

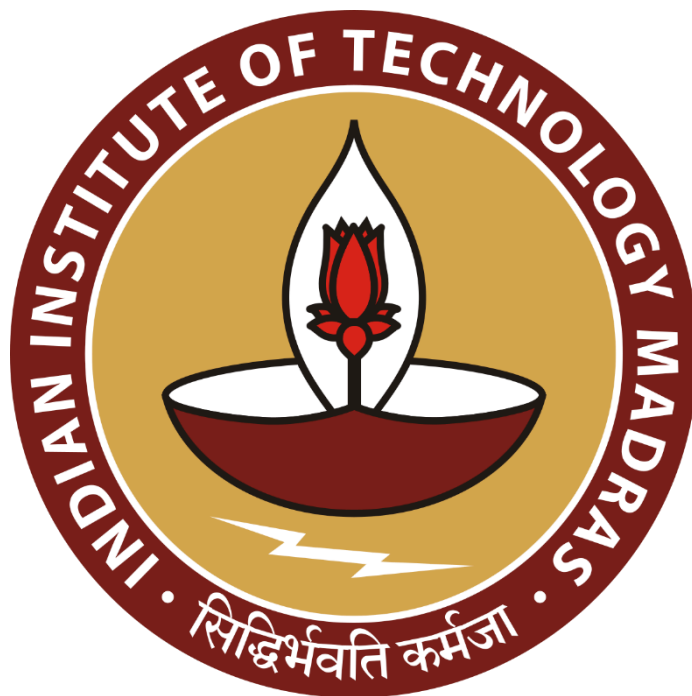
# **The Data-Driven Insights to Improve Operational Performance: A Case Study on C R Pharma Wholesalers**

**A Proposal report for the BDM capstone Project**

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## **Declaration Statement**

I am working on a Project titled “**The Data-Driven Insights to Improve Operational Performance: A Case Study on C R Pharma Wholesalers**”. I extend my appreciation to “**C R Pharma Wholesalers**”, for providing the necessary resources that enabled me to conduct my project.

I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

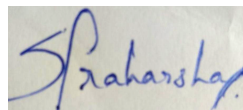
Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the principles of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I understand that all recommendations made in this project report are within the context of the academic project taken up towards course fulfillment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.

Signature of Candidate:



Name: Praharsha Surampudi

Date: 25-02-2025

## **Executive Summary**

C R Pharma Wholesalers is a Vijayawada, Andhra Pradesh-based pharmaceutical B2B supplier. The company deals in distributing reliable pharmaceutical products, medical supplies, and healthcare solutions to the local pharmacies and clinics.

The pharmaceutical firm is encountering several operational issues that are strongly affecting its profitability and overall performance. Inventory management problems are among the most serious issues—overstocking causing - tied up capital, added storage expense, and possible product obsolescence, whereas stock outs cause lost sales, erosion of customer confidence. Such inefficiencies complicate maintaining a constant cash flow and maximizing working capital. Furthermore, disruption in the supply chain is also a major problem, which compromises timely procurement and distribution of pharmaceutical products. Variability in stocks, and lack of logistics causes bottlenecks that further feed into stock imbalance.

To overcome these issues, The company can adopt data-driven solutions to increase efficiency and profitability. Inventory turnover analysis can be used to determine slow-moving and high-demand products, allowing for improved stock allocation and minimizing excess inventory. Demand forecasting based on historical sales data and market trends can enhance stock replenishment accuracy, reducing overstocking and stockouts. Adopting an automated stock management system will enable real-time monitoring of inventory levels, minimizing manual errors and ensuring maximum stock availability.

## **Organization Background**

C R Pharma Wholesalers, owned by Mr. C Avinash, is a proprietorship company lawfully registered on May 10, 2023, with an approximate valuation of ₹20 lakh. The company is based on the 2nd floor of Lavanya Book Centre, NRP Road, Vijayawada, Andhra Pradesh, and is a reliable B2B pharmaceutical distributor.

As a proprietorship, C R Pharma Wholesalers operates with a core team of three members dedicated to the business—Mr. C Avinash (owner) managing business operations, a storekeeper maintaining inventory, and an accountant for managing finances.

