical and cross-functional drivers such as plans, inventory, conveyance, data, sourcing, and valuing of products. These drivers cooperate closely to regulate the performance in the supply chain framework (Carter, C. R., 2008).

Supply Chain Decision-Making Framework

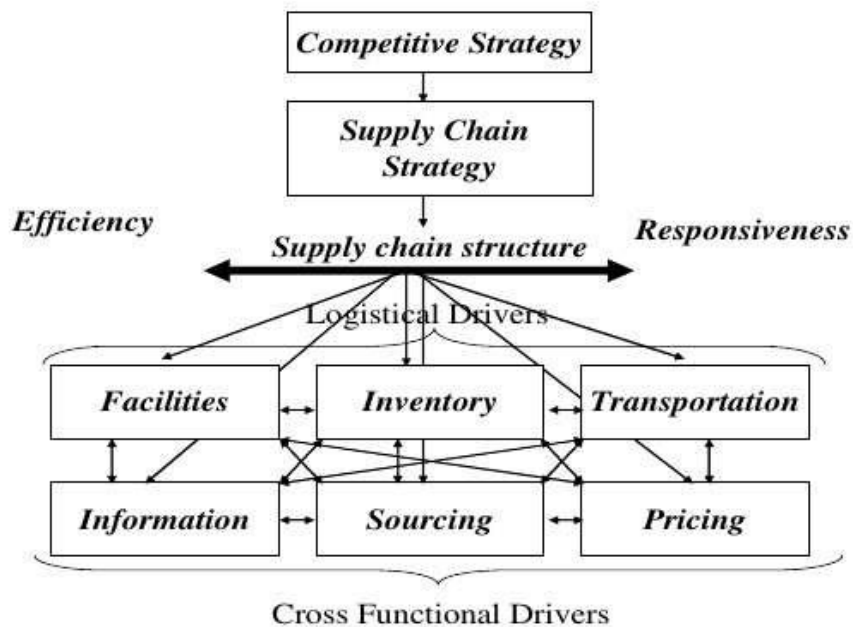


Figure 3. Supply Chain Decision-making Framework

2.7 Decision Phases in a Supply Chain in Navana CNG Limited

At Navana CNG Limited, effective supply chain management involves many critical decisions related to the upward & downward stream of information, products, and resources. These critical decisions fall into three types or phases, dependent on the occurrence of each decision and the time frame (Hossain, S. R., 2021).

2.7.1 Supply Chain Design

The supply chain is structured and configured during this phase at Navana CNG Limited. It is designed to how many resources will be assigned, and what activities and objectives in each stage will be achieved. Strategic decisions made by companies include:

- An optimum place and capacities of the warehouse and production facilities of Navana CNG Limited to deliver products at the right time.

- The desired products to be manufactured or stored at warehouses near the distributors.
- The methods of transportation are available along the different shipping points.
- Various types of information systems are available & ready to be implemented.

2.7.1.1 Location

In the supply chain designing process selecting an optimum geographic area for production facilities, supplying, and storing points is the first step in creating a supply chain. In Navana CNG Limited, the optimum location of production facilities involves a continuous flow of resources to factories without any obstacles & easy delivery of the products to distributors over a long period of time. The management established production facilities in Dhaka with large-size production units through which the product can easily be delivered to the distributors. These decisions for an optimum location are of great consequence to Navana CNG Limited, since these basic strategies enable the products to access the markets and greatly affect profit margin, and service model. Navana CNG Limited determines an optimum route for transportation from the location of production facilities that reflects the total production costs, taxes & tariffs, local competitors, and distribution costs (Hossain, S. R., 2021).

2.7.1.2 Production

In the supply chain designing process, selecting the right type of raw materials, targeted goods & types of machinery for production includes which types of products should be produced, which plants should be developed to produce them, the allocation of resources & finished goods from dealers to plants, plants to distributors, and distributors to target markets. These decisions for production do have a excessive effect on the profit margin and service of Navana CNG Limited. These decisions of Navana CNG Limited determine the future roadmap through which a product should flow in and out of these production facilities. However, there are alternative issues the capability of the production facilities and the vertical integrations within the firm determine the effectiveness of the production (Hossain, S. R., 2021).

