CAPSTONE PROJECT PROPOSAL FOR BUSINESS DATA MANAGEMENT

A CASE STUDY

OF

BISHNUPUR ROWTARA

PRIMARY AGRICULTURAL CO-OPERATIVE SOCIETY LIMITED

FERTILISER OUTLET TO ASSIST IN

OPTIMISING OUTLET LOCATION FOR EFFICIENT CUSTOMER DELIVERY

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1. Executive Summary :

The Business Data Management Capstone project is an integral component of the BS in Data Science and Applications program at IIT Madras. This project is dedicated to developing a data-driven solution to a specific business problem by leveraging various Data Science techniques. In an attempt to accomplish this, the project will collect and analyse relevant data from the Bishnupur Rowtara Primary Agricultural Cooperative Society (BRPACS) located in Nadia, West Bengal. By applying Data Science methodologies, the project aims to provide valuable insights and recommendations that can optimise the operations of BRPACS and contribute to its overall success.

The objective is to identify potential areas where new outlets can be strategically located to enhance the delivery services provided to customers. This will be achieved through a comprehensive analysis of sales data, utilising Data Science techniques. By examining patterns, trends, and customer preferences within the sales data, the project aims to uncover insights that can lead to a potential solution. The proposal outlines the detailed analysis of the problem, along with the specific approaches and data collection techniques that will be employed to derive an effective solution.

2. Organisational Background :

BRPACS is a cooperative society established with the primary goal of serving the agricultural sector. Its core objective is to provide financial and agricultural assistance to farmers, promoting sustainable agriculture and rural development. In addition to selling fertilisers, BRPACS offers various services to support farmers, including crop loans and agricultural machinery loans. It also conducts bi-weekly informative sessions, to educate farmers about the proper usage of fertilisers and other agricultural practices. By imparting knowledge and guidance, BRPACS aims to improve the standard of living for farmers and contribute to the economic growth of the country. Through its comprehensive range of services and educational initiatives, BRPACS endeavours to empower farmers,

enhance their productivity, and ensure a thriving agricultural sector by fostering sustainable agricultural practices and uplifting rural communities, thereby creating a positive impact on the overall development of the country. The society's holistic approach fosters a sustainable and prosperous agricultural ecosystem.

3. **Problem Statement :**

Farmers are increasingly moving towards the other private ownership shops to reduce the transportation cost. BRPACS is therefore interested in solving two major problem statements :

a. Areas where they can open new outlets to tackle the problem of farmers
b. Category of outlet to be opened in the particular area with the limited human resource available

4. **Problem Objectives :**

a. Analysing the seasonality of the demand
b. Analysing the location of the customers
c. Offering a potential solution of location of outlets
d. Estimation of the potential outlets and the type of outlet

5. **Background of the Problem :**

BRPACS is facing a lack of demand lately as more and more private fertiliser agencies are sprouting in the vicinity, they are reducing the cost of transportation for the farmers. BRPACS has two problems with this growing reluctance of farmers -

a. Losing the fertiliser customers would pose an inevitable threat to the other services like crop loans, machinery loans and farming equipment rental services provided by BRPACS.

b. BRPACS has to work with the human resource available at their hand. Since the soaring demand of fertilisers is seasonal therefore investing on building new outlets with new recruitment would incur loss in the long run. Therefore with the current available staff allocated to the Fertiliser section BRPACS wants to have a plan of locating the potential outlets and running them at the minimal possible cost.

6. Problem Solving Approach :

a. Methods used and Justification

i. Data collected from Daily ledger to Sheet for two months
ii. This collected data was organised in two formats - one is category wise and another is area wise
iii. Category of fertiliser and location of customer are important for our analysis
iv. The data trends on location of customers and the share of sales is to be studied from this analysis
v. The areas with high profitability and minimal cost of installation will be analysed to conclude into our intended outcome.

b. Intended Data Collection and Justification

i. Data collection is done from handwritten ledger to excel sheet thereafter it was entered to google sheets for further analysis
ii. The organisation has an integrated software for storing the data but the permission to access could not be obtained.

