Expiry/Breakage management by a wholesale pharmacy

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled "**Expiry/ breakage management for wholesale pharmacy**". I extend my appreciation to [**R. P. Medical Agency**], for providing the necessary resources that enabled me to conduct my project.

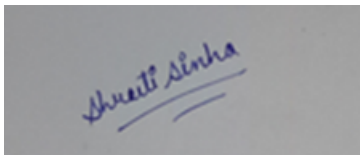
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

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: (**Digital Signature**)

Name: SHRUTI SINHA

Date: 05-03-2024

1 Executive Summary and Title

This project focuses on a pharmacy located in wholesale marketplace of Gaya. The marketplace serves the retail demand of Gaya as well as the demand of neighboring towns of Bihar and Jharkhand like Aurangabad, Giridih, Nawada etc. The entity is B2B and serves retail pharmacy stores.

The issue at hand is nominal profits due to large amounts of returns happening on account of expiry of medicines. The expiry comes from the customers (retailers) which is transferred to the supplier.

The problem will be addressed by doing a demand forecast of every SKU and proposing a plan of product procurement as well as effort will be made to optimize the return transport and handling cost.

The outcome of the project will help in increasing the profit by releasing the working capital stuck with the supplier as well as the working capital exhausted in handling and transport of returns.

2 Organization Background

The organization that I am working with is R. P. Medical Agency located Khairat Ahmad Road, Gaya (823001). The business is authorised wholesale dealer in allopathic/evidence-based medicines as well as Ayurvedic medicines. Sales composition of the two is 90% allopathic and 10% Ayurvedic. It was established in 1997 with the name Ratan Priya Medical Agency but on account of change in proprietorship was renamed as R. P. Medical Agency. The pharmacy is run by Vijay Kumar Sinha who happens to be the proprietor along with 1 staff that look after the shop. The organization is a wholesale dealer and gets supplies from Clearing and Forwarding Agent (hereafter referred as CNF) and supplies retailers. The business currently has customers coming from Gaya as well as neighbouring towns of Aurangabad, Nawada etc. in Bihar as well as Chatra, Koderma in Jharkhand. The agency currently has an annual turnover of 1Cr.

Figure 1 Snap of Shop

3 Problem Statement

3.1 Returns done by the business: The R. P. Medical Agency is returning expired medicines of approx. 1lakh every month. The returns block the capital for at least 6 months. This is a latent problem that is reducing working capital and eventually effecting profits.

3.2 Expiry medicines coming from retailers: The R. P. Medical Agency is receiving expired medicines of approx. Rs. 80000 every month from the retailers. The returns increase expenditure for transportation cost on executing returns to the supplier. This problem seems to be ongoing and exhaust capital.

4 Background of the Problem

R. P. Medical agency is having capital blockage due to handling of returns. The agencies monthly turnover ranges from Rs. 800000 to Rs. 900000 with a profit margin of 8% to 10% across SKUs. With this margin having a blockage approx. 1 lakh per month in returns with the supplier is huge block. The major factor contributing to this is the sales return from the retailers on account of no sales. The sales return needs to be aggregated from the customer. The returns from customer can be taken till 3 months post expiry after which the agency can deny the return. These returns are aggregated on supplier basis which is CNF in this case and then need to be transported back. Once the stock is received by the supplier it takes up to 6 months to settle this. The settlement happens by way of cash or replacement. There is a huge time lag in settlement which results in capital blockage. This situation is an ongoing issue for the agency as per the proprietor as well as the staff who happens to be associated with the agency for more than 10 years.

5 Problem Solving Approach

1. **Methods for problem solving**

Returns done by the business- An SKU wise demand forecast by way of trend analysis to ensure that any low demand product is not being over stacked in the business and resulting in return. As well as an all-year trend study of sale will be done understand as to which medicine sells most at which time of the year. Details about lead time in procurement from the supplier will also be analyzed. If the lead time is not significant possibility for Just in Time (JIT) inventory management system could be explored. If we are able to deduce an efficient purchase plan purchase return could be controlled.

Expiry medicines coming from retailers- Efforts will be made to identify any bottleneck in the chain as the organization also aggregates and transport the expired units from the retailer. An optimal time for return will be decided to return a unit in order to reduce the transportation cost. This will also help is exploring the possibility for Just in time (JIT) inventory management system.

That will help in reducing inventory carrying cost as well as incidence of returns.

2. **Data Collection**

The entity has an electronic billing/ entry system that captures data at the time of purchase, sales, purchase returns, sales returns. The data captured includes fields like Date, Customer name (incase of Sales), Supplier (in case of purchase), Medicine name, Quantity, Price, Discount, Expiry and Amount. This data is exportable in .csv format and can be used for analysis. It is planned collect this data for a period 1 year (period: - Jan 2023 to Dec 2023) in order to do all year trend analysis as well as the SKU wise demand forecast. For understanding lead time and transport cost, supplier wise data need to be collected by discussion with proprietor or his staff. The supplier wise lead time will be mapped to the different SKUs manually.