2.7.1.3 Inventory

In the supply chain designing process, organizations need to maintain inventories at every stage in the form of raw materials, and unfinished or finished products. The primary purpose of Navana CNG Limited is to safeguard against any risk that might occur in the supply chain during production or shipping. Since keeping inventories is as costly as 25 to 35 per cent of their value. Navana CNG Limited's efficient inventory management is crucial in supply chain operations. The top management of Navana CNG Limited sets goals to maintain the working inventory for future & present purposes. However, Navana CNG Limited's top management has approached inventory management from an operational perspective to reduce the working delay in the supply chain. These decisions included deployment strategies (push versus pull), control pricing policies to determine the optimal order quantities and reorder points, and avoiding less than optimum inventory levels, at each optimum warehouse (Hossain, S. R., 2021).

2.7.1.4 Transportation

In the supply chain designing process, organizations need to formulate a mode of transportation. In Bangladesh, Navana CNG Limited uses trucks as a mode of transportation to send CNG products to distributors. Navana CNG Limited has a strong transport mode by which Navana CNG Limited handles the conveyance costs proficiently and appropriately. Therefore, customer service and the location of manufacturing plants & warehouses play vital roles in developing transportation decisions. Since transportation covers 30 per cent of the total logistics costs and operation costs (Hossain, S. R., 2021).

2.7.2 Supply Chain Planning

The supply chain planning process begins with a forecast of the demand for the production in future. Therefore, Navana CNG Limited outlined the structure of the supply chain to ensure that the stream of information, money, goods & duties are properly defined. The outline established parameters within the system to reduce the irrelevant planning that should not be done. Planning establishes these parameters within the system to facilitate a proper supply chain that functions over a detailed time. Navana CNG Limited started the planning decisions

including those regarding CNG markets to which a certain production facility will supply and target to ensure production quantities at different warehouse locations.

Navana CNG Limited include ambiguity in demand, conversation duties, and competition in the market over this time horizon in its supply chain planning decisions. Navana CNG Limited is flexible to incorporate any uncertainty within a given shorter time horizon and forecasts built into the supply chain to optimize better performance. Therefore, Navana CNG Limited create a set of operating policies.

Following are the planning decisions undertaken in the supply chain:

- What locations will supply which markets?
- Anticipated inventory expansion
- Outsourcing, backup location
- Guidelines for inventory
- Quantity and schedule of marketing initiatives

2.7.3 Supply Chain Operations

Within the weekly or daily time frame, businesses determine the course of action for individual orders. At this level, the supply chain arrangement is fixed and planning strategies are already in place. There is minimal unpredictability regarding demand details as operational choices are made in the short term (minutes, hours, or days). The goal during the operational phase is to capitalize on the decrease in uncertainty and improve performance. The primary emphasis here is on effectively implementing operational policies. The objective of supply chain operations is to handle incoming customer orders in the most efficient way.

During this phase, the following tasks are carried out:

- Inventory or production is allocated to particular orders by companies
- A deadline is set for completing an order
- Pick lists are generated within a warehouse
- Specific shipping method and shipment are allocated to an order
- Delivery schedules for trucks are established
- Inventory replenishment orders are placed

2.8 Supply Chain Management Process

2.8.1 Forecasting

Production based on forecast demand is known as push production, while production based on actual or consumed demand is known as pull production. NAVANA CNG LIMITED generally employs push production using statistical forecasting techniques to predict future demand. These techniques offer insights into historical and seasonal trends and aid in assessing the impact of promotional activities. However, NAVANA CNG LIMITED acknowledges that statistical forecasts can only serve as a guide, and the most accurate forecast results from collaboration among all relevant parties. The demand planning solution includes a basic statistical forecast and a collaborative system for coordinating with retailers (Sakib, N., 2019). Mat Plan is the in-house software that enables seamless management of NAVANA CNG LIMITED's supply chain operations.

ROFO Circulation: The relevant business head approves a six-month rolling forecast (ROFO) circulated for approval each month. The Marketing Manager, Product Manager, Executive, or any other relevant person from the respective business is responsible for preparing the forecast. The forecast is generated in Excel format and requires approval in a specific hard copy format. "MatPlan" manages the ROFO and distributes it to the Commercial, Finance, Production, Warehouse, Quality Assurance, and other related departments. The forecast is for 10 days ahead of the preceding month's timeframe. For example, the ROFO for February to July (6 months) must be provided by the 20th of January. The first three months of the ROFO will be locked and no changes will be allowed, while changes can be made for the fourth month.

