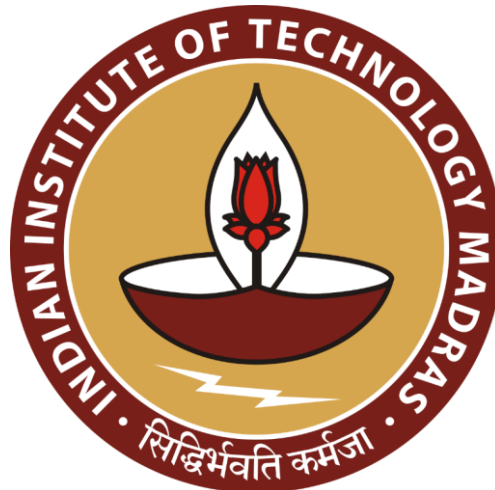**Demand-Responsive Stocking and Smart Supply Solutions For an agrochemical company**

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title "Demand-Responsive Stocking and Smart Supply Solutions for an agrochemical company". I extend my appreciation to **SUMOTO CROP SCIENCE**, for providing the necessary resources that enabled me to conduct my project.
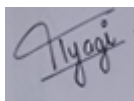
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered through primary sources and carefully analyzed to assure its reliability.

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 information 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 agree that all the recommendations are business-specific and limited to this project exclusively, and cannot be utilized for any other purpose with an IIT Madras tag. I understand That IIT Madras does not endorse this.

Signature of Candidate:

Name: Akansh Tyagi

Date:03-11-2024

1 Executive Summary and Title

The business operates both B2B and B2C. The firm helps farmers develop high-yield crops by producing insecticides, pesticides, and agricultural plant growth products. Muzaffarnagar Town, Road, Purquazi, Uttar Pradesh 251001 is the address of Sumoto Crop Science.

The business ships its goods to more than 340 cities. Because of their varied regional client tastes and product demands, the business finds it difficult to comprehend customer behavior, which eventually impacts the relationship and total sales of the business.

"Super cash" and "Regular" are the company's order priorities. The sales force occasionally falls behind in giving high-value orders priority. Prioritizing orders with high revenue will improve profitability and customer happiness.

Excel will assist in generating actionable information for Sumoto Crop Science by identifying salesperson performance and customer behavior.

Using the net amount, pivot table analysis assists in identifying high-value clients. This makes it simple to segment our clientele, allowing for localized product allocations and customized marketing. Customer segmentation will readily disclose regional preferences.

2 Organization Background

The company wants to give impoverished farmers access to high-quality, reasonably priced insecticides and pesticides. The company's goal is to help farmers make more money by eliminating pests and boosting crop growth at the lowest possible cost.

Up until 2015, the company's founder held the position of general manager at a large agricultural company. He is kind of a crop doctor with extensive understanding of chemistry, including substances, how chemical reactions operate, testing, and quality control. He came to see that these items could be produced at a minimal cost, enabling poor farmers to employ them on their small fields to increase agricultural yields. Mr. Sushil (owner of the company) itself owns 50 acres of agricultural property, so they are familiar with the realities of crops, associated pests, and the value of medication in crop growth. They thus benefit from this; formerly, they used to test new, unique products on their fields first.

3 Problem Statement

3.1: Customer Behavior and Segmentation for Agro-Chemical Products: Company's varied geographical clientele leads to a range of purchasing habits, which impacts targeted sales and ultimately results in customer attrition.

3.2: Salesperson Performance and Order Prioritization Strategy: Salespeople have difficulties with the company's order priorities as some may not be focused on high-potential possibilities

4 Background of the Problem

The crop and season have an impact on pesticide and insecticide sales. Stockouts and excess inventory due to client preferences and sales performance are the biggest problems. Product sales challenges include uneven demand across various agricultural regions, uneducated farmers who ask for poor, low-quality products, and possibly a sales team lacking the necessary expertise to articulate the product's main advantages.