3. **Data Analysis Tools**

Tool used for undertaking the methods listed will be excel as well as python. The transport and lead time data won't be that large and can be handled by excel but the trend analysis using the data captured by electronic system might be large for a year and may not be handled by excel. Hence, python will be used.

6 Expected Timeline

6.1 Work Breakdown Structure:

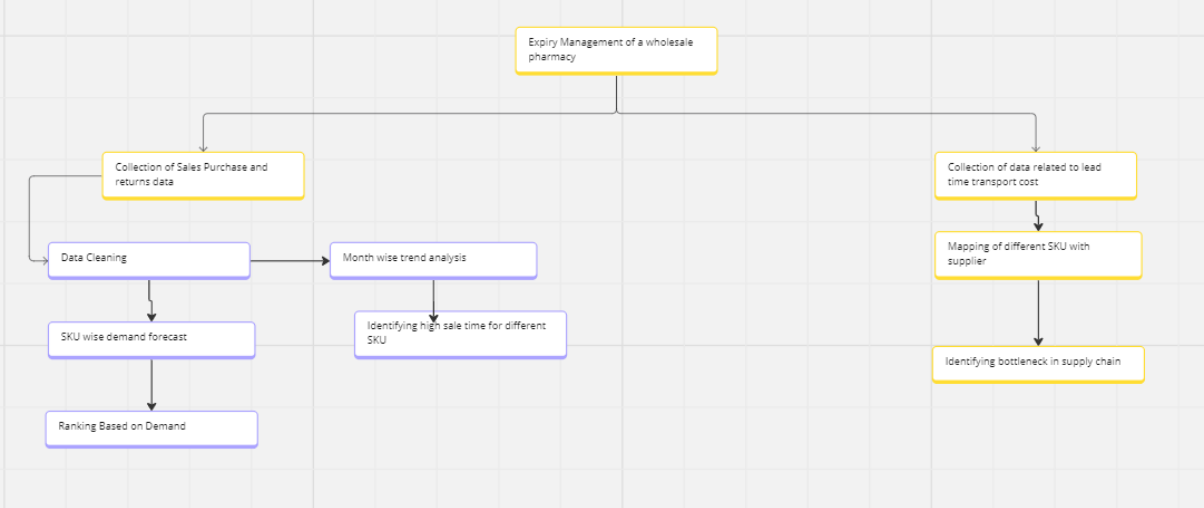


Figure 2 Proposed WBS

6.2 Gantt chart

Task Name	Start (Date)	End (Date)	Duration (Days)
Collection of Data	06-03-2024	07-03-2024	1
Data Cleaning	08-03-2024	09-03-2024	1
Finding Insights	09-03-2024	10-03-2024	1
Preparing Mid term sumission	10-03-2024	11-03-2024	1
Finding more insights and weighting for approval	11-03-2024	12-03-2024	1
Midterm approved	12-03-2024	13-03-2024	1
Finding solutions	13-03-2024	20-03-2024	7
Preparing Final submission	20-03-2024	21-03-2024	1
Preparing slides while Waiting for approval	22-03-2024	02-04-2024	11
Final approved	02-04-2024	03-04-2024	1

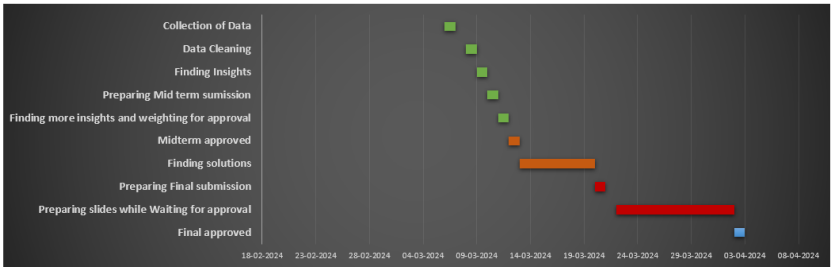


Figure 3 Gantt Chart.

7 Expected Outcome

The pharmacy is expected to have a lower return utilizing outcomes of this project. We are expecting to understand market by analyzing historical sales data and determine the seasonal variation in sales generally as well as for different SKUs. The lead time and transportation cost on supplier basis to explore the possibility of JIT inventory management system that will further enhance the supply chain for the purchase. The demand forecast could also help in identifying SKUs that could have unsatiated demand and can help in increasing the sales for business. The JIT if feasible could decrease lead time, inventory carrying cost and make the enterprise more efficient.