

Report on
Supply Chain Management Practice in NIPRO JMI
Pharma Ltd.

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(BIGD), BRAC University; in partial fulfillment of the requirements for the degree of
‘Masters in Procurement & Supply Management’

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Declaration

It is hereby declared that

1. The report submitted is my own original work while completing degree at BRAC University.
2. The report is based on NIPRO JMI Pharma Ltd.
3. 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.
4. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
5. I have acknowledged all main sources of help.

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Letter of Transmittal

Prof. Dr. Hasina Yasmin,

Program Director and Assistant Dean

School of Pharmacy, BRAC University

66 Mohakhali, Dhaka-1212

Subject: PSM-606 Supply Chain Management Practice in NIPRO JMI Pharma Ltd.

Dear Madam,

It is my pleasure to present information about my entry-level position, which I was given permission to get, about Supply Chain Management Practice in NIPRO JMI Pharma Ltd.

I have done my best to finish the report with the most crucially important facts and proposed proposition in the most compact and thorough way feasible. I think this report will do the finest job of upholding the standards of an academic article.

Sincerely yours,

Md. Shana Alam Pathan

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Non-Disclosure Agreement

This agreement is made and entered into by and between NIPRO JMI Pharma Ltd. and the undersigned student of the BRAC University Student Md. Shana Alam Pathan.

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Acknowledgement

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Special thanks to the NIPRO JMI Pharma Ltd. supply chain team members who assisted me in include a real-world working situation in my report. I appreciate their exceptional cooperation, upbeat attitude, and knowledge-sharing strategy, all of which enabled me to effectively complete my report.

Executive Summary

Supply chain management includes a number of linked processes that begin with the acquisition of raw materials, continue through their transformation into finished products, and end with the effective distribution of the finished products to customers via distribution networks. The supply chain of a pharmaceutical company involves forecasting, procurement, logistics, operations, inventory management, transportation, warehouse, distribution, customer service etc. However, it is not easy to develop a standard model of supply chain management in a business organization.

NIPRO JMI Pharma Ltd. is a robust and reputed pharmaceutical company of Bangladesh and stands out as a prominent producer and exporter of pharmaceutical products. The report includes assessment of the supply chain management system of NIPRO JMI Pharma Ltd. This assessment will help the organization to develop an effective supply chain management system to obtain better performance, customer satisfaction, product quality, supplier performance, material flow integration, manufacturing machinery efficiency, and information management. The analysis will help the business to improve its plans, which eventually helps it achieve an enhanced competitive advantage. The objective of this study is to assess the extent to which the supply chain of NJPL functions; to understand its supply chain management; to identify the barriers and challenges of the NJPL supply chain; to make recommendations for overcoming the challenges and to improve supply chain management system.

In a highly competitive and regulated business, an efficient supply chain management system is essential to its success. Quality control, inventory control and cost effectiveness are the strengths of the NJPL supply chain system which results in customer satisfaction

and risk reduction. The pharmaceutical sector is a heavily regulated sector and it can be difficult to comply with many regulatory standards, such as Good Manufacturing Practices (GMP), Good Distribution Practices (GDP), and other national and international laws. Contamination, fake goods, temperature-sensitive goods, forecast errors etc. may cause supply chain interruptions of NJPL and may decrease the efficiency of the supply chain system. The resilience, effectiveness, and sustainability of NIPRO JMI Pharma Ltd supply chain may be improved by tackling the challenges and putting the suggested measures into practice. This will put the business in a better position to adapt to changing market conditions, boost customer happiness, and guarantee the company's long-term development and profitability.

List of Abbreviations

API: Active Pharmaceutical Ingredient

CRM: Customer Relationship Management

CSM: Customer Service Management

CSR: Corporate Social Responsibility

EMA: European Medicines Agency

ERP: Enterprise Resource Planning

FDA: Food and Drug Administration

GMP: Good Manufacturing Practices

GOB: Government of Bangladesh

HCP: Healthcare professional

MRP: Material Requirements Planning

NJPL: NIPRO JMI Pharma Ltd.

SRM: Supplier Relationship Management

SCD: Supply Chain Development

SOP: Standard operating procedure

WHO: World Health Organization.

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Chapter-1: Introduction

1.1 Supply Chain Management

Keith Oliver defined in 1982 the Supply Chain concept as follows: “Supply chain management is the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption” [1].

Every step of the process needs to be carefully planned and carried out in order for supply chain management to be effective. It includes choosing suppliers, overseeing interactions with them, predicting demand, and making sure inventory levels are optimum to satisfy client needs. Logistics, which deals with moving products from one place to another, and inventory management, which deals with monitoring and managing the movement of products into and out of warehouses and distribution centers, are important concepts in supply chain management.

Supply chain management is the control of the flow of goods and services, and it encompasses all processes that turn raw materials into completed goods. In order to maximize customer value and gain a competitive edge in the market, it involves the purposeful simplification of a company's supply-side processes [2].

1.1.1 Five Stages of Supply Chain Management

Supply chain management may be divided into five stages:

Plan. Organizations establish strategies to satisfy consumer demand for products and prevent a shortage using supply chain analytics and materials management tools in ERP systems.

Source. In accordance with agreements, organizations seek and choose suppliers who can provide materials in a streamlined and effective manner. Collaboration in the supply chain begins at this point and is crucial throughout the supply chain management process.

Make. Products are made in this stage. Production scheduling, testing, ensuring compliance standards are met, packing, storage, and release are all included. Particularly for bigger businesses, there may be several machines engaged, and they increasingly make use of IoT and AI technology to operate more effectively.

Deliver. The logistics-related delivery stage is concerned with getting finished products to customers via any necessary modes of transportation.

Return. All product returns, including those for damaged or unsupported goods, are included in the return stage. Additionally, this level incorporates components from earlier stages, such as inventory and transportation management [3].

1.1.2 The Functions of Supply Chain Management

Suppliers make an attempt to design and operate supply chains that are as effective and cost-effective as feasible through supply chain management. Production, product development, and the information systems required to manage these activities are all covered by supply chains [4].

Five fundamental duties underlie supply chain management:

- Operations
- Purchasing
- Logistics
- Resource Management
- Workflow for Information

Supply chain management encompasses tasks ranging from the acquisition of raw materials and their transformation into completed items to assuring timely delivery to the final customer in order to preserve the equilibrium between demand and supply. Consequently, supply chain management is a company's lifeline [5].

1.1.3 Role of Supply Chain Management

By facilitating the interchange of commodities between firms and customers, supply chain management lays the groundwork for economic growth. The entities participating in the supply chain, which comprise the following, are what make up its vital function and enable its effects on economic growth:

Manufacturers: These are the businesses that transform raw resources into products for end users, producing the goods that are offered for sale. Not all supply networks result in tangible goods. For instance, in the energy industry, energy producers create a type of energy for human use from raw resources like coal.

Vendors: Vendors, also known as sellers, supply the following link in the supply chain with goods. Vendors can also be manufacturers.

Warehouses: The items need to be stored once they have been sold. For individuals participating in the next stage of the supply chain, warehouses are frequently found in busy areas where they may be purchased and shipped to distribution centers.

Distributing points: Regional facilities known as distribution centers store the goods that will later be transferred to wholesalers, retailers, and, occasionally, end users directly. For the preservation of perishable goods, a distribution facility may have refrigeration capabilities.

Retailers: Retailers, who offer goods to customers directly in malls, stores, and online, are at the end of the supply chain [6].

1.1.4 Importance of Supply Chain Management

Business performance may be revolutionized through supply chain management. Revenue growth and increased profit margins are correlated. The advantages of supply chain management extend beyond financial gain. Cost, waste, and time may all be reduced by system optimization. Let's examine the three basic justifications for supply chain management's significance.

Boost Customer Service: The whole customer experience is protected by a seamless supply chain management system.

Reduce Operating Costs: Without putting the consumer at danger, cost reduction may be beneficial at every step of supply chain management. Technology saves time and provides information that will aid with future advancements and better decision-making.

Enhance Financial Position: Long-term plans are frequently rendered invalid by geopolitical, environmental, and other unforeseen events, which causes a gap between financial and operational supply chain goals [7].

1.1.5 Advantages of Supply Chain Management

A supply chain starts with the acquisition of products and resources from a supplier, then travels on through the manufacturer, wholesaler, and retailer before concluding with the delivery of the produced commodity to the customer.

Better Effectiveness

Businesses may more correctly estimate demand and meet it when their supply chain activities, which include resource acquisition, logistics, and delivery, are strategically planned and carried out. This increases a company's ability to adapt to disruptions, constantly changing markets, and shifting industry trends.

Cost-Effectiveness

Inventory management is a component of supply chain management that, when well planned and carried out, may contribute to cost reduction. Supply chain management features inventory management software that enables managers to take use of an on-demand or lean inventory model in order to maximize the results of internal inventory.

Qualitative Advances

The quality of a company's goods and services, which are created in accordance with international CSR standards and guidelines, is directly impacted by responsible supply chain management. Both sustainability and client satisfaction are facilitated by this compliance.

Continuous Cash Flow

The ability of supply chain management to support data-driven decision-making and successful collaborations is one of its key advantages. In order to effectively adapt to

changes and disruptions, there are also techniques and technology in place to undertake predictive analysis of prospective hazards.

Lowers legal obligations

Effective supply chain management assists businesses in avoiding bad press and legal penalties that arise from transgressions of international CSR norms [8].

1.2 Supply Chain Management in Pharmaceutical Industry

Supply chain management is a key component in maintaining the safe and effective distribution of pharmaceuticals and healthcare items. It includes various functions like raw material sourcing, product manufacturing, logistics utilization, inventory management and distribution.

Here are some essential elements and things to think about while managing the supply chain for pharmaceuticals [9].