Production Plan: The production plan for the upcoming six-month period must be submitted by the production manager or relevant staff, at least 1-5 days before the start of production as per the specified schedule. The production or commercial department is responsible for entering the production plan into "MatPlan." The commercial team must compare the production plan with the Requested Order for Order (ROFO) to identify any discrepancies. If any significant differences are found between the production plan and the ROFO, the production team must address and resolve these inconsistencies.

2.8.2 Sourcing Supplier

In today's interconnected global business landscape, NAVANA CNG LIMITED increasingly relies on third-party suppliers for raw materials, component or product manufacturing,

assembly, logistics, distribution, and various services. The importance of suppliers underscores the need for cooperative supplier partnerships. Developing a collaborative partnership requires significant dedication and time. (Hossain, S. R., 2021).

Approved Vendor List: The suppliers for Raw Materials and Packing Materials are documented by the Commercial Department according to the International Standard Organization's specified format. Approval of this list of vendors is required by the Quality Analyst. Additionally, the Commercial Department is tasked with maintaining a supplier list for Finished Goods and repacking items, both of which necessitate approval from the Business unit or quality analyst.

Vendor Enlistment: Before engaging with NAVANA CNG LIMITED, local vendors must be registered. Vendors are required to submit all necessary documents and a forwarding letter to the Materials Controller in the prescribed format. The Commercial Department then assesses the vendor's competence and may conduct a site visit if necessary. The supplier is granted a qualification letter to work with NAVANA CNG LIMITED upon achieving satisfactory results.

Preferred Supplier: The items which require a special design or process to follow, Commercial can consider the preferred supplier concept of selecting and authorizing a supplier based on the cost, reputation, reliability and timeliness. A detailed item-wise cost analysis with regular review is done for considering a supplier as the preferred supplier. After that, an agreement is made with such a supplier.

Vendor Evaluation: The vendor needs to be evaluated in each year. Such vendor evaluation needs to be done in the prescribed format. The vendor is informed regarding the evaluation and they are asked to improve where required.

Vendor Profile: Within the vendor profile created by the commercial department, you will find the following information:

- Vendor address details
- Contact person's name and address details
- Product list
- Financial stability
- List of other companies they provide supplies to

- Factory address
- Purchase history of NAVANA CNG LIMITED from this supplier
- Reports on non-compliance, problem notifications, and other quality analyses related to this supplier
- Status of any claims

2.8.3 Procurement

The function of procurement in business management involves identifying, sourcing, accessing, and managing the external resources necessary to achieve the company's strategic goals. Novak and Simco defined procurement as "the act of buying activities which are necessary to acquire goods and services consistent with user requirements," which is a similar definition used by other authors. (Hossain, S. R., 2021).

The procurement process of NAVANA CNG LIMITED is transitioned from a bid-and-purchase approach to one in which important suppliers are involved throughout the product development stage. This shortens the duration of the product cycle. Consequently, suppliers and buyers must establish strategic alliances globally. The actions that the Department of Procurement took are outlined below:

- **Material Requirement Planning**

Production plans are prepared along with the appropriate purchase requisitions. As a result, the generation of material requirements occurs concurrently with the generation of downstream production and distribution requirements. NAVANA CNG LIMITED is able to keep a low inventory of raw materials by renewing material plans on a par with production plans. To guarantee success, however, the supplier must be just as adaptable and involved in the material planning procedure (Hossain, S. R., 2021).

The commercial department develops an MRP based on the production schedule and ROFO during the first week of the month. For opening L/C in the month, a purchase requisition (PR) is produced taking into account material stock, lead time, finished good coverage, uses of

corresponding finished goods, and lead time. Every PR is made, and each one has a unique number.

- Details taken from the MRP file
- Present inventory
- The requirement for the next five months
- Monthly requirement Production prerequisite
- Lead time Sales pattern
- Use during the last five months; any expired goods that can be retested
- Cost and Minimum Order Quantity
- Potential for future shortages
- Any global crises, including RM and PM, that will impede output in the future
- Any pressing need for manufacturing and business

- **Requisition:**

Commercial purchases may also be made in response to requests made by businesses. With the head of business's approval, the marketing department fills up requisitions in the required manner, giving ROFO, current stock, and other required papers. Every purchase request is given a number by the commercial department (Hossain, S. R., 2021).