Sales are also impacted by the climate, financial constraints, farmers with little education, and the presence of low-quality, inexpensive agrochemical goods in the market. A lack of focused sales tactics and shifting consumer tastes are the main causes of excess inventory and stockouts. Additionally, "Super Cash" orders are not adequately prioritized by sales operations, which affects customer happiness and profitability.

The internal elements influencing overall sales include customer behavior, preference, and salespeople's knowledge of the items. Uninformed farmers purchase goods based on mutual advice; they don't want to know what is needed for their specific crop during that time of year, which results in the sale of a variety of goods during the off-season. The leaders of the sales team, SP1, receive reports from salespeople about product sales; however, they lack a way to monitor and evaluate client preferences. Product demand is unpredictable because of agroproduct misinformation, extreme weather, planting season, and crop-specific requirements.

By fixing this problem, the stockout scenario can be addressed and inventory management can be improved. By segmenting the client base, data analysis will assist in understanding their preferences, which will improve customer happiness by matching product offers to demand.

5 Problem Solving Approach

Methodology: In order to increase overall sales and optimize inventory stocks and stockout situations, the strategy seeks to maximize salesperson performance and customer targeting. Findings from the analysis of order prioritization, regional segmentation, and high-value customers will guide the distribution of resources and the development of focused marketing plans. In order to support sales growth in strategic regions and identify possible areas for improvement, sales efficiency will be assessed.

Overview of the Data: To assess sales and customer insights, we require customer and salesperson data.

Customer Information: Item Name, Net Amount, Purchase Frequency, Source Name, and Source City

Salesperson Information: Name, Territory Code, Order Priority, and Net Amount.

Tools: To discover customers who could be useful and to increase the productivity of salespeople in underperforming regions. Excel will be our primary tool which provides excellent data handling, visualization, and filtering capabilities that can help in insights generation.

Excel features and functions (including vlookup and pivot tables) help summarize sales and customer data performance. COUNTIF/SUMIF would be used to summarize data points efficiently—frequent order per customer, total sales per region.

Graphs :Bar Graphs and Column Charts: Helpful for Comparing Categories (Sales by region, performance by salesperson) A bar can represent metric like net amount per city or salesperson.

Pie Charts: These charts are best used for proportionate, such as percentage of sales by order type (Super Cash vs. Regular).

Heat maps: display the density of the data and performance in a particular region, which can be separated into high or low sales figures using colors.

Line Charts — Best for observing trends, such as the number of sales made monthly, or the frequency of purchases by customers over time.

Stacked Bar Charts: they are appropriate for displaying sub-categories under each main category, such as sales by each salesperson, and within each order type to see the total and separated contribution.
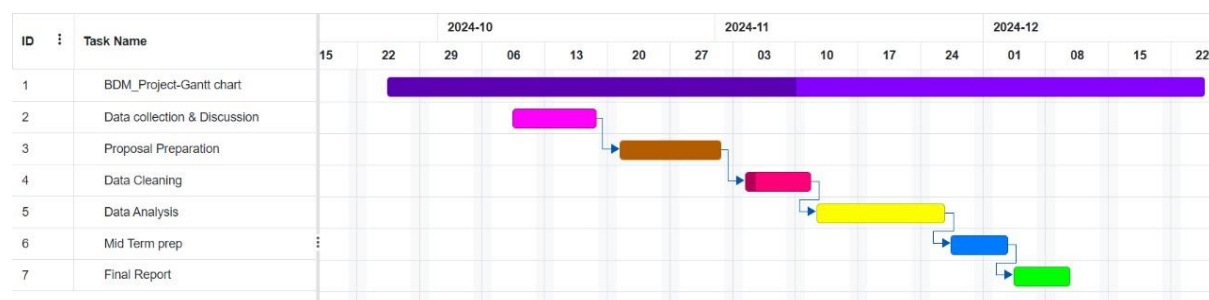
Scatter Plots: To highlight relationships, e.g., correlation between the number of times a salesperson has sanctioned and the net amount created.