Active pharmaceutical ingredients (APIs) and excipients are examples of raw materials that pharmaceutical companies must source from reputable vendors. It is essential to guarantee the caliber, safety, and regulatory compliance of these materials [10].

Production: Producing pharmaceuticals entails converting basic ingredients into finished dosage forms. Optimizing production procedures, overseeing quality control, and following good manufacturing practices (GMP) regulations are all essential components of effective supply chain management [11].

To maintain product safety and efficacy, the pharmaceutical sector must implement strict quality control procedures. Laboratory testing is used as part of quality assurance procedures to ensure the reliability and integrity of manufactured products.

Regulatory Compliance: The pharmaceutical supply chain must comply with a number of laws and standards, including Good Manufacturing Practice (GMP), Good Distribution Practice (GDP) and relevant international laws set by the European Medicines Agency (EMA) or organizations. US Food and Drug Administration (FDA).

Packaging and Labeling: Appropriate packaging and labeling is crucial for product identification, traceability and regulatory compliance. It is the responsibility of supply chain managers to ensure that labels are accurate and contain patient data, batch numbers, expiration dates and barcodes.

Cold chain management: Many pharmaceutical items, including vaccines, biologics and some prescription drugs, need to be transported and stored under temperature control. To avoid product deterioration and ensure patient safety, the integrity of the cold chain must be maintained.

Logistics and Distribution: Dependent on an efficient distribution network for timely supply of pharmaceuticals. Order fulfillment, warehousing and shipping processes are optimized by supply chain managers, taking into account factors such as safety considerations, product stability and regulatory requirements.

Stockouts and overstocking are less likely with effective inventory management. By monitoring demand patterns, supply chain managers can reduce waste, increase product availability, and optimize inventory levels.

Risk management: Pharmaceutical supply chains face a variety of risks, including supply disruptions, counterfeiting, and regulatory non-compliance. By using risk mitigation techniques such as dual sourcing, supplier audits and track-and-trace systems, these risks can be reduced.

Collaboration and information sharing: For supply chain management in the pharmaceutical sector to be successful, manufacturers, distributors, healthcare providers and regulatory agencies must collaborate. By sharing accurate and timely information, supply chain efficiency, transparency and decision-making are all improved.

Pharmaceutical supply chain management is essential if patients are to have access to safe and effective treatments. To encourage openness, traceability and efficiency across the supply chain, the sector is using cutting-edge technologies such as blockchain, Internet of Things and data analytics.

1.3 Objectives of Supply Chain Management

The technique of managing the flow of goods and services across various locations and processes is known as supply chain management. From the point of origin to the point of consumption, it covers the storage and transportation of raw materials, work-in-process inventories, finished goods, and end-to-end order fulfillment.

Increasing Effectiveness

Efficiency is one of the most important goals of supply chain management. Minimizing waste is linked with efficiency. Waste can take many different forms, including wastage of resources, money, labor hours, delivery times, and many other things. A vital aspect of supply chain management is minimizing waste.

Enhancing Quality

Waste management is just one aspect of supply chain management. Making ensuring the product is of the greatest caliber is another important goal. Adherence to numerous customer-specified quality qualities, from performance to particular features, can be

described as quality assurance. This entails following laws governing food safety, exhibiting moral behavior, using sustainable techniques, and taking other related acts.

Cutting Costs

Supply Chain Management seeks to lower a company's operational costs. By creating an optimized supply chain, it minimizes the cost of all forms of company costs, including the cost of buying, producing, and shipping items. Allowing a seamless flow of raw materials between a supplier and a firm and the movement of finished goods between a company and its clients can reduce the holding period for both raw materials and finished goods. As a result, losses are minimized and corporate expenses are kept to a minimum overall.

Improving client satisfaction

Maximizing customer happiness is one of the most important goals of supply chain management. The most efficient way to provide customer support is by far through your supply chain. Pricing and delivery, which are two of the most important factors in customer satisfaction, are directly impacted. You may surpass your rivals in terms of retail price and profitability by having an effective supply chain.

Better Distribution

Supply chain management helps businesses since it simplifies the distribution process. Proper coordination between different transportation lines and warehouses is required to enable the quicker transit of products. With the use of supply chain management, companies may cut expenses overall while also expediting product delivery. As a consequence, the entire distribution system is enhanced, making it possible for items to be delivered at the proper time and location.

It focuses on how your company obtains the raw materials required to make a product or service, manufactures that product or service, and distributes it to clients. Supply chain management is a combination of art and science. Supply chain management main objective is to maintain a company's viability and ultimately lead it to success supply chain management also aims to increase productivity and quality, reduce costs, optimize delivery and distribution, and provide consumers the best possible experience. The foundation of each company is, in fact, supply chain management [12].

1.4 NIPRO JMI Pharma Ltd.

The pharmaceutical industry is heavily regulated and involves complex processes that call for precise coordination and control, making supply chain management a crucial component of the sector. The pharmaceutical industry's supply chain involves a number of different parties, including producers, wholesalers, distributors, hospitals, and customers.

Bangladesh most reliable and well-known pharmaceutical company is NIPRO JMI Pharma Ltd (NJPL). NJPL headquartered in Dhaka, Bangladesh. The company is a joint venture between NIPRO Corporation, and JMI pharmaceutical company. NJPL was established in 2010 with the objective of providing high quality pharmaceutical products at affordable prices to the people of Bangladesh and other countries. The company manufactures a wide range of drugs including antibiotics, cardiovascular drugs, anti-diabetic drugs. The mission of providing high quality medicines at reasonable prices to the people of Bangladesh and other countries. The company manufactures a variety of drugs, cardiovascular drugs, anti-diabetic drugs and other medical products. NJPL are engaged in manufacturing and marketing of pharmaceutical products in compliance with

GMP guidelines recommended by WHO (World Health Organization) [13].NJPL is dedicated to ensure its world class products through HCP (Healthcare professional) for the ailing humanity of the country and beyond. We focus on innovative ideas into our practices. We want to make our organization a national healthcare brand with global magnitude.

1.5 Purpose of the Study

The supply chain includes all stakeholders involved in directly or indirectly meeting customer demand. A basic supply chain consists of three parts: raw materials and finished goods, suppliers and customers, as well as the movement of goods (and services), information, and money. The fundamental components of the supply chains for the manufacturing and service sectors, respectively, are supplier, manufacturer, distributor, retailer, and client. Even when none of the aforementioned mechanisms are present, money, information, and things nevertheless move in both directions. The control of flows throughout and between supply chain phases with the aim of boosting overall profitability is known as supply chain management.

Supply chain management originally appeared in the pharmaceutical industry in the 1980s and 1990s with the shift to global manufacturing and outsourcing of pharmaceutical manufacture. In order to ensure that goods were delivered on time and on budget, effective supply chain management methods were needed.

An essential responsibility in the overarching business plan of NIPRO JMI Pharma Ltd. is supply chain management. Every step of the supply chain process, from purchasing raw materials to delivering finished items to clients, is monitored by a dedicated supply chain team within the company. The system for controlling the company's supply chain

is meant to ensure that the business has a reliable and efficient supply of raw materials and that the production process is improved to cut down on waste and boost efficiency. Strict quality control procedures are also part of the system to guarantee that all products meet the highest standards of quality and safety.

In addition to its internal supply chain management system, NIPRO JMI Pharma Ltd works closely with its suppliers and logistics partners to ensure that they maintain the same high standards for quality and efficiency. To ensure that they can be effective in a rapidly evolving global market, the company's supply chain management practices are regularly evaluated and modified.

1.6 Objectives

-  To figure out how NJPL uses supply chain management techniques.
-  To recognize the significance of the supply chain management ideas NJPL adheres to and the degree to which NJPL has incorporated those concepts.

1.7 Significance of the Study

This report will be significant in the perspective of the following people:

-  This report will be beneficial for the outsiders of the company who wants to know the role of supply chain management in NJPL.
-  This research will be beneficial for the managers of the company who takes the decision for better productivity and to maintain a positive growth in the pharmaceuticals industry of Bangladesh.

Chapter-2: Literature Review

The Concept of Supply Chain Management

In recent years, businesses both locally and worldwide have placed a greater focus on developing a competitive edge through the incorporation of supply chain management techniques into operations. Many businesses have realized the need of creating an integrated relationship with suppliers and customers. According to Tan et al. (1999), supply chain management is the simultaneous integration of internal operations, upstream supplier performance, and customer demands. Better management techniques are required since the central government's support for its agencies is dwindling, which will increase costs and inefficiency. Adopting supply chain management practices may thus be a wonderful method to meet these goals.

Different researchers have interpreted supply chain management. It is hardly unexpected that there has been substantial dispute about a formal supply chain management definition given the literature on supply chains' relatively recent inception. The supply chain, commonly referred to as the value chain, is a business management concept that Michael Porter initially introduced and made popular in his book *Competitive Advantage: Creating and Sustaining Superior Performance*. (1985) Porter, M. E. [14]. Supply chain management is described by Ganesan and Harrison (1995) as a network of facilities and distribution choices that carries out the tasks of material acquisition, material transformation into intermediate and completed goods, and delivery of these finished products to clients. According to Lee & Corey (1995), the integration processes that take place among a network of facilities that purchase raw materials, change them into intermediate goods, and then into final products, and then transport those products to

clients through a distribution system, make up supply chain management. [15]. Christopher et.al (1998) defined the supply chain as the network of businesses participating in the many processes and activities that result in value in the form of goods and services that are delivered to the final consumer [16]. Along with the manufacturer and suppliers, the supply chain also consists of transporters, warehouses, retailers, and the actual customers. It is evident that supply chain management plays a crucial role and requires urgent attention in the corporate environment. Based on this understanding of supply chain management, the body of literature has been investigated to determine the degree to which these fundamental components have been addressed in supply chain management academic research up to this point.

