Data-Driven Optimization of Newspaper Distribution and Customer Retention Strategies in the Unorganized B2C Sector

A Proposal report for the BDM capstone Project

Submitted by

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Contents

1 Executive Summary

S. K. News Paper Mart is a small, unorganized B2C newspaper distribution service based in Mogappair, Chennai, founded by an independent distributor who has been delivering newspapers for over 23 years. The organization serves approximately 100 households, supplying a variety of regional and national dailies, including The Hindu, Dina Thanthi, and The Times of India.

With increasing operational inefficiencies and shifting customer behavior, the organization is facing multiple challenges: route planning inefficiencies leading to higher fuel costs, inability to track shifting customer addresses, and difficulty in managing daily newspaper demand accurately for weekdays, weekends and government holidays.

This project aims to leverage data-driven techniques to optimize delivery routes, forecast newspaper demand, and analyze customer retention. By collecting and analyzing delivery addresses, customer preferences, and operational cost data, the project will employ clustering, time series forecasting, and churn modeling to generate actionable insights. The expected outcome is a decision-support system that enables the distributor to optimize routes, reduce fuel costs, improve delivery accuracy, and identify key factors influencing customer churn, thereby enhancing overall operational efficiency.

2 Organization Background

S. K. News Paper Mart is a B2C newspaper distribution service based in Mogappair, Chennai, Tamil Nadu. Established in 2002 by Mr. S. Kumar, the business operates from his residence and caters to approximately 100 households in and around the Mogappair locality. The distributor begins his work at 4:00 AM each day and completes the deliveries by 7:00 AM.

The organization delivers a range of regional and national newspapers including Dina Thanthi, Times of India, The Hindu, The Indian Express, and Dinamalar. In addition to newspapers, it also supplies popular magazines such as Kumudam and Vikatan, along with materials like promotional leaflets that are attached to the newspapers. The business operates as a one-man venture, where Mr. Kumar is solely responsible for managing and distributing newspapers within his assigned zones. Other zones are served by separate independent distributors.

3 Problem Statement

3.1 Inefficient Delivery Routes: Manually planned routes lead to excessive fuel usage and increased delivery time, reducing overall profitability.

3.2 Unpredictable Demand Patterns: Lack of demand forecasting for newspapers on weekdays, weekends, and holidays results in overstock or shortage.

3.3 Customer Churn: The absence of a tracking system makes it difficult to identify shifting addresses and subscriber preferences, leading to customer loss.

4 Background of the Problem

S. K. News Paper Mart, operating in the unorganized B2C sector, faces a combination of logistical and customer-related challenges that have gradually built up over years of manual operations. One major cause is the lack of digitization in managing customer data, delivery routes, and inventory. Internally, the distributor relies entirely on memory and handwritten notes to track which households receive which newspapers and magazines. This often leads to delivery mismatches, missed addresses, and difficulty adjusting to customer preferences or address changes.

Externally, customer behavior is rapidly shifting. Many are moving to online news platforms, reducing the demand for physical newspapers. Additionally, residential mobility is high, and there is no system in place to track or update moving customers, resulting in silent churn. Seasonal and daily variations in newspaper demand—especially during weekends and public holidays—further complicate inventory planning. Rising fuel prices add pressure to optimize delivery routes, but the absence of route data or tools makes this difficult.

Together, these internal inefficiencies and external pressures have led to increased operational costs, loss of subscribers, and missed revenue opportunities—making it essential to adopt a data-driven approach to sustain and grow the business.

5 Problem Solving Approach

The business is facing multiple challenges, and I plan to address each of them using structured, data-driven methods. Here's how I will approach the project:

Data Collection and Analysis

I will collect customer-related data such as delivery addresses, newspaper preferences, and duration of subscription. Additionally, I'll record operational data like daily newspaper counts, delivery routes, fuel usage, and public holiday schedules. Analyzing this data using tools like Excel and Python will help identify inefficiencies in delivery patterns and demand fluctuations. Time-series forecasting will be used to predict daily and seasonal demand, helping avoid over- or under-ordering of newspapers.