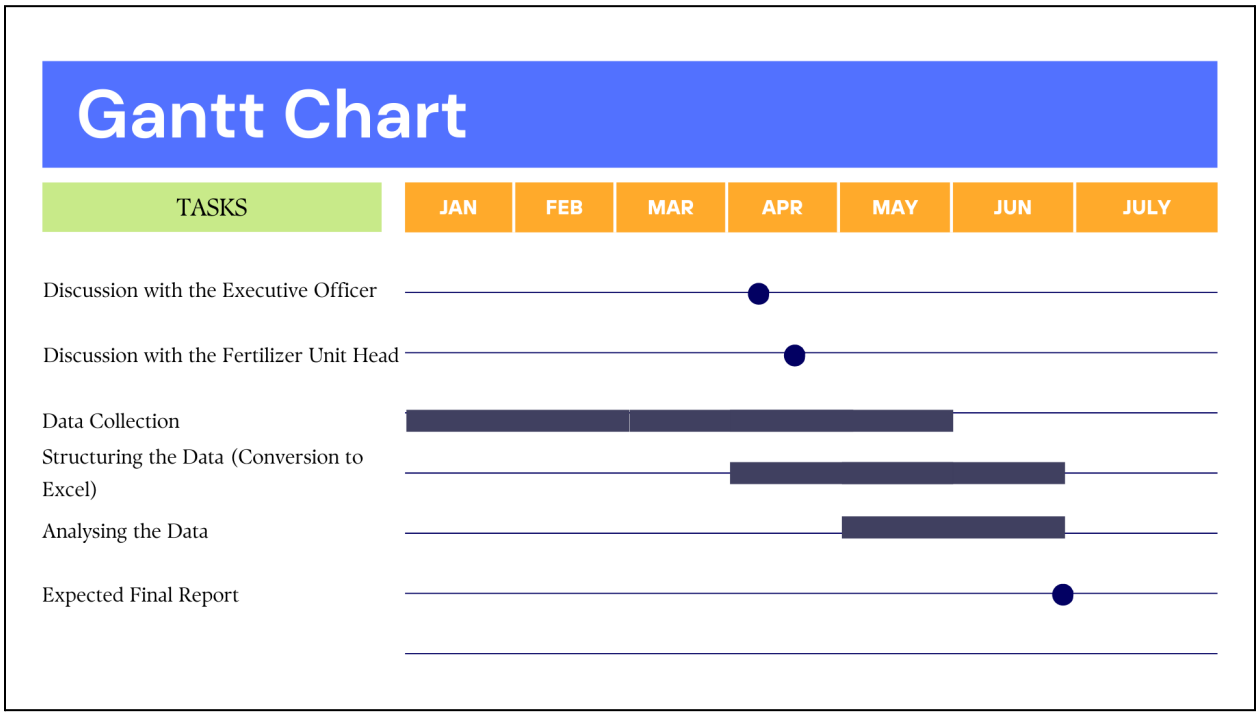
c. Analysis Tools and Justification

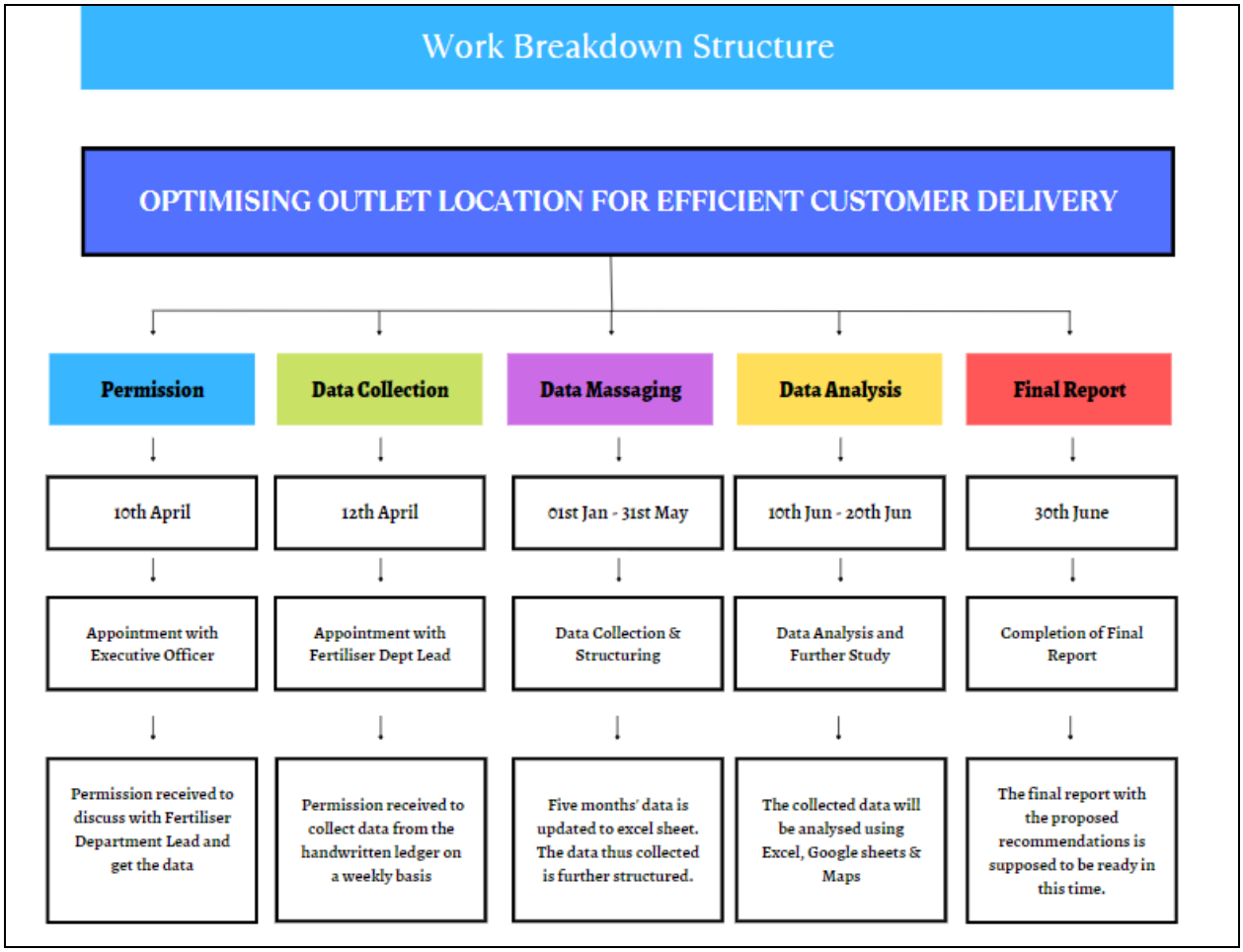
i. Google maps - to get customer location
ii. Excel and Google sheets

iii. Pivot tables for area and sales share

iv. Formatting and sorting from ledger to sheet

7. Expected Timeline :





8. Expected Outcomes :

a. An efficient strategy of locating areas for outlets and identifying any trend if present to make similar strategic decisions in future.

b. To understand the demand of the customers and create a convenient way to order from (an app or a mobile number to get the orders so that it can be packed and delivered to the customer as soon as possible).