6 Expected Timeline

6.1 Work Breakdown Structure:
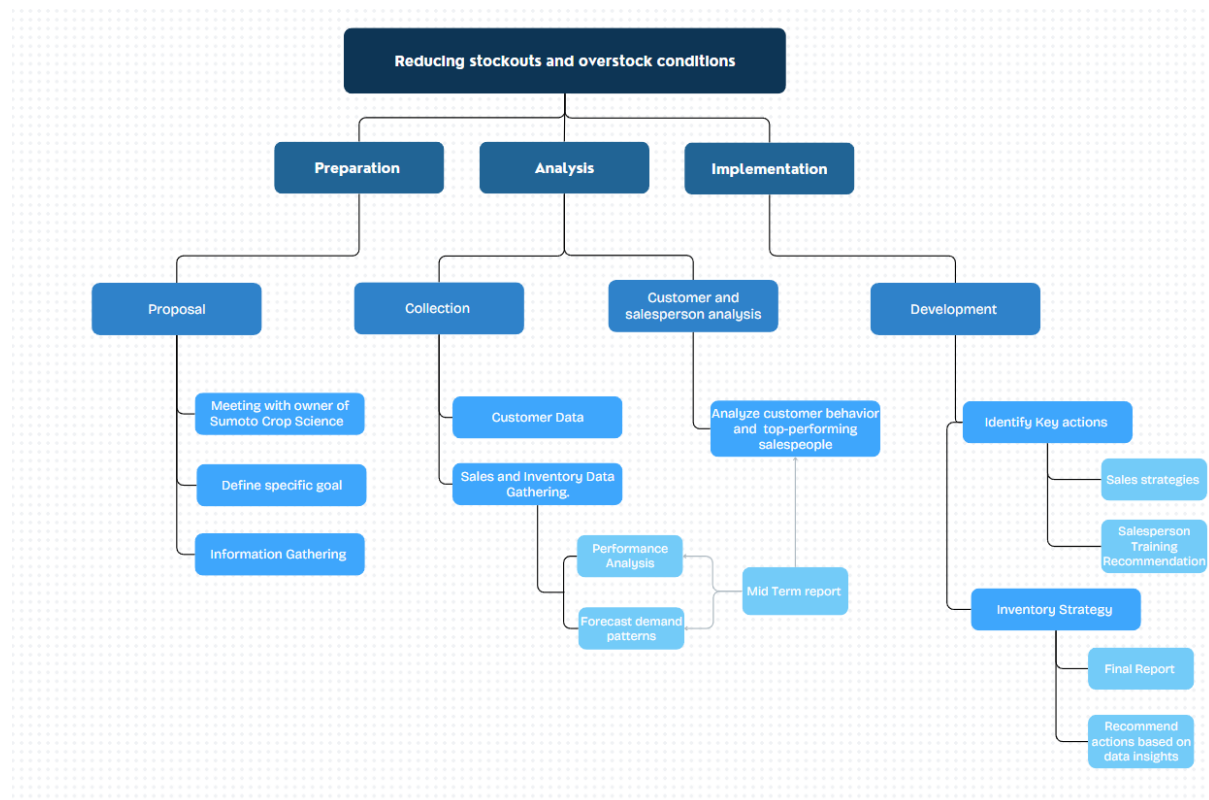
6.2 Gantt chart:

7 Expected Outcome

- The business reduces the likelihood of stockouts and excess stock situations by matching supply with customer demand patterns. Customers will always find what they need thanks to this balance, which also improves product availability and decreases waste.

- Profitability is increased, and unrealized market potential is revealed by concentrating resources on high-revenue clients and geographic areas. The business can prioritize where resources and marketing efforts will have the biggest impact thanks to these insights.

- Actionable information for strategic assignments and focused training is provided by insights into salesperson performance by order type and region. Making sure that knowledgeable salespeople concentrate on high-priority orders increases productivity and strengthens client satisfaction.

- By comprehending and modifying product offerings according to consumer preferences, the business can provide individualized experiences that increase customer satisfaction, loyalty, and the possibility of repeat business.

- This analysis will help to pinpoint areas with less current sales but with greater potential for growth. Marketing and sales could be coordinated in these areas to accelerate growth and also boost regional profitability, all of which can help continue sustaining growth.