Over the course of the previous 18 years, there have been many publications published on the theory and application of supply chain management, but the subject is still undergoing substantial research and discussion. Based on this understanding of supply chain management, the available literature was investigated to see how much these fundamental components had been included in supply chain management academic research up to that point. The supply chain performance metrics, including the strategies, concepts, and performance measurement methods employed by businesses, may be used to describe supply chain management. Systems of performance measurement are defined as the comprehensive collection of variables that are used to quantify both the effectiveness and efficiency of activity. Leading supply chain organizations are distinguished from poorly performing supply chain members by their capacity to evaluate supply chain performance across interconnected enterprises. Following is an overview of numerous performance measurements and measuring frameworks from the literature.

Chapter-3: Methodology

Data Collection Method

1. Primary data collection:

- a) **Individual Interview:** Manager of the Supply Chain Management Department, Deputy Manager, Assistant Manager, Senior Executive, and other Executives, provided the primary data for this report.
- b) **Observation:** We made an effort to observe how staff members interacted with one another and followed out instructions from senior management.

2.Secondary data collection:

- c) **Internet:** When it comes to gathering secondary data, Google is the best option on the planet for anything. Several publications, the NJPL website, and other supply chain management-related websites served as secondary sources of information.
- d) **Annual Reports of NJPL:** I was able to correctly explain this study with the assistance of several reports, publications of rival products, annual reports of NIPRO JMI pharma, and various papers.

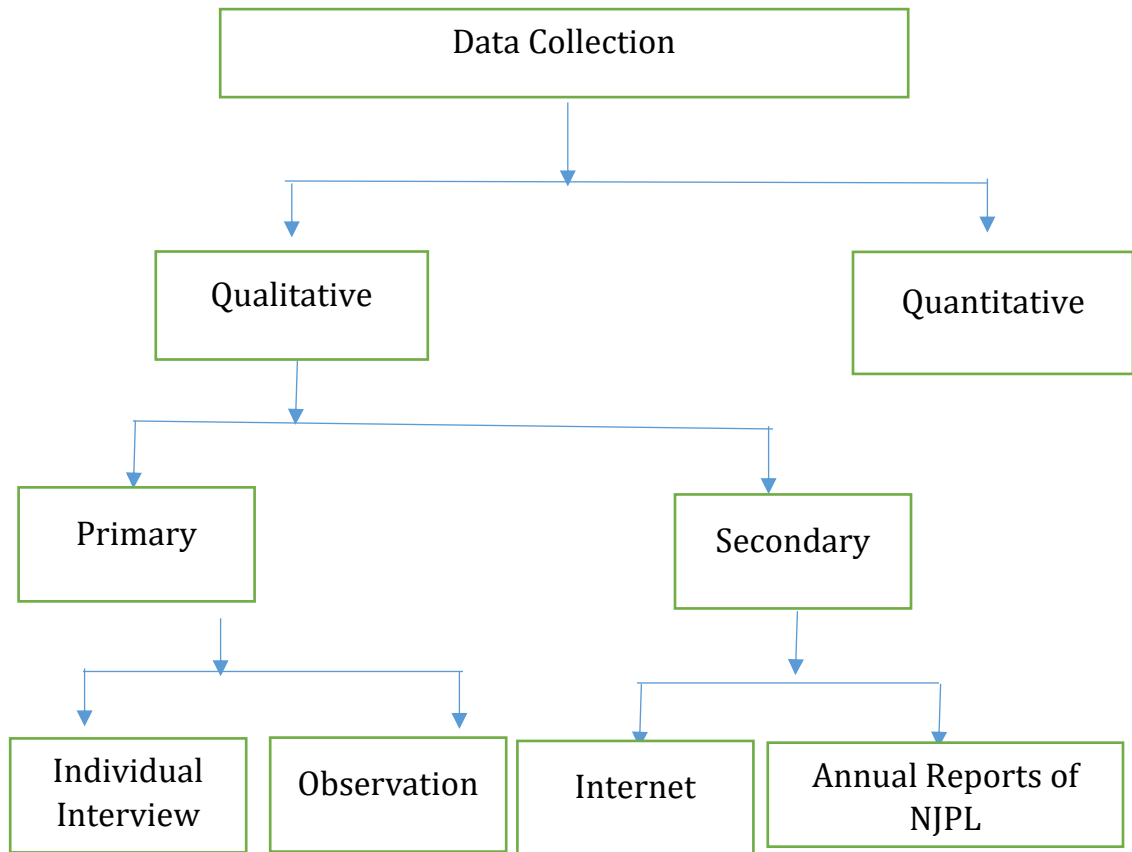


Figure 1 Data Collection Method

Chapter-4: NIPRO JMI Pharma Ltd.

4.1 NIPRO JMI Pharma Ltd.

NIPRO JMI Pharma Ltd is one of the best growing of company in the pharmaceutical industry in Bangladesh manufacturing branded generic products for local and overseas market in Asia, Africa. NJPL adopting the most recent technology to formulate and to produce generic formulation ensuring optimum quality compared to the international brands' is now producing more than two hundred products for its own with various types of dosage forms which include Tablets, Capsules, Liquids, Dry syrups, Cream & Ointments, Gels, etc. where a lot of products are in the launching pipeline.

NJPL is engaged with strategic marketing process which involves building customer relationships by creating and delivering superior customer value aiming to produce high customer equity. NJPL successfully and efficiently blending skilled people, resources, organizational structure and decisions for implementing strategies at all levels' is continuously creating innovative idea to its every step of operation to add distinctiveness and competitiveness to the products and services.



Figure 2 NIPRO JMI Pharma manufacturing plant

4.2 Comparative Advantage of NIPRO JMI Pharma Ltd.

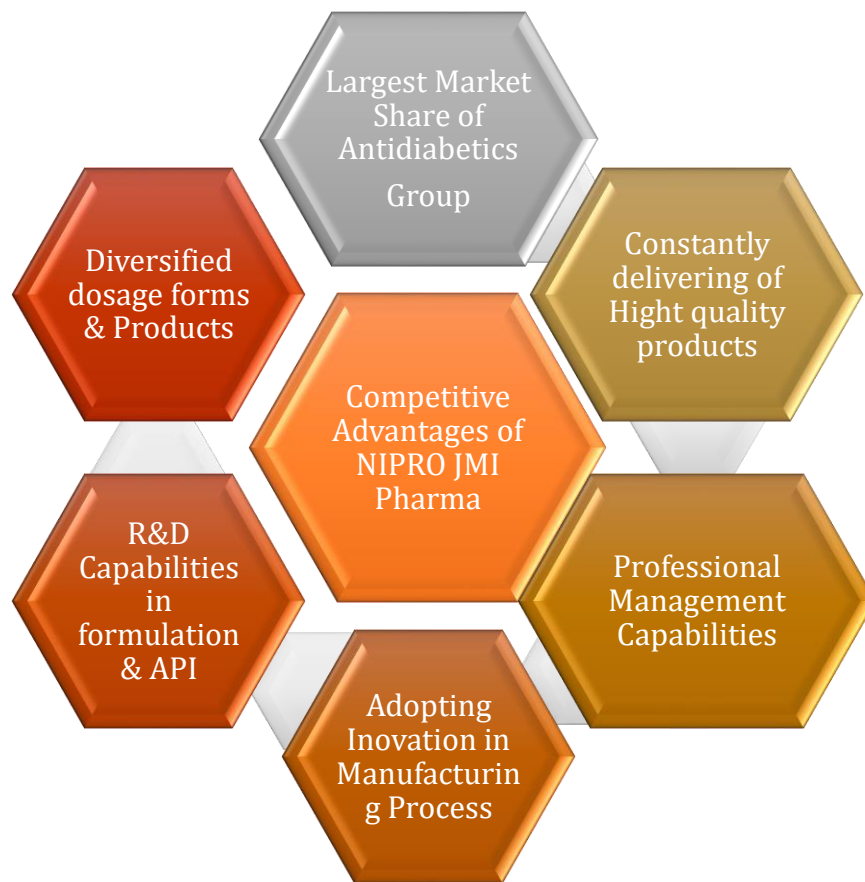


Figure 3 Comparative Advantage of NIPRO JMI Pharma Ltd.

The antidiabetics segment's greatest market share belongs to NIPRO JMI Pharma Ltd., which is in the fortunate position of holding it. The company's capacity to provide practical solutions that effectively address a pressing healthcare issue and its profound comprehension of patient requirements are both highlighted by its market domination.

Delivering High-Quality Products Consistently: The organization stands out for its dedication to providing high-quality pharmaceutical products. The strict quality control procedures used by NIPRO JMI Pharma Ltd. guarantee that every product satisfies high

standards, gaining the respect of regulatory agencies, patients, and healthcare professionals alike.

Professional Management Capabilities: NIPRO JMI Pharma Ltd. is benefited by a leadership team that possesses these skills. These executives guide the business with a strategic vision, wise choices, and effective management. Their competence improves the company's adaptability and agility.

production Process Innovation: The business's adoption of innovation inside its production processes strengthens its competitive edge. By using cutting-edge methods and tools, NIPRO JMI Pharma Ltd. improves productivity, lowers costs, and hastens product development, establishing itself as a leader in the sector.

Formulation and Active Pharmaceutical Ingredient (API) skills are among NIPRO JMI Pharma Ltd.'s areas of competence. With this ability, the business is able to exercise control over the full product lifecycle, assuring top performance and quality from conception to delivery.

Diversified Products & Dosage Forms: The organization has a wide range of products and dosage forms. In addition to expanding its market, this diversity enables NIPRO JMI Pharma Ltd. to meet a variety of patient preferences and healthcare requirements, which supports its steady growth.

