

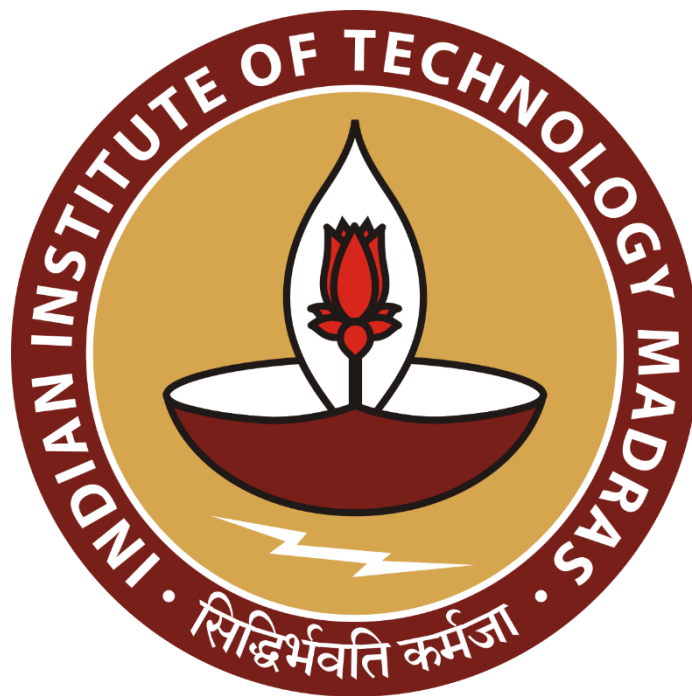
Improving Efficiency and Profitability of Santur Bhabani Sweets by Data Analysis

A Proposal report for the BDM capstone Project

Submitted by

Name: Koustav Das

Roll Number: 23F1003155



IITM BS Degree Program,

Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

Contents

1. Executive Summary and Title	3
2. Organization background	4
3. Problem Statement	4
4. Background of the Problem	5
5. Problem Solving Approach	5
6. Expected Timeline	7
7. Expected Outcome	7

Declaration Statement

I am working on a Project titled “Improving Efficiency and Profitability of Santur Bhabani Sweets by Data Analysis”. I extend my appreciation to **Santur Bhabani Sweets**, 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: Koustav Das

Date: 02/07/24

1. Executive Summary:

Santur Bhabani Sweets, a famous sweet shop located in Rautara, near Contai, Purba Medinipur, West-Bengal. It has been an integral part of local community since 2022. Although it has a good reputation in the locality, the shop faces many problems which are effecting there growth and profitability.

The organization faces several problems such as Inefficient Production Management, decline in Revenue, Lack of skilled worker, Scarcity of Milk because of Poor inventory management, Inadequate demand forecasting, unreliable milk supply which is hindering the growth of business.

To overcome these challenges we use data-driven approach and utilizing various analytical methodologies:

- Inefficient Production Management: Analyzing sales and production data we will forecast our future demand and improve production.
- Decline in Revenue: By identifying high selling product, reducing wastage, implementing customer review and using discount strategy we can improve our sell.
- Lack of Skilled Worker: After accessing present workers capability we will recruit skilled worker to fulfill our customer demand.
- Scarcity of Milk: Monitor daily milk requirement and ensure milk quality.

The expected outcome of this project is to improved production quality, reduce wastage and enhanced customer demand. By comprehensive Data Analysis the business will be able to overcome its current problems which will solidify its sustainable growth and profitability in the competitive market. In this way Santur Bhabani Sweets will be able to established as a trusted and beloved sweet shop in the locality.

2. Organization Background:

Santur Bhabani Sweets situated in Rautara bus stand beside Contai-Kharagpur road near Contai town, in the district of Purba Medinipur, West Bengal. It is one of the reputed shop in the local market. It plays a vital role in this area since 2022 as a sweet's shop. This shop has become an integral part of the local community. It serves a wide range of sweet and confectioneries to its customers.

Samiran Maity (Santu) founded this shop in the memory of his grandmother Bhabani Devi in 2022. He is a young entrepreneur who wanted to start his own business. There are many cattle farms in his locality. So, plenty of milk is available there. This inspires him to start a B2C sweet shop in his locality.

Samiran Maity has a small team to maintain his business. In his team there are six workers. Out of these six people two are Master sweet maker, two are helping hand and a manager.

Santur Bhabani Sweets offers a different type of traditional Indian Sweets such as 'Rasgulla', 'Sandesh', 'Laddu', 'Kachori', 'Jalebi', 'Gulab Jamun', 'Misti Doi' etc. This shop runs from 8 a.m. to 9 p.m. per day. It provides sweets in different social and religious festival in this locality.