Negotiation and Gathering of Quotations: Commercial obtains quotes using the Purchase Requisition number from all authorized manufacturers and suppliers. Commercials then bargain to get the best feasible price reduction from all suppliers or manufacturers.

- **Comparative Statement:**

For every import or purchase, a comparison statement is created with reference to the Purchase Requisition number. Unless there is a strong cause to choose a different supplier, the lowest bidder receives the commercial order, with consideration given to MOQ and delivery. Additionally, the commercial attempts to include industry pricing in the comparative analysis. Materials Controller and Head of Business approval is required for this comparative statement. The next bidder will be required to produce indent if the previous bidder fails to do so before the stipulated deadline. The Head of Business and the Materials Controller must also authorize

any changes made to the comparative statement. The comparison statement provides the following details:

- Code Number
- Material Name
- Supplier Name
- Amount to be acquired
- Present inventory
- Name of producer
- Price of each product
- Last price of the product

- **Quality Analysis Report:**

It is anticipated that within 15 days after the GRN date, QA will test the material. Any significant irregularity discovered by QR should be reported right away to Commercial. Commercial will raise and resolve the claim based on the anomaly discovered by going through the first two steps. When there is an abnormality related to an insurance claim, QA should promptly alert Finance and Commercial.

- **NCR and Test Report:**

In order to comply with the Quality Analyst Standard Operation Procedure, the purchaser will make every effort to provide all the necessary documents for testing purposes. In the event that a problem is detected with a missing parameter in the Certificate of Analysis, the purchaser will promptly notify the supplier and work with them to update the Certificate of Analysis accordingly. In the event that a Non Compliance Report (NCR) arises, the purchaser will notify the supplier to take the necessary corrective and preventive action (CAPA) and, if necessary, a claim will be raised and settled in the case of the NCR.

- **Expiry Items:**

Commercial should request a re-evaluation in accordance with the Quality Analysis Standard Operation Procedure based on the QA expiration report. Requests for business and

manufacturing to use materials before they expire should be made. Business will verify if ROFO can be modified to include the specified material, and production will verify if manufacturing can be completed ahead of schedule in accordance with ROFO. While waiting for the required documentation from the supplier to conduct the material test after expiration, the buyer should also make this request. Should the material be returned or rendered useless, the buyer will review the MRP for any potential future needs (Hossain, S. R., 2021).

- **Block List Approval:**

The buyer will keep in continuous contact with the relevant individual who approves the block list. The concerned buyer should bring forward any need for a new block list or revision as soon as possible. Before opening any new L/C, the purchaser will verify whether prior approval is available on a block list. If the Drug Administration Authority's Block List permission is not available, no L/C may be opened. The buyer will also confirm whether the recipe approval is available for that particular item.

- **Procurement from Exclusive Supplier:**

Prior to designating a supplier as exclusive, Business/Commercial must provide evidence supporting their decision. A contract must be completed with this supplier. The approval of this agreement is required from Business, Commercial, Finance, and Legal. The product's quality will be verified by a business unit or quality analyst. Prior to any deal, Commercial will discuss the price with such an exclusive supplier. There ought to be no pricing arrangement. Prior to every transaction, the commercial department would compare prices with other suppliers and negotiate a better deal. After verifying the state of the inventory, Business will, in accordance with the agreement, raise a requisition or ROFO to Commercial for price negotiation and L/C opening. Commercial shall verify NOC and other prerequisites in accordance with import policy or SRO. The business will be in charge of gathering (Hossain, S. R., 2021).

- **Procurement with Exception:**

In the event of an unexpected demand resulting from a nationwide increasing demand, commercial entities may need to promptly get merchandise. In this situation, the business

department raises a ROFO or requisition and provides a sales plan to support the procurement. Commercial will haggle over delivery and price. Commercial will verify the delivery date to the business prior to procurement. The business will confirm and certify the product's quality (Hossain, S. R., 2021).

- **Requirement of Certification for Import:**

In accordance with Import Policy Order 2022-2023, Commercial will verify the document and certificate availability prior to opening a Letter of Credit (L/C) for the CNG related products and other items specified in the Import Policy and other SROs. The aforesaid certification requirement is contingent upon the import policy and SROs remaining valid. The requirements will also alter in the event that the import policy and SRO change.