In summary, a potent confluence of elements contributes to NIPRO JMI Pharma Ltd.'s success in the pharmaceutical sector. The company's leadership and long-term success in the healthcare industry are highlighted by its leading position in the antidiabetics market,

steadfast commitment to quality, skillful leadership, innovation, diverse skills, and product diversification.

4.3 Corporate Strategy of NIPRO JMI Pharma Ltd.



Figure 4 Corporate Strategy of NIPRO JMI Pharma Ltd.

Chapter -5: Supply Chain Management of NIPRO JMI Pharma Ltd.

5.1 Workflow of Supply Chain Management in NIPRO JMI Pharma Ltd.

Quality, compliance, and effective communication amongst many departments and stakeholders are prioritized by NIPRO JMI Pharma Ltd. The organization's supply chain management program strives to guarantee efficient operations, the integrity of the product, and customer satisfaction.

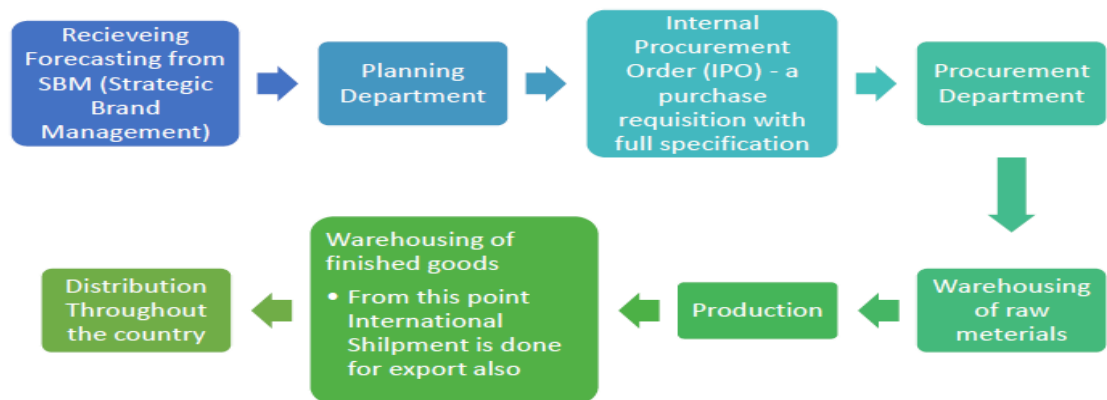


Figure 5 Workflow of Supply Chain Management in NIPRO JMI Pharma Ltd.

5.2 Sourcing and Planning Department

One of the major department's name of NIPRO JMI pharma is "Sourcing Department". This department is responsible for any sort of purchase for the company. This is the one of the busiest departments of NJPL. The basic activities of sourcing department are related to the purchase of raw materials, packaging materials, capitals (i.e. machines, infrastructures and so on) and operational equipment. This department deals with two types of purchase; Standard Materials and Non-Standard Materials.



Figure 6 Sourcing and Planning Department

5.2.1 Standard Materials

The direct materials are referred to as standard material in theoretical parlance. Each business has its own terminology to describe how they operate. Thus, normal materials here for NJPL are direct materials. Products that may be utilized to create final goods are referred to as materials. raw materials, common and specialist parts, and sub-assemblies needed to put together or produce a finished product. Direct material expenses can be attributed to a particular product, cost area, or work order. The procurement department of NJPL receives the inventory requirements from the planning department and purchases the supplies.

5.2.2 Non-Standard Materials

In NJPL except the purchase of raw material, all kinds of purchase are considered as a non-standard material. In this case concerning departments are responsible to place their need and then work accordingly. From the desk's paper pin to doctor's gift, printing of product literature to desktop computer for SBM department will be bought through department and these products are the example of non-standard materials.

This procurement department also have some divided working area such as purchase for local market and purchase international market, searching new suppliers for existing products and so on. In some extent the procedure of both purchase of local and purchase of international market is same. But mostly it follows a different process of purchase. The flowchart below may explain the whole process of purchase for local goods.

5.3 International Supply Chain

Global supply chain management is becoming a significant concern for many firms as a result of rising globalization and offshore sourcing. The fundamental drivers of the movement, much like in conventional supply chain management, are lower procurement prices and lower risks associated with purchasing operations. Global supply chain management encompasses a company's global interests and suppliers rather than just a local or national perspective, which is the key distinction. Export markets for NJPL. are expanding. Furthermore, NJPL never compromises on quality. Therefore, in order to maintain its production standards, NJPL must import a variety of ingredients from throughout the globe. One of the main duties of the sourcing department is to obtain raw materials or any other non-standard commodities for the firm. This international supply chain department collaborates with the sourcing department to handle the product purchasing processes. Raw materials are imported, and then they are transported to the plant to be turned into finished items. NJPL performs a lot of contract manufacturing for exporting, thus they need specialized shipping and unique packaging. The sourcing department and the international supply chain management department also take care of those buying needs.



Figure 7 International Supply Chain

5.4 Working Flow chart of Local Purchase and International Purchase

The core components of the supply/value chain are the subject of purchasing and supply chain management, which also focuses on ways to enhance how businesses locate the resources and services required to produce and distribute goods and services to customers. The administration of sourcing, procurement, production, logistics, and customer interactions are all included in supply chain management. It also incorporates the critical elements of coordination and collaboration with channel partners, who might include vendors, middlemen, third-party service providers, and clients. Everybody engaged in getting our product into the hands of a client is a part of the supply chain. It consists of people that acquire raw materials, businesses that make things, transportation providers, wholesale warehouses, internal workers, and stock rooms.