Delivery Route Optimization

To reduce fuel costs and delivery time, I will apply clustering algorithms (like K-Means) to group households based on their location. This will help suggest more efficient delivery routes. Visual tools like Google Maps or mapping libraries in Python will be used to illustrate optimized paths. This can lead to significant savings in fuel and effort for the distributor.

Customer Churn Analysis

I will categorize customers into active and inactive groups and try to understand patterns in customer loss. Using simple churn prediction models, I'll identify factors like subscription duration, missed deliveries, or shifts in location that could be linked to churn. This will help in retaining existing customers and re-engaging past ones.

SWOT Analysis

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis will be conducted to understand where the business stands and how it can improve its performance. For example, the personal nature of the delivery is a strength, while lack of digitization is a weakness. The

analysis will help guide strategic improvements.

By combining these approaches, the business can transition from a memory-based operation to a smarter, data-informed system that reduces losses, improves customer satisfaction, and supports long-term sustainability.

6 Expected Timeline

6.1 Work Breakdown Structure:

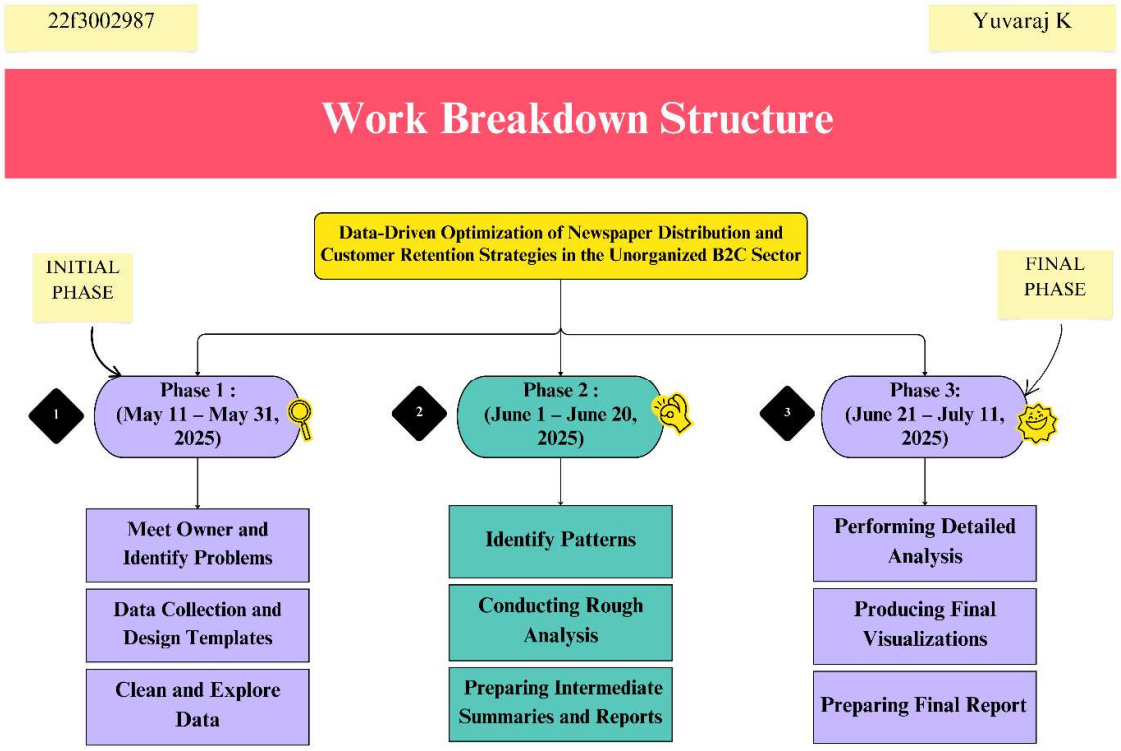

Figure 1.1 Work Breakdown Structure

6.2 Gantt chart

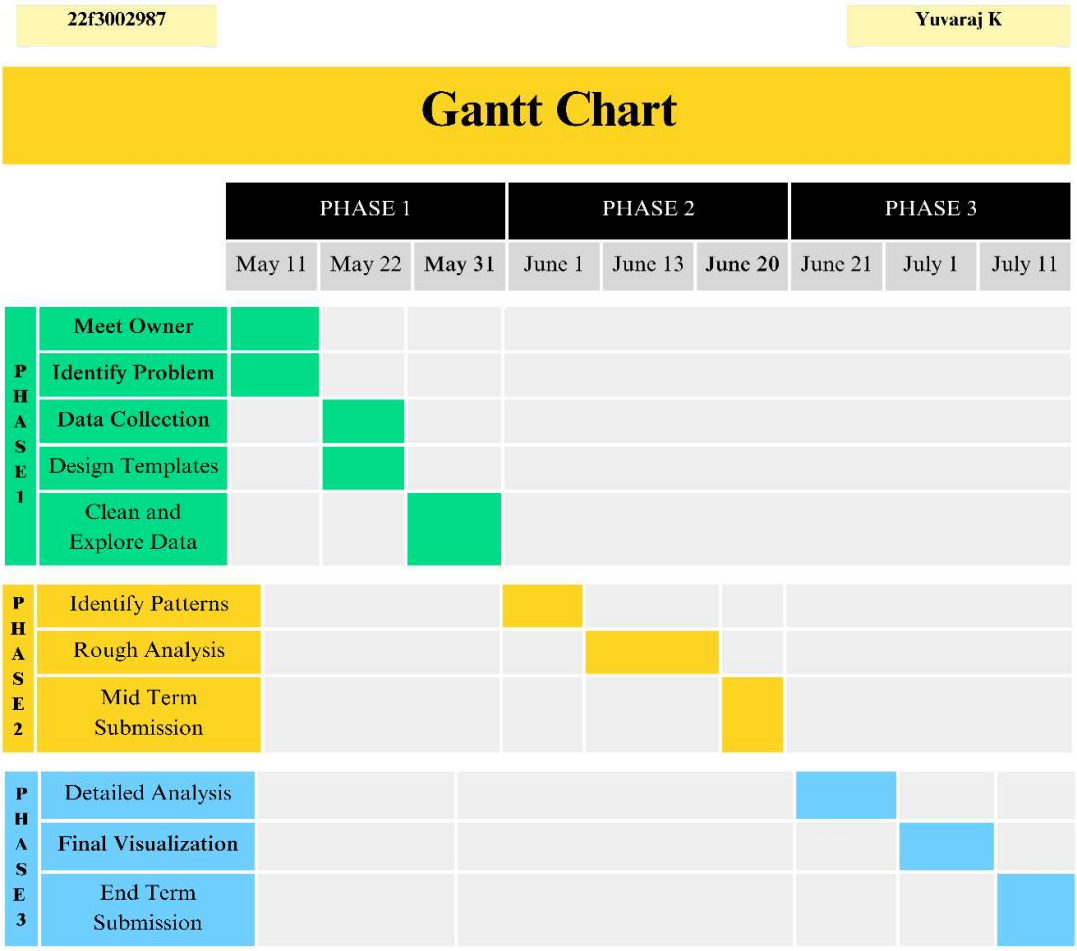

Figure 1.2 Expected Timeline Gantt Chart

7 Expected Outcome

7.1 More efficient delivery paths, reducing fuel usage and delivery time, which can lead to better time management and cost savings for the distributor.

7.2 The business can better plan its orders, reducing both wastage and shortage of papers.

7.3 Better visibility into customer preferences, address changes, and inactive users, helping retain customers and reduce churn.

7.4 The distributor will be equipped with practical tools and insights to make smarter decisions, such as when to adjust routes or which newspaper bundles are most profitable.