The vision and mission of C R Pharma Wholesalers are to focus on customer satisfaction, dependability, and efficiency of operation. The business is growing even further with a goal to extend its distribution base and become a reliable name in pharmaceutical wholesale.

## **Problem Statement**

### **Problem Statement 1: Challenges in Maintaining Efficient and Balanced Inventory Management**

The company struggles with overstocking, which leads to blocked capital and product expiration, while stock outs result in missed sales. A lack of proper inventory control affects cash flow and operational efficiency.

### **Problem Statement 2: Disruptions in Supply Chain Leading to Operational Inefficiencies**

Irregular stock availability and logistical inefficiencies cause procurement delays, making it difficult to maintain a steady supply of essential pharmaceutical products.

### **Problem Statement 3 : Constraints based on the Limited Expansion of the company and Market Reach**

The company has the potential to scale its business but lacks structured strategies for expanding its reach beyond its current customer base, limiting growth opportunities.

## **Background of the Problem**

The pharma business is confronted by a number of operational issues that impact efficiency, profitability, and sustainable growth. Internally, the business works with a thin staff, with the owner, a storekeeper, and an accountant. Lacking much manpower, activities such as inventory handling, order processing, and money tracking are conducted manually, creating delays, inaccuracies, and inefficiencies.

Externally, the firm is confronted with stiff competition, regulatory issues, and market volatility. More established pharmaceutical wholesalers with superior logistics, bulk buying power, and superior technology make the market highly competitive, and it becomes challenging for C R Pharma to grow. Moreover, stringent tax laws and compliance rules

impose administrative costs, adding to operational challenges. Unpredictable changes in medicine demand, supplier holdups, and volatile pricing also cause instability.

Lacking formal strategies for inventory management, supply chain optimization, and market development, these internal inefficiencies and external pressures persist to retard growth. Resolution of these problems through automation, enhanced supplier relationships, and market outreach is imperative for C R Pharma Wholesalers to stay competitive, enhance operational efficiency, and attain sustainable business growth.

## **Problem Solving Approach**

### **Methodology**

#### **1. Data Collection**

Data will be collected directly from C R Pharma Wholesalers' internal records, ensuring a comprehensive analysis of sales and inventory trends. This will include:

- **Sales Data:** Sale Invoice Date, Sale Invoice number, Name of the Consumer, Product names, quantity sold, CGST, SGST, Total price.
- **Purchase Data:** Purchase Invoice Date, Purchase Invoice number, Name of the Supplier, Product names, quantity acquired, CGST, SGST, Total price.
- **Inventory Data:** Product ID (Unique identifier), Product Name, Category (Medicine type), Quantity, Batch Number, Expiry Date, Supplier Name, Supplier contact details.

#### **2. Data Formatting**

The collected data will be cleaned, organized, and formatted using MS Excel tools to ensure accuracy and extract meaningful business insights. This step will help identify missing values, errors, and inconsistencies before proceeding with analysis.

#### **3. Trend Analysis**

General Pharma Data compared to the company data will be used to analyze and understand sales and inventory patterns. This will involve, Identifying high-demand products and slow-moving stock, Recognizing seasonal trends and sales fluctuations, Identifying products with high margins and those contributing to revenue losses.

#### **4. Visualization**

Visualization tools such as bar charts, line graphs, pie charts, and scatter plots will be utilized to present clear insights into business performance. Conditional Formatting will highlight crucial data points such as best-selling products, low stock levels, and overstocked items.

### **Analytical Tools**

MS Excel will be the primary tool for data analysis due to its flexibility in handling large datasets efficiently. The key features to be used include:

- **Pivot Tables:** To summarize and analyze sales and inventory data effectively.
- **Excel Functions:** VLOOKUP, COUNTIF, SUMIF, and Boolean operators to extract key business metrics.
- **Graphical Representations:** Bar charts, line graphs, pie charts, and scatter plots to illustrate trends and patterns clearly.

### **Implementation Strategy**

#### **1. Addressing Inventory Management Issues**

- **Use an inventory tracking system** – Helps monitor stock levels and avoid wastage.
- **Predict demand using past sales data** – Ensures the right products are stocked at the right time.
- **Prioritize fast-selling items** – Focus on medicines that sell quickly to avoid losses.
- **Set reorder alerts** – Ensures important medicines are always available.