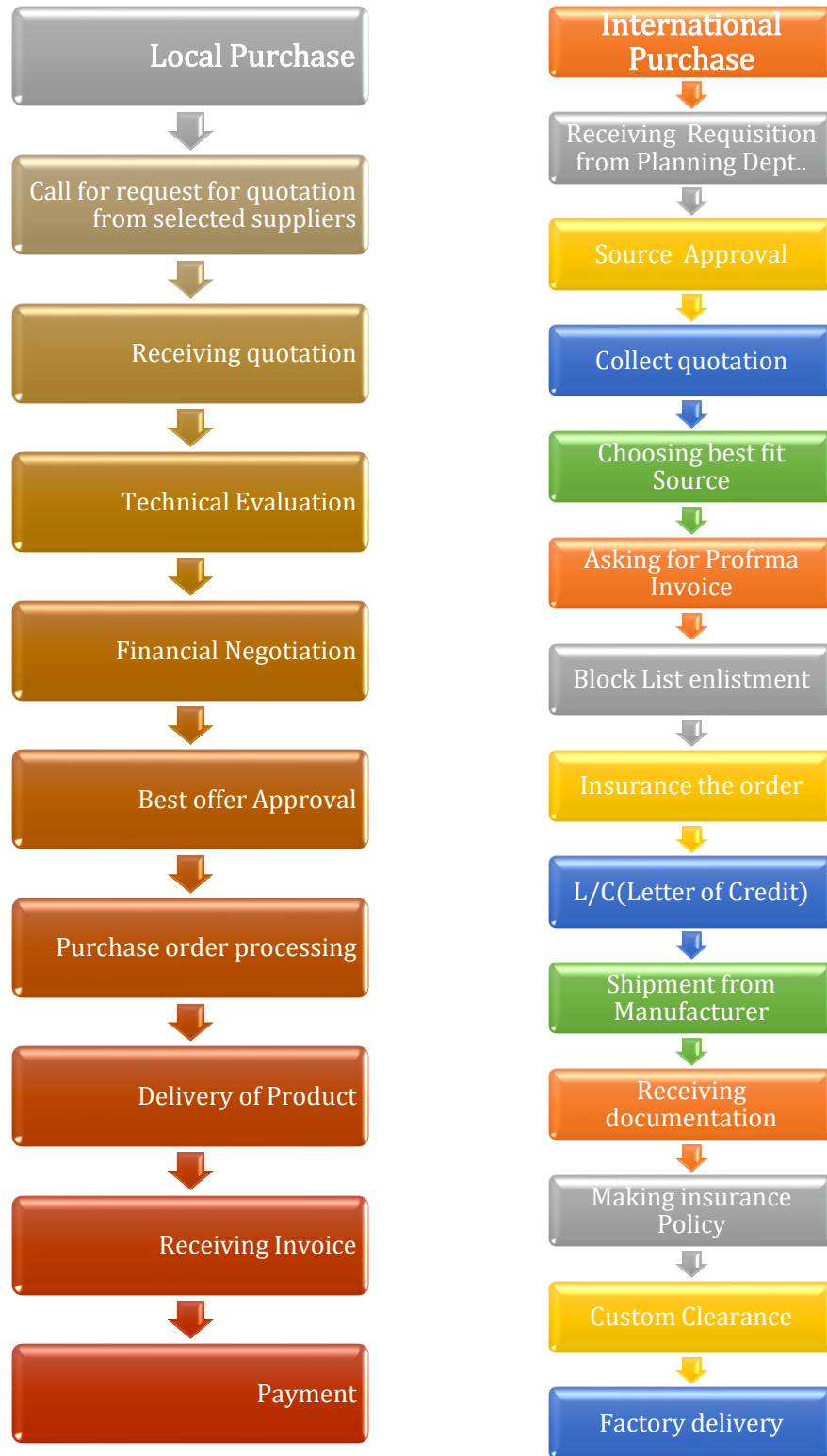


Figure 8 Working Flow chart of Local Purchase and International Purchase

5.5 Supplier Selection Criteria and Evaluation of NIPRO JMI Pharma Ltd.

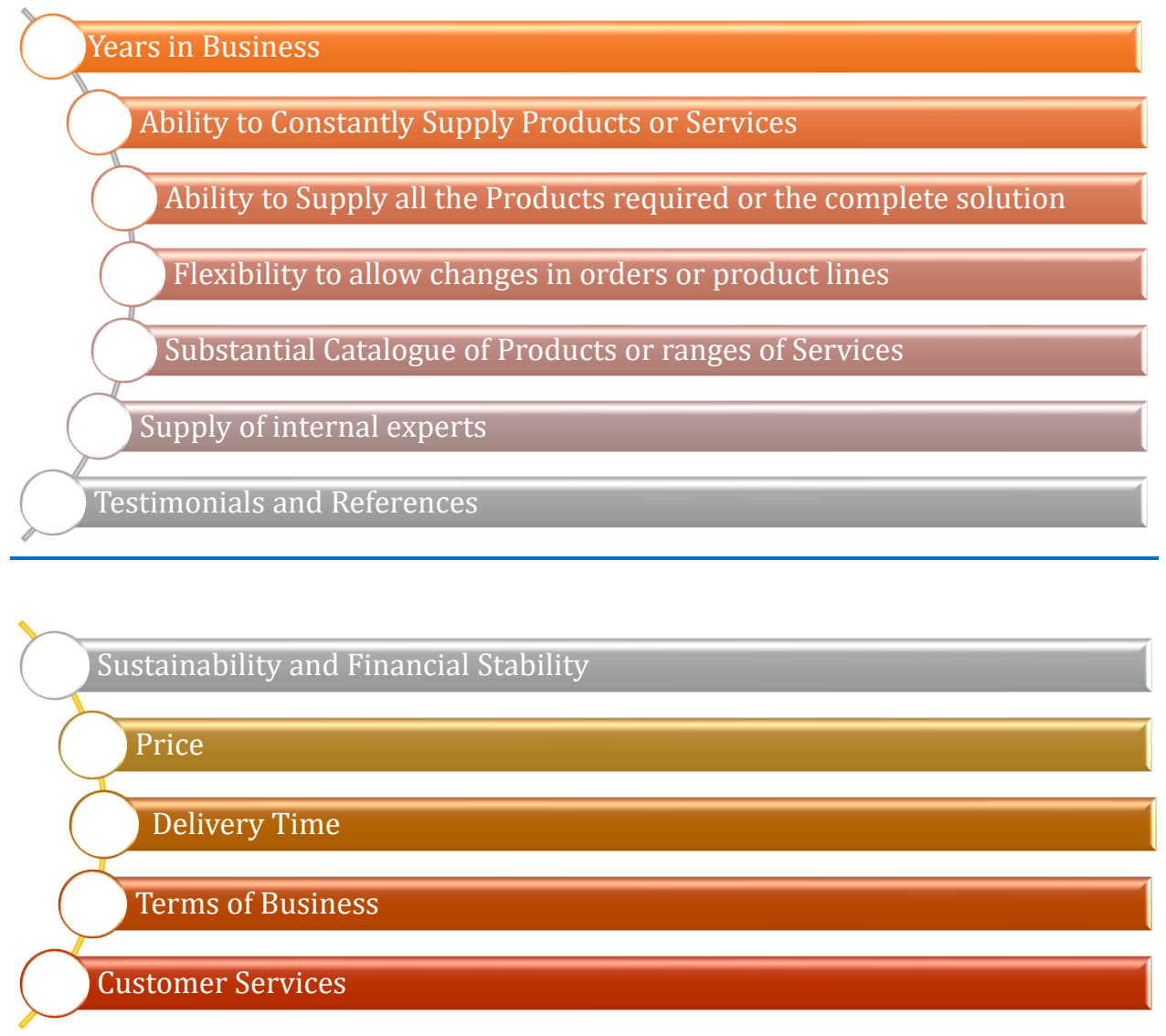


Figure 9 Sourcing Criteria of NIPRO JMI Pharma Ltd.

5.5.1 Years in business

We must be aware that the business is founded and prepared to meet your needs.

5.5.2 Ability to constantly Supply Products or Services

Our products and services are regularly required. Whether or not a vendor has supply issues is an important factor to take into account when making your decision because it will affect their ability to serve customers.

5.5.3 Ability to Supply all the products required or the complete Solution

This is especially important when searching for a singular business solution, such as a novel combination medicine (e.g., tablets containing many vitamins and minerals). We could also be making an effort to reduce the number of vendors you interact with or want to buy an entire product line from.

5.5.4 Flexibility to permit modifications to orders or product lines

All businesses periodically need to amend their orders; if our vendor significantly penalizes us for doing so, perhaps they are not the appropriate fit for us, and we need to find another vendor.

5.5.5 Substantial Catalogue of Products or ranges of Services

This not only suggests a reputable, sizable seller, but also implies that we have ordering freedom. We may continue working with the same provider as our company expands. Additionally, it implies that we are able to reduce the number of vendors we work with.

5.5.6 Supply of internal experts

Again, if we are acquiring a high-value service, this is very important, but we all need professionals occasionally.

5.5.7 Testimonials and References

If we can verify that the seller is trustworthy and what they claim to be, they are helpful.

5.5.8 Sustainability and Financial Stability

The last thing we want is to suddenly switch vendors because one of them failed to stay in business.

5.5.9 Price

The price list discounts are always adjustable, but they play a significant role in choosing a provider.

5.5.10 Delivery Time

We require the assurance that delivery will occur when and where we specify. We may also consider the quantity of delivery per week or each month to be significant.

5.5.11 Terms of Business

Payment terms are particularly important as they impact upon our cash flow.

5.5.12 Customer Services

a crucial component of any relationship. How accessible are the ordering and support staff? Are they friendly, competent, and accessible? Nobody enjoys hearing a machine's voice on the other end of the line say, "Your call is important to us"

5.6 Supplier Evaluation Method and Practice in NIPRO JMI Pharma Ltd.

Suppliers Performance Management: Suppliers must be carefully picked because they are the person or company who provides NJPL with the initial raw materials for production. The performance of the supplier affects a large portion of the service they offer. In order to make sure that a supplier's performance fulfills the requirements outlined in the contract and against market standards, NJPL strives to implement effective supplier

performance management. It entails managing actual performance, identifying performance gaps, and deciding on steps to take in order to reach targeted performance levels. Below is a discussion of several techniques NJPL uses to assess a supplier's performance for their business.

Quality Commitment: This is the primary and important criterion for assessing the performance of the provider. Suppliers are carefully picked since they are the source of the raw materials used in production. NJPL makes sure they acquire the greatest raw materials from their suppliers since they never compromise on the quality of their products.

Delivery Lead-time: The phrase "delivery lead time" is used frequently in supply chain management. Maintaining the delivery lead time is crucial for all global corporations, but pharmaceutical businesses particularly need to pay close attention. The manufacturing will be hindered if the manufacturer can't obtain raw materials in a timely manner, which will have an impact on pharmacy stores because they won't be able to stock the medication. A patient might die as a result of a specific drug in their local pharmacy thus every supplier must maintain delivery lead time. And this chain effect will lead to demand in the market, which is extremely unappreciable.

Total cost of ownership: NJPL is a firm that considers total cost of ownership when picking suppliers for their business. They don't just trust in quoted pricing.

Stated price: Analyzing stated prices is another way to gauge a supplier's effectiveness. Suppliers may submit a higher price for an order compared to the other suppliers after being added to the company profile. NJPL has a rigid system in place whereby they

compare each order's stated price from suppliers, and if someone provides a fictitious value, it is instantly assessed.

5.7 Drivers of Supply Chain activities and Practices in NIPRO JMI Pharma Ltd.

We learn about the pressures faced by the NJPL supply chain and the competencies required for success as we mimic how it operates. Create a supply network that can satisfy these demands. The choices we make about the five supply chain drivers serve as a guide for supply chain growth. Depending on the needs of the business, each of these drivers may be created and controlled to stress either responsiveness or efficiency.

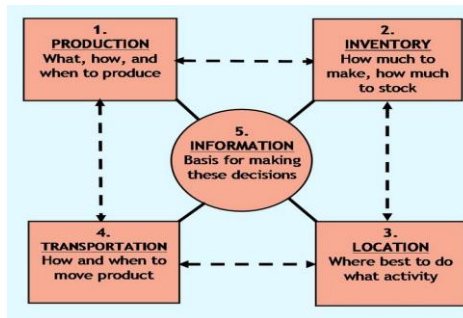


Figure 10 Drivers of Supply Chain activities and Practice in NIPRO JMI Pharma Ltd.

5.7.1 Production

By constructing plants with a lot of extra capacity and that employ adaptable production processes to manufacture a variety of goods, NJPL makes excellent use of this driver. A business might produce its goods at several smaller facilities that are near to its main clientele in order to be even more responsive and reduce delivery times. NJPL places a strong emphasis on efficiency and builds factories that have very little surplus capacity and are designed to produce just a small number of different goods. Production might be centralized in big central factories to achieve greater economies of scale, resulting in increased efficiency.

5.7.2 Inventory

NJPL focuses on improving inventory management efficiency. Reducing inventory levels would be necessary to improve inventory management, especially for commodities that don't sell as frequently. Additionally, keeping product in a small number of strategic locations might result in economies of scale and cost savings.

5.7.3 Location

Efficiency can be achieved by operating from only a few locations and centralizing activities in common locations.

5.7.4 Transportation

NJPL focuses on improving driver efficacy in this instance. A quick and adaptable form of transportation can provide responsiveness. NJPL that conduct business online or through catalogs are able to offer high levels of responsiveness because they use transportation to distribute their goods, frequently in less than 24 hours. Two businesses that can offer highly responsive transportation services are FedEx and UPS.