Weekly Concern Purchaser Checklist:

- o Sunday: Purchase plan by export orders, tenders, requisitions, campaigns, and MRPs.
- o Monday: Issues with Quality Assurance, Development of Alternative Sources, and Status of Claims.
- o Tuesday: Vendor list, product profile, vendor profile, stock status, and sales trend analysis.
- o Wednesday: Budget, savings, negotiations, and production follow-up.
- o Thursday: Block list, other approval, software development, education, and training

Other than the above, the purchaser also needs to perform regular activities according to his job description and responsibilities.

2.8.4 Inventory

The management of warehouses focuses on storage, reducing labor expenses, granting permission for timely delivery, providing sufficient space for loading and unloading, and implementing a system for managing inventory to minimize the company's costs. Improved communication between the procurement and warehouse departments helps optimize the levels of inventory (Hossain, S. R., 2021).

2.8.5 Transportation and Logistics

The collaboration of the transportation of goods from the place of origin to the point of consumption to fulfill the requirements of businesses or guests is called logistics. According to the Council of Logistics Management, preliminarily known as the Council of Supply Chain Management Professionals, logistics involves the planning, prosecution, and supervision of processes to insure the safe and effective movement of products, services, and related data from the point of origin to the point of consumption to meet client demands. This process includes inbound, outbound, internal, and external movements within & outside of the Navana CNG Limited (Hossain, S. R., 2021).

Transportation Modes: NAVANA CNG LIMITED often travels in two different ways.

1. Ground transportation: Transporting goods and freight by means of automobiles or infrastructure, including roads and railroads, is known as ground transportation, or land transportation. In general, ground transportation is less expensive than air, but it can be more costly than sea transportation, particularly in poor nations like Bangladesh where inland infrastructure is inadequate.
2. Air transportation: Air freight was carried on dedicated cargo planes as well as in passenger plane luggage compartments. The quickest and most costly method of long-distance freight transportation is usually air freight. Airlines that specialize in flying freight transportation are known as cargo airlines. A few freight airlines operate as subsidiaries or divisions of bigger passenger airlines.

2.8.6 Distribution

The goal of NAVANA CNG LIMITED's distribution system is to replace supplies at the client site immediately, which will thereafter be used to fulfill demand, rather than to meet immediate need. This makes the system extremely complex. However, the distribution network's complexity can also be a benefit because a flawlessly efficient and effective distribution system can provide a significant competitive edge (Hossain, S. R., 2021).

Retailers are the ones who offer clients with NAVANA CNG LIMITED's products rather than the company directly. Products are distributed to different retail stores by NAVANA CNG LIMITED from its local warehouses. Sales representatives employed by NAVANA CNG LIMITED persuade stores to exhibit or purchase NAVANA CNG LIMITED merchandise. The end users purchase NAVANA CNG LIMITED products after they leave the retail stores.

The business keeps strategically placed sales centers spread out over the nation. With the help of its vast fleet of more than 80 trucks, more than 300 professional and qualified employees, and 18 strategically placed depots, it has established an advanced distribution system. The capacity and effectiveness of depots determine the maximum quantity that can be sold. Within two months, each depot is expected to sell at least 70,000 pieces of merchandise to distributors.

The distribution network can handle an ongoing volume of a wide variety of items from different companies. The distribution centers of the organization are extremely automated, computerized, and streamlined. We can keep some specialty items, including insulin and vaccinations, in a cold chain. The efficient handling of hundreds of products was made feasible by the combination of this sophisticated function and multidimensional capabilities (Hossain, S. R., 2021).