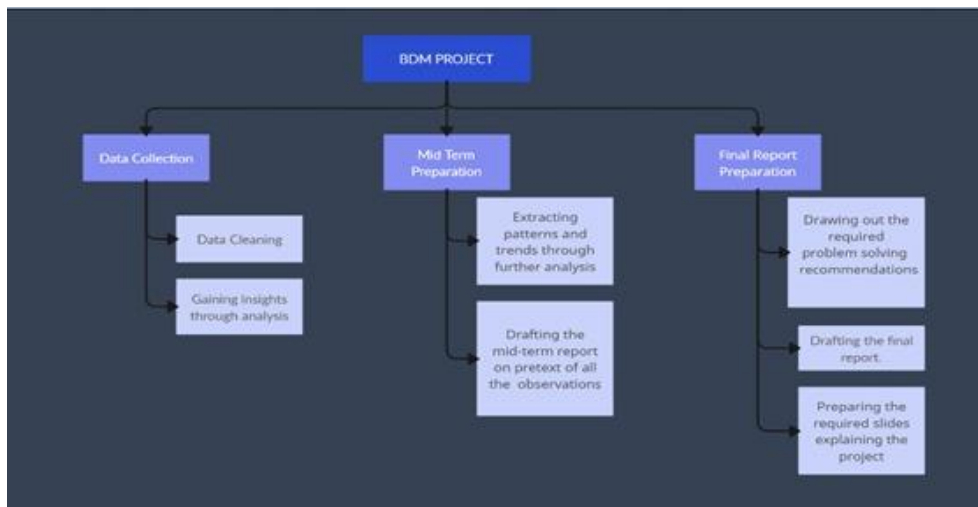
#### **2. Enhancing Supply Chain Stability**

- **Check supplier performance regularly** – Helps find reliable suppliers and avoid delays.
- **Plan deliveries better** – Reduces waiting time and keeps shelves stocked.
- **Improve communication with suppliers** – Helps plan orders efficiently.

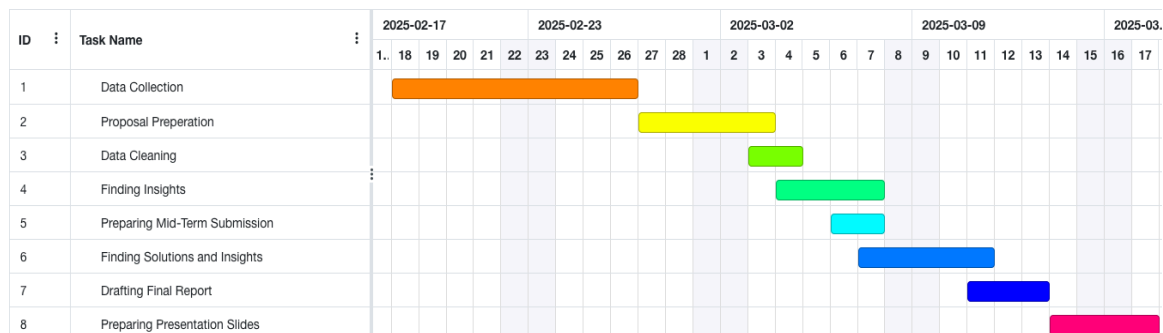
#### **3. Expanding Market Reach**

- **Promote services to pharmacies and clinics** – Reaching out to more customers.
- **Expand to new areas** – Serving more locations and increasing sales.

## Expected Timeline



*Figure 1 Work Breakdown Structure of the project.*



*Figure 2 Gantt Chart of the Expected timeline.*

## Expected Outcome

- Through the adoption of the suggested solutions, The Wholesalers company will realize a number of important improvements in its operations. To begin with, structuring sales and inventory information into easy-to-read charts and graphs will enable the owner to monitor stock levels, sales patterns, and general business performance more effectively.
- Second, inventory levels will be minimized to cut back on overstocking, tying up capital, and avoid stockout, thus guaranteeing basic drugs are on hand at all times. The company can order purchases more wisely by knowing quick sellers and slow movers, lessening waste and enhancing cash flow.
- Finally, the business will also acquire customer demographic insights to help it concentrate on particular customer requirements and inclinations.