5.7.5 Information

NJPL focuses on improving driver efficacy in this instance. A quick and adaptable form of transportation can provide responsiveness. NJPL that conduct business online or through catalogs are able to offer high levels of responsiveness because they use transportation to distribute their goods, frequently in less than 24 hours. Two businesses that can offer highly responsive transportation services are FedEx and UPS.

CHAPTER- 6: RESULTS AND DISCUSSIONS

6.1 Response rate

This response rate is 90% since 9 out of 10 department/directorate Heads of NJPL were participated in the study.

6.2 Supply chain management practice at NJPL:

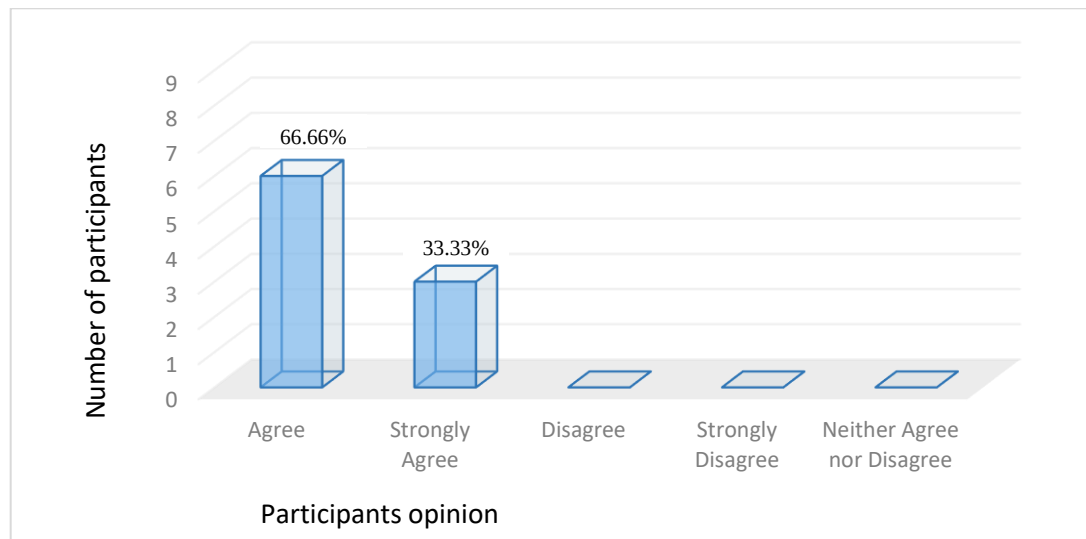


Figure 11 supply chain management practice in NJPL.

According to the survey findings, 100% of respondents agreed that the NJPL follows supply chain management procedures. This feedback is seen as evidence that NJPL's supply chain management practices have been successful.

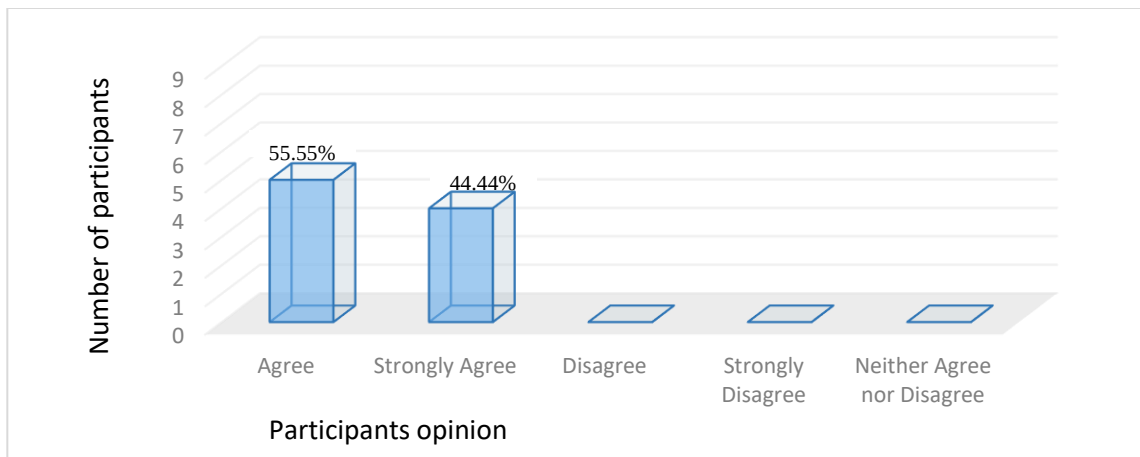


Figure 12 Implementation of SOPs for supply chain management department.

The survey's findings showed that 55.55% of participants agreed, and 44.44% strongly agreed, that this firm had clearly established Standard Operating Procedures (SOPs) for integrating supply chain management into daily operations. These results show that the company's SOPs have been well regarded and are probably helping to successfully maintain flawless supply chain operations on a regular basis.

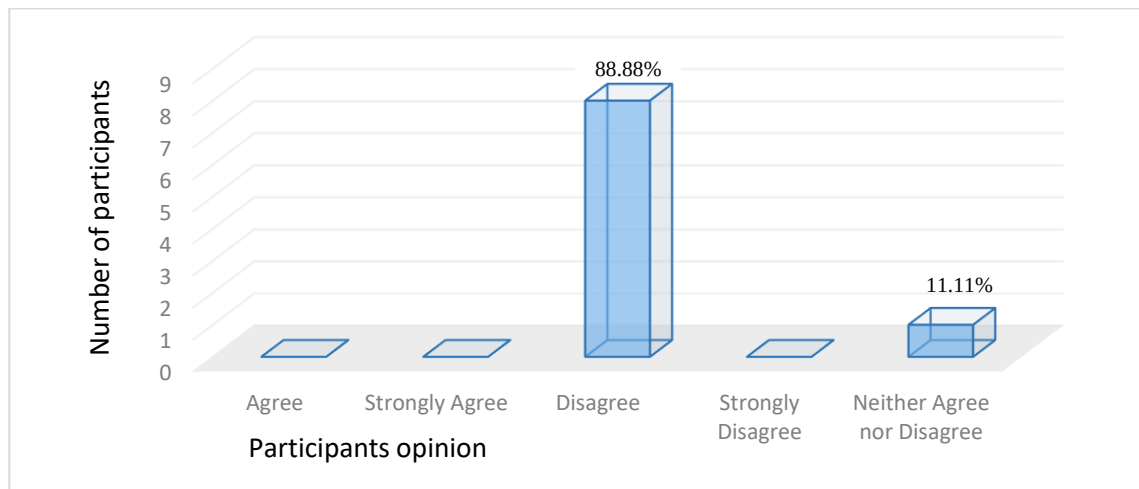


Figure 13 NJPL using specialized software for the supply chain management department.

The results of the survey showed that 88.88% of respondents disagreed with the assertion that NJPL uses specialist software for its supply chain management department, while 11.11% of respondents were neither agree nor disagree. According to these findings, It may be wise to think about investing in suitable software to improve the organization's supply chain management procedures given the lack of specialist software in supply chain management departments.

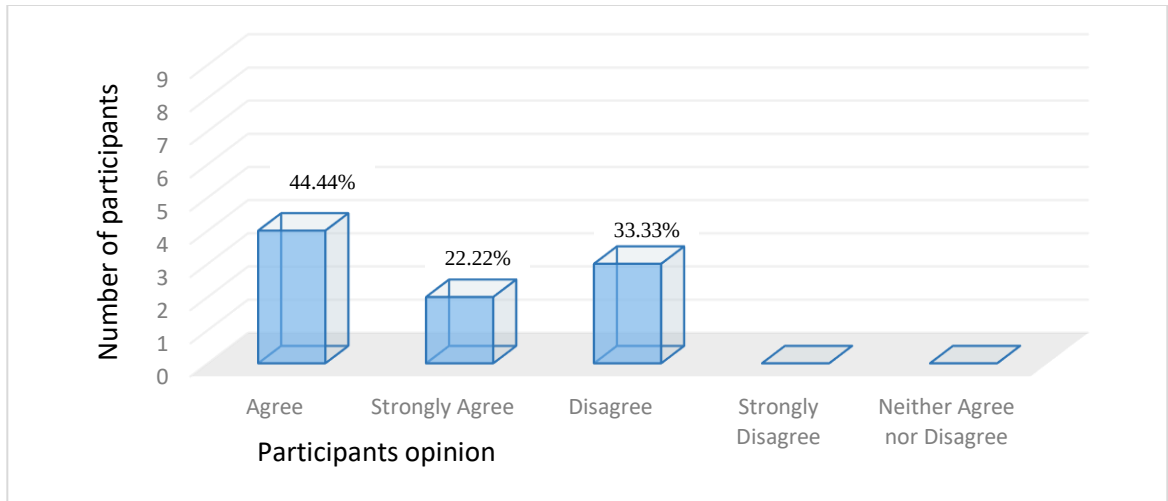


Figure 14 The supply chain management process is influenced in some way by stakeholders.

The findings of the survey show that 44.44% of respondents agree, 22.22% strongly agree, and 33.33% disagree that stakeholders have an impact on NJPL's supply chain management process. These results indicate that there is a need for improved communication and knowledge of the level and kind of stakeholder participation in the firm's supply chain management.