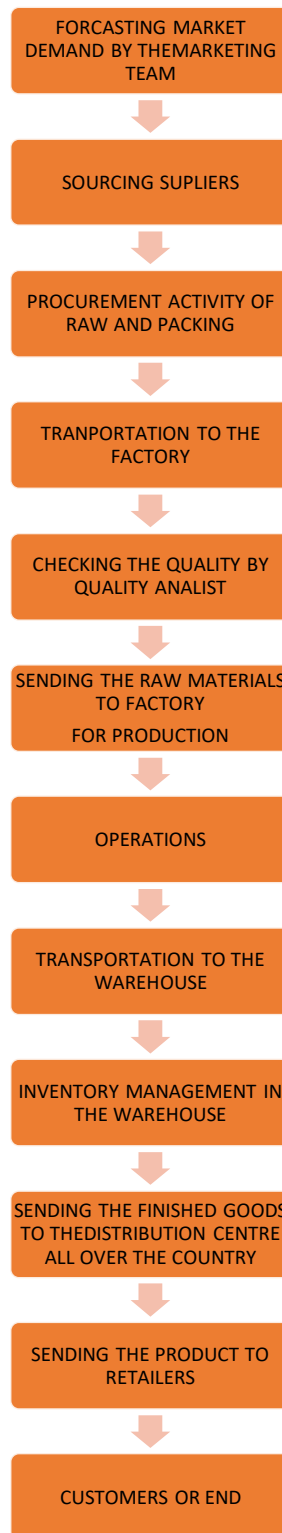


Figure 4. Supply Chain Management Process

Chapter 3

Findings

3.1 Major Findings

3.1.1 Supply Chain Management in Navana CNG Limited

- Navana CNG Limited's marketing managers and strategists have defined their company strategy for product description, delivery, and promotion using the "Four P's" model of the marketing mix.
- Target production amounts at various places and decides which markets need a certain manufacturing facility to ensure the supply of products.
- Navana CNG Limited's competitive strategy identifies the range of client needs which allows it to meet with its goods and services. It comprises affordable, quick turnaround times, unique product offerings, etc.
- The flow of resources—money, information, and materials—is integrated, coordinated, and tracked by the supply chain.

3.1.2 Supply Chain Network in Navana CNG Limited

- Distribution channels in Navana CNG Limited have a major effect on the supply chain costs along with client satisfaction to ensure company's overall profitability.
- These supply chain networks can now be automated in real-time, thanks to emerging technologies and standards, which makes them more effective than the straightforward traditional supply chain.
- Since reducing operating expenses is crucial, Navana CNG Limited's supply chain network optimization objectives outperform those of rivals. The distribution network selection helps the supply chain meet its goals, which range from low cost to high responsiveness.
- The quantity of complex supply chains is growing. Thus, one of the most important factors in reducing operating expenses is the distribution network architecture which is the focus of Navana CNG Limited's supply chain networks.
- The outcome of several distribution network designs the customer service and the expenses of delivering service are compared to formulate a better supply chain network in Navana CNG Limited.

3.1.3 Designing and Planning Transportation Networks

- The foundational component of the supply chain of Navana CNG Limited is the transportation system. It unites the divided endeavors. The costs associated with the supply chain are made up of one-third for transportation.
- The physical elements of the system of Navana CNG Limited that are fixed in place and make up the transportation system's network of linkages and nodes are known as fixed facilities.
- Shippers and carriers are the two main participants in the transportation that occurs inside a supply chain.
- Navana CNG Limited's capacity to compete in global trade, is significantly influenced by the quality of its transportation infrastructure. The state of the transportation infrastructure primarily determines the placement of global industries and the competition for new exports.
- Transportation advancements as well as trade policy liberalization are the main causes of the increased globalization of international trade in many nations. Therefore, Navana CNG Limited funded the transportation infrastructure.
- The infrastructure of Navana CNG Limited is financed through public or private sources.
- The customized network of Navana CNG Limited combines supply chain services with the main product to provide each client with a value-added, specially-built product that meets their needs.
- Navana CNG Limited optimize routing and scheduling to save transportation expenses, meet customer responsiveness commitments, and expedite deliveries.

3.1.4 Sourcing and Pricing

- Sourcing strategy includes defining price strategies, supply chain requirements, procurement strategy, and the planning, developing, and construction of a dependable and competitive supplier base.
- Single sourcing involves obtaining a good or service from multiple separate suppliers. Sometimes, Navana CNG Limited use it to encourage healthy competition among its suppliers to obtain lower prices and improved quality.

- Third-party logistics (3PL) is engaging outside companies to carry out logistical tasks that were previously completed by internal departments.
- The procedure of rating providers is the initial step in the evaluation process of Navana CNG Limited. This process makes possible to perform in terms of lead time, delivery, item quality, cost, service quality, etc.
- Exclusive talks between Navana CNG Limited and a supporter without going through a truly competitive process to ensure direct negotiations.
- Navana CNG Limited use many ways to boost revenue that fall under the umbrella of revenue management. To maximize revenue growth, it optimizes product availability and price and forecasts consumer behaviour at the micro-market level.