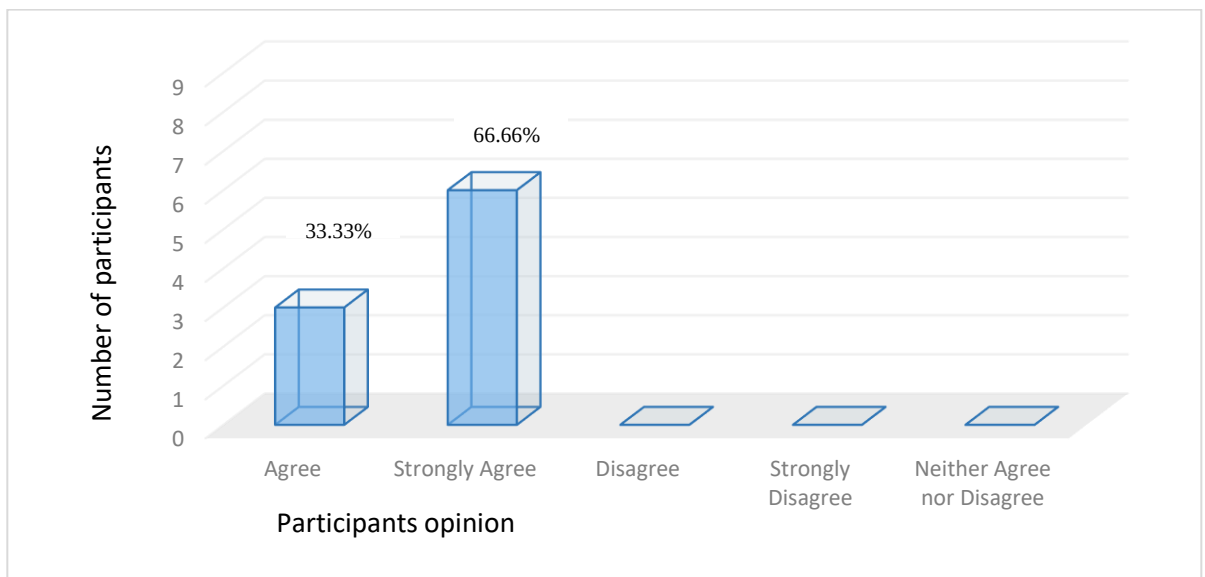


Figure 15 Centralized distribution ensure proper distribution system.

According to survey findings, 33.33% of respondents agreed with the statement, and 66.66% strongly agreed that a centralized distribution system successfully assures a proper distribution system. A centralized distribution system is strongly supported, which means that it is not only in place but also working well to ensure the correct and effective allocation of resources inside this company's activities.

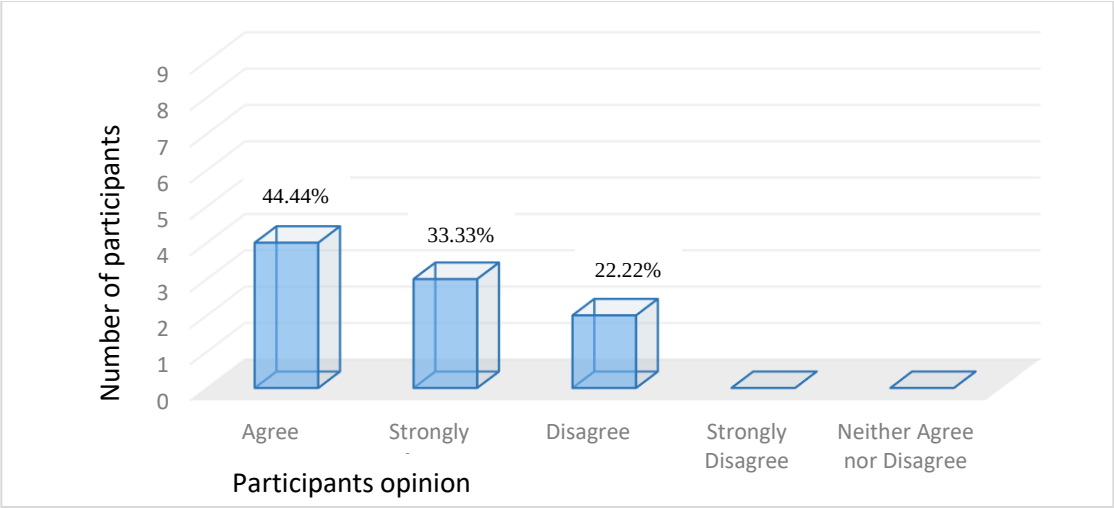


Figure 16 Application of KIPs for vendor's performance

According to the survey results, implementing Key Performance Indicators (KPIs) to a vendor's performance system has a considerable influence on vendor performance, with 44.44% of respondents agree, 33.33% strongly agree, and 22.22% disagree. These variable opinions emphasize the necessity for more talks and a more thorough investigation of the scope and importance of utilizing KPIs as a benchmark for measuring vendor performance.

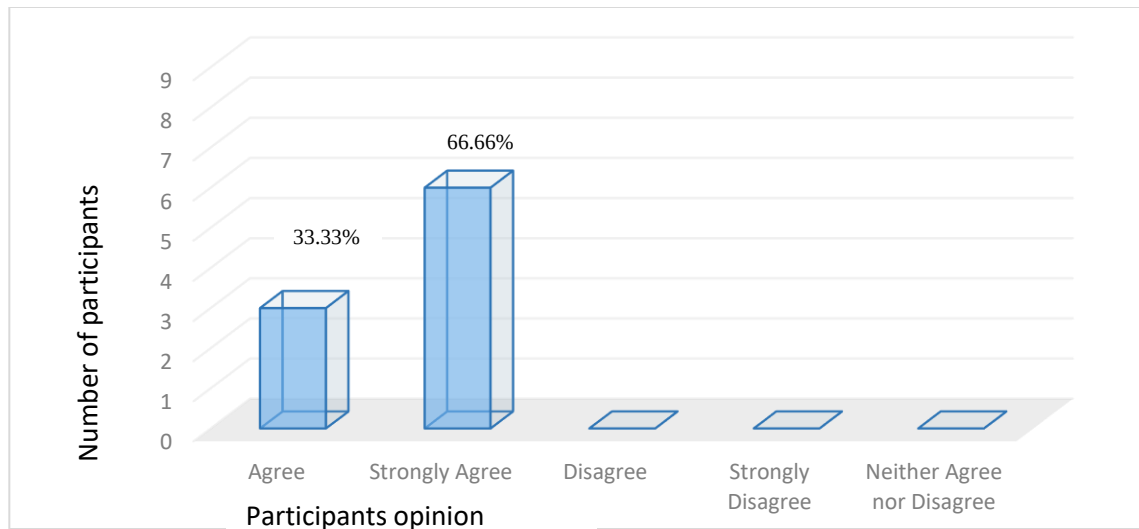


Figure 17 Influence of Supply chain management practices on performance of vendor.

According to the survey findings, 33.33% of respondents agree with the statement that supply chain management techniques have a substantial impact on suppliers' performance, while 66.66% strongly agree. This general agreement highlights how crucial it is for businesses to provide their supply chain procedures competent management at the top of their priority list. Such a focus has the potential to significantly increase supplier performance, which in turn has the potential to have a significant impact on the company's overall performance. Additional conversations could go into particular tactics and suggestions meant to improve the supply chain management strategy and raise vendor performance.

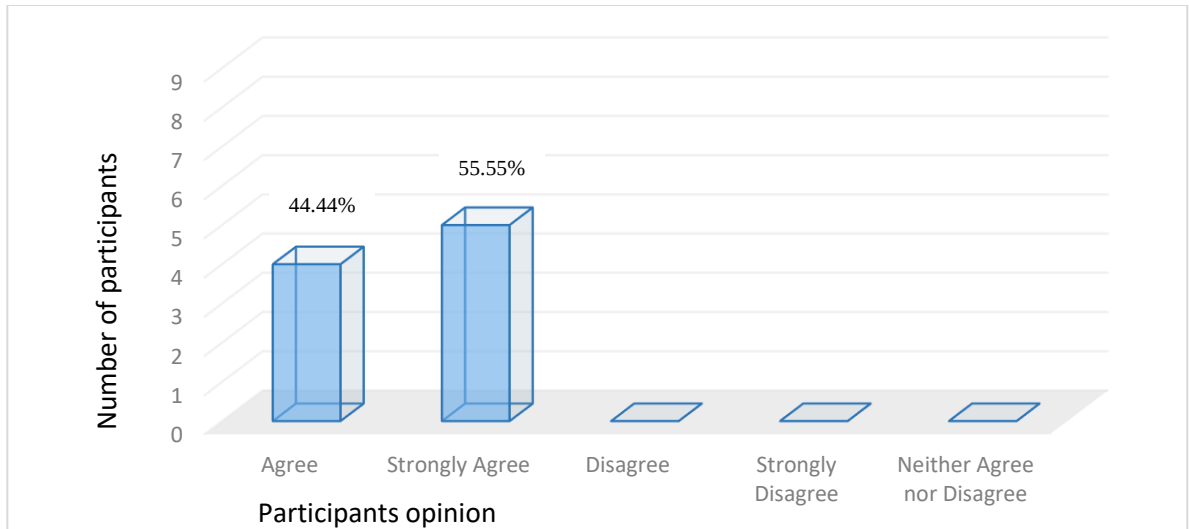


Figure 18 pre-enlistment vendor audits practiced to ensure quality sourcing.

According to the survey findings, 44.44% of respondents agreed with the practice of performing pre-enlistment vendor inspections to ensure sourcing quality, and 55.55% showed strongly agree for it. These evaluations are critical for ensuring that suppliers follow to fundamental quality criteria before they are hired, which will eventually result in more dependable and effective sourcing for NJPL.

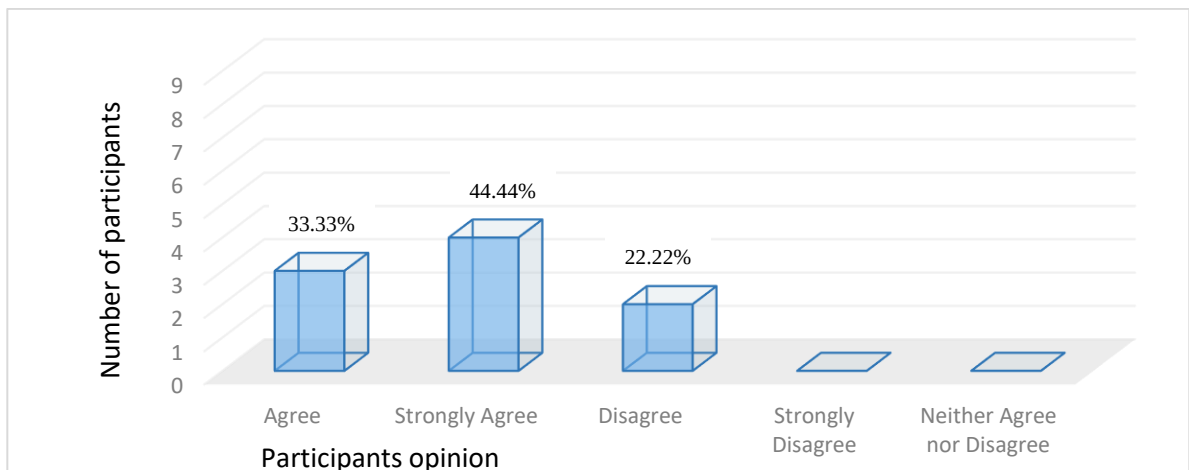


Figure 19 Seminars for quality assurance and problem solving with vendors.

According to survey results, 33.33% of participants agreed, and 44.44% strongly agreed that NJPL should provide seminars to improve quality assurance and address vendor-related problems. In contrast, 22.22% of participants thought Disagree. This information makes it possible to have more in-depth talks about the potential advantages of these seminars, their efficiency, and how to allay the worries or reluctance of people who disagree with this strategy. NJPL might use this input to improve its vendor management and quality control methods.

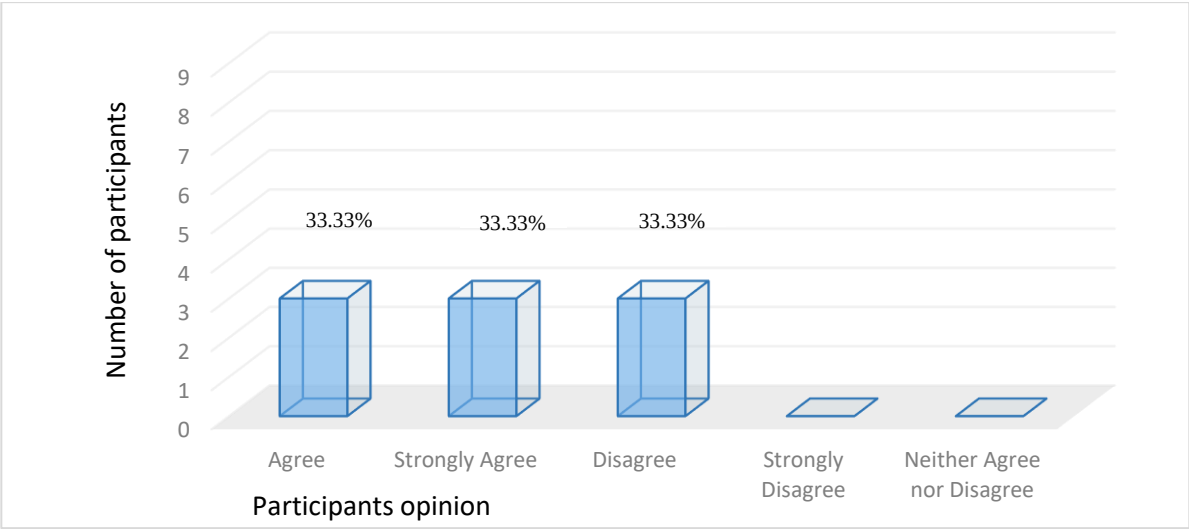


Figure 20 When a supply chain is integrated, performance may be better controlled and "emergencies" can be handled quickly.

Based on the survey results, 33.33% are in agree, another 33.33% strongly support the idea, while the remaining 33.33% disagree with the notion that integrating a supply chain can lead to better performance control and swift handling of emergencies. The conversation could delve into the factors contributing to these contrasting viewpoints, including differing experiences and perceptions of the actual impact of integration in various contexts and industries. Additionally, a thorough exploration of real-world case studies and best practices may help shed light on the potential benefits and challenges associated with integrated supply chains.

CHAPTER-7: CONCLUSIONS AND RECOMMENDATIONS

Summary of findings, recommendations, and conclusions are presented in this chapter. It is structured as follows: first, a summary of results arranged in accordance with the study's goals is presented, followed by conclusions reached as a result of those conclusions, and lastly, both recommendations for public policy and ideas for more research are made.

- ✓ **NIPRO JMI Pharma Ltd.** must have establish their own ERP software in their company. The ever-growing demand for new and enhanced pharmaceutical products has resulted in a highly competitive market therefore putting lots of pressure on pharmaceutical manufacturers in the Small and Medium Businesses to keep themselves with the ever-increasing demand for the production of such drugs in huge quantities. Also, they are bounded to stringent norms laid down by government authorities. And if it's very tough for the small or medium business's, then being the third contributing pharma in the industry, NJPL needs to come with their own ERP as soon as possible. Pharmaceutical Business require the right ERP support to streamlined procurement of raw materials, reduced procurement and delivery cycle times, tracking of receivable and payments to suppliers for managing credit facilities, a decision support tool for management analysis and a collaborative portal for supply chain management. By optimum utilization of these resources, the result in higher efficiency and better performance.
- ✓ One supply chain management department employee once mentioned in a chat that it was difficult to demonstrate work effort to the company's top management since we did not yet have our ERP software. Another employee stated that "the work process is easier there than Healthcare" since Square Pharma has its own ERP system and is

enjoying a seamless working procedure in addition to having supply chain management.

- ✓ Along with international visibility, NIPRO JMI Pharma needs to increase its local market
- ✓ Another happy experience was seeing the job satisfaction level of some senior employees. They are more than happy with their job, with their job facility, salary, working environment and what not. According to them they do not need nothing and what else a company can do for anyone.

From the above findings, the following conclusions were made.

Firstly, Pharmaceuticals industry have adopted some supply chain management best practices to a great extent and some to a moderate extent. This leaves a gap in the adoption of supply chain management practices. The main practices still yet to be fully implemented include: Provision of dependable Services, Quality outsourced services, Reduction of fuel consumption, Sharing of Information through Information Technology, Reduction of pollutant emissions, Prequalification of Suppliers that are aware of Environmental Issues, Formal partnerships with [17].

Suppliers, setting up a SC data base, Operating with Lean supply base, Green Supply Chain Management Practices, Supplier Development, Preparation of specifications with Suppliers, development of an Outsourcing policy, Procurement of recyclable Material, Reverse logistics and Involvement of key suppliers in planning [18].

Secondly, it was concluded that logistics, lean suppliers and information technology have strong positive relationships with firm performance among the Pharmaceutical Company.

Thirdly, the study concluded that the company a number of challenges in their bid to implement supply chain management best practices. These include: low levels of support from top management, political interference in supply chain management, inadequate end user cooperation and understanding on issues relating to procurement, low supplier and end user's awareness.

Owing to some limitations of this study, the following recommendations for future study were arrived at.

In a relatively short amount of time, NIPRO JMI Pharma Ltd established a solid name in the pharmaceutical industry, although they are not yet the market leader. A set of these recommendations has been developed based on my observation and data analysis in order to turn the organization's weakness into a potential strength and mitigate potential threats, allowing management to steer the organization through the rough sea of intense competition.

- For improved inventory management and operations, use supply chain software. Software for the supply chain is divided into two categories: planning software and execution software. In Bangladesh, a variety of organizations can rent this software. NJPL may easily hire the software from these businesses to increase the efficiency of their supply chain management. Competition
- The majority of the time, businesses get their products from pre-selected vendors. It can pose issues since it might be questioned whether or not the pricing is competitive. Supplier Relationship Management (SRM) is a part that Supply chain development (SCD) has already created in order to address this issue. SRM's primary purpose is to communicate with suppliers in order to promote price competitiveness.

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Appendix I: Questionnaire

You are requested to answer all questions in this research study questionnaire. The information provided shall be treated with confidentiality and will be used purposely for this study. This study aims at investigating overall supply chain management Performance in pharmaceutical industries.

Section A: General Information

1. What is your position in this organization?.....
2. How long have you been the current position
i) 1-5 years () **ii)** 6-10 years () **iii)** 11-15 years () **iv)** Over 16years ()

Section B: Determination of supply chain management practices.

- **Measuring the effect of supply chain management procedures on performance**

Which of the following claims about your company's green supply chain operations do you agree with the most? The following scale will be used: 1 = Agree 2= Strongly Agree 3= Disagree 4 = Strongly Disagree 5 = Neither Agree nor Disagree

SL No.	Supply Chain Practices	1	2	3	4	5
01	Do you think your organization have SCM practice.?					
02	Does your company have suitable SOPs for using SCM in day-to-day operations?					
03	Do your organization have dedicated software for SCM department?					
04	Do stakeholders have any influence on the SCM process?					
05	Do you believe the business has a centralized distribution mechanism to ensure proper distribution?					
06	Do you have practices for KPIs measure for vendor?					
07	Do you believe that measuring the impact of SCM practices differ on performance of vendor					
08	Do you have pre enlistment vendor audit practice for ensure quality sourcing.?					
09	Do you run seminars for quality control and resolving vendor issues at your company?					
10	When a supply chain is integrated, performance may be better controlled and "emergencies" can be handled quickly. How do you believe about this statement?					

We appreciate your participation.

In your opinion, what are the major challenges that your organization has faced in the implementation of supply chain management practices?

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Thank You for participating.