3.1.5 Information Technology in the Supply Chain

- The movement of goods and information between the organizations that make up the supply chain is the focus of supply chain management or SCM.
- Decisions about a plant's location, volume, development, demand, exchange rates, taxes, and other factors must be made. Information regarding the trade-offs between flexibility and efficiency is also necessary.
- Customer relationship management refers to the processes, applications, and online resources that assist an organization in managing its customer interactions in a structured manner. It is a commonly used tactic for controlling a business's communications with clients, consumers, and potential customers.
- Internal supply chain management encompasses all procedures related to organizing and completing an order for a customer.
- SRM aims to increase efficiency and effectiveness in the processes that an organization uses with its suppliers.
- There needs to be appropriate management when carrying out a transaction. ERP (enterprise resource planning) unifies management data from both internal and external sources for the whole company, including production, sales, service, and finance/accounting.

3.1.6 Coordination in a Supply Chain

- Supply chain management in Navana CNG Limited arranges the development and coordination of actions from the early stage of procurement to production. Stakeholders and processes interact with each other to perform supply chain objectives.
- Increasing competition brought about by international markets, merchandise variety, and high-tech developments inspires Navana CNG Limited to work together with stakeholders in a supply chain.
- To prevent stock-outs, programmed automated emails are used to monitor the current stock state and premeditated sales forecasts in Navana CNG Limited. When all stages of the supply chain act together, the overall profits of the supply chain are typically higher.
- Vendor Management Inventory (VMI) of Navana CNG Limited focuses on ensuring that merchandise is refilled efficiently, without any manual information such as instructions to shift merchandise between customer and supplier.

3.1.7 Dimensions of Logistics

- An efficient logistics system is crucial to a company's ability to meet its marketing and business goals. Enhancing customer service and cutting expenses are two major benefits of an effective physical distribution and logistics system.
- Logistics' macro dimensions are divided into two categories: economic implications and value-added roles. In marketplaces, buyers typically "pull" the products or information they require to meet their demands, whereas sellers or offers "push" the items toward the buyers.
- The pricing, product, promotion, location, and customer services are the points of contact between logistics and marketing.
- The static analysis method examines the expenses of a logistics system's different parts at a single output level or point in time. Reverse flows exist in certain businesses' outbound logistics systems.
- These traits are shared by businesses that manufacture copy machines, telephone equipment, and computers. Growing environmental awareness will force more businesses to create reverse logistics programs for getting rid of packaging from outdated goods. For instance, returnable goods.

- The use of procedures and instruments to guarantee the best possible performance of a manufacturing and distribution supply chain is known as supply chain optimization. This involves minimizing operating expenses (which include manufacturing, transportation, and distribution costs) and placing goods in the best possible location throughout the supply chain.
- Warehouse and transportation space are used more effectively at increasing densities. The cost of shipping and storing increases with increased damage risk. Other elements influencing the price and significance are distance, geographical relationships, and special handling needs.

Chapter 4

Recommendations & Conclusions

4.1 Recommendations

4.1.1 Supply Chain Management in Navana CNG Limited

- Navana CNG Limited's marketing managers and strategists should avoid one marketing model and use various marketing models.
- The supply chain management of Navana CNG Limited is very complex & time-consuming. Therefore, Navana CNG Limited must reduce the network gap among the departments.
- Managers should explain the decision phases, and strategies, and be specific about supply chain management to employees.

4.1.2 Supply Chain Network in Navana CNG Limited

- Needs to focus on distribution channels to reduce the supply chain expenses, as there is mismanagement in the distribution channels.
- The technologies of Navana CNG Limited need to be updated to ensure the efficiency of this large Supply Chain Network all over the country. Therefore, Navana CNG Limited must invest more in supply chain technologies.

4.1.3 Designing and Planning Transportation Networks

- The efficient utilization of transportation is essential to the success of the supply chain of Navana CNG Limited. Therefore, Navana CNG Limited needs to reduce the risk by developing a robust risk management strategy to properly handle the disruptions of products such as supply chain disruptions, fuel price instability, and monitoring changes.
- Navana CNG Limited must counsel with stakeholders, including customers, suppliers, and directing bodies, to ensure that the transportation network of Navana CNG Limited meets all requirements and expectations.
- Navana CNG Limited should implement a continuous monitoring system to ensure flawless performance in contradiction of benchmarks and make necessary adjustments.

- Navana CNG Limited should invest in advanced transportation management systems (TMS) that offer real-time tracking, route optimization, and predictive maintenance.
- The transportation department must coordinate with other departments such as supply chain, finance, and inventory management to ensure that transportation planning supports and is linked with broader corporate objectives.

4.1.4 Sourcing and Pricing

- Navana CNG Limited must establish relationships with multiple suppliers & distributors to lessen the risks associated with supply chain disturbances.
- Navana CNG Limited should create a balance between local and international suppliers & distributors to improve costs and ensure timely delivery.
- Navana CNG Limited must negotiate long-term agreements with main suppliers & distributors to secure favourable pricing and a stable supply chain.
- Navana CNG Limited should work closely with the suppliers & distributors to enhance quality, lessen the total costs, and innovate products.
- Navana CNG Limited must regularly analyse & evaluate the total costs to identify areas for savings for facilitating an optimum pricing strategy.
- Navana CNG Limited must regulate bulk purchasing to negotiate better prices with suppliers.
- Navana CNG Limited should adjust the prices of raw materials based on market conditions, demand, and competition.
- Implement Enterprise Resource Planning (ERP) systems to streamline sourcing and pricing processes.

4.1.5 Information Technology in the Supply Chain

- Navana CNG Limited must adopt the RFID tag technologies which can locate & monitor products in real-time and provide information regarding temperature, and conditions.
- Navana CNG Limited must invest in Artificial Intelligence and Machine Learning technologies which can predict future market demand, manage inventory & find best routes to provide finished products to end customers.

4.1.6 Coordination in a Supply Chain in Navana CNG Limited

- Navana CNG Limited must develop collaborative planning to share forecasted demand plans with suppliers and distributors.
- Navana CNG Limited must focus on providing key training to employees to enhance their skills in supply chain management.

4.1.7 Dimensions of Logistics in Navana CNG Limited

- Navana CNG Limited must provide training to employees for an efficient warehousing process.
- Navana CNG Limited needs to develop advance packaging system.

4.2 Conclusion

Navana CNG Limited is a wing of Navana Group. Navana CNG Limited has a systematic and integrated supply chain management though there is room for improvements in the future. In the CNG industry, supply & procurement at the right time enable efficient & effective productivity and add value to customers. Navana CNG Limited developed an effective supply chain management system to provide support regarding its operations such as CNG re-fuelling stations, conversion workshops, and the import of CNG kits. Navana CNG Limited creates an integrated supply network across Bangladesh to ensure a continuous supply of CNG & CNG-related services.

References

- Bode, C., & Macdonald, J. R. (2017). Stages of supply chain disruption response: Direct, constraining, and mediating factors for impact mitigation. *Decision Sciences*, 48(5), 836-874.
- Büyüközkan, G., & Berkol, Ç. (2011). Designing a sustainable supply chain using an integrated analytic network process and goal programming approach in quality function deployment. *Expert Systems with Applications*, 38(11), 13731-13748.
- Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: moving toward new theory. *International journal of physical distribution & logistics management*, 38(5), 360-387.
- Hossain, S. R. (2021). Distribution process of Navana LPG, challenges of distribution process and upcoming future prospects of LPG in the context of Bangladesh.
- Ibrahim, S. B., & Hamid, A. A. (2014). Supply chain management practices and supply chain performance effectiveness. *International Journal of Science and Research*, 3(8), 187-195.
- Jabbour, A. B. L. D. S., Viana, A. B. N., & Jabbour, C. J. C. (2011). Measuring supply chain management practices. *Measuring Business Excellence*, 15(2), 18-31.
- Lenny Koh, S. C., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial management & data systems*, 107(1), 103-124.
- Meijboom, B., Schmidt-Bakx, S., & Westert, G. (2011). Supply chain management practices for improving patient-oriented care. *Supply Chain Management: An International Journal*, 16(3), 166-175.
- Mensah, C., Diyuoh, D., & Oppong, D. (2014). Assessment of supply chain management practices and it effects on the performance of kasapreko company limited in ghana. *European Journal of Logistics Purchasing and Supply Chain Management*, 2(1), 1-16.
- Sakib, N. (2019). Roles of Digital marketing vs traditional marketing communication a perspective on Navana LPG Ltd.
- Thoo, A. C., Sulaiman, Z., Choi, S. L., & Kohar, U. H. A. (2017, June). Understanding supply chain management practices for small and medium-sized enterprises. In *IOP Conference Series: Materials Science and Engineering* (Vol. 215, No. 1, p. 012014). IOP Publishing.