Now it is a well-known sweet shop in this area for its quality, tradition and customer satisfaction. Mr. Samiran wanted to make his shop as a most trusted organization in his locality.

3. Problem Statement:

After discussion with Mr. Samiran I came to know that he is facing some problems in his business which need to be pointed out. For these problems his business is effected in many ways. The problems are stated below:

1. Inefficient Production Management:

- Due to inefficient production management Santur Bhabani Sweets is not able to plan correctly its daily production and facing wastage of sweets.

2. Decline in Revenue:

- For the last few months this shop is not able to generate its expected revenue and also facing decline in revenue.

3. Lack of skilled worker:

- Mr. Samiran is not able to find proper skilled worker for his business who can bring the variation in the sweet production.

4. Scarcity of Milk:

- The production is effecting for the unreliable milk supplier.

4. Background of the Problem:

Inefficient production management at Santur Bhabani Sweets is missing leading its daily production. This issue stems from inadequate demand forecasting, poor inventory management, improper planning. Due to these reasons this shop is facing over productions or shortages which is ultimately causing shops profitability.

For last few months Santur Bhabani Sweets is facing declining in revenue for inconsistent production, supply chain disruption, poor marketing strategy, product wastage, frequent stock-out and many other economic factors. In their locality many new shops have grown up which increase their competition in the market also. For these reasons Santur Bhabani Sweets is not able to reach its expected revenue and profit.

Due to lack of skilled worker Santur Bhabani Sweets is not able to bring variation in production. Similar kind of sweets are not able to attract and retain their old customer which leads them to face challenges in competitive market. That is why they are facing decline in sells and wastage in production. This is also affecting their customer satisfaction.

Production of sweets is highly depended on milk supply. It is the main raw material of sweets. Due to inadequate supply of milk, Santur Bhabani Sweets is meeting several problems in their business. Sometimes quality of milk is not satisfactory which obstruct the smooth production. Their quality of production is also declining for this reason. The price of milk is also fluctuated in many cases. This does not allow their business to run smoothly.

5. Problem Solving Approach:

To solve these problems of Santur Bhabani Sweets we need to take some systematic problem-solving approach. We need to blend some proper data solving approach with respect to collected data with the help of various analysis tools.

Methods:

- **For inefficient production management:**
 1. We need to analyze daily sales data, daily production count, seasonal demand, daily waste count to identify the lack in production.
 2. With the help of past few months production data we can predict demand for future and plan production accordingly. We also need to schedule our production based on changing in demand.
 3. We have to maintain our necessary stocks of raw material to avoid overstocking and shortage of production by analyzing daily sales data.
- **For Decline in Revenue:**
 1. By analyzing daily sales-data we will identify the best-selling, low selling, profitable product and seasonal demand.
 2. By graphical analysis we will try to find the trends, profitability, seasonality, pattern in business.
 3. Bring some discount policy for the customers and try to gather feedback from them.
 4. Try to reduce maintenance expenditure of the shop.

- **For Lack of skilled workers:**
 1. We need to identify daily and seasonal demand of products and try to find how much the workers are able to fulfill their needs.
 2. We will collect customer review to identify areas of improvement.
 3. To bring variation in production we can recruit well-trained and experienced workers.
- **For Scarcity of Milk:**
 1. How much milk we required per day according to daily demands, we have to know from daily sales data.
 2. We also need to observe the quality of milk.

Intended Data Collection:

- **Daily Sales, Production and Waste Data:** The total quantity of items sold, produce and waste every day for each product and there individual selling and making price to identify best-selling, high profitability and high demand product.
- **Seasonal Data:** Data across various seasons to identify seasonal demand and pattern in business.
- **Customer review Data:** Try to collect customer review and complaint records to know customer satisfaction.
- **Daily Milk requirement Data:** How much milk we required for daily production.

Analysis Tools:

- **Microsoft Excel:** We will use MS Excel for a broad part of analysis. To analysis sales, production, waste data we can use this tool. It will help us find trends, demands, profitability, pattern in the business. With the help of various graphical plots, charts, pivot table we will be able to find the most selling item, most profitable as well as low profitable item. We will be able to find various statistical relation between items, sales, product turnover in MS Excel.
- **Python:** Python is a high level language which helps us by offering various libraries such as Scikit-learn, Matplotlib, Pandas, NumPy etc. With Scikit-learn we can preprocess, scale and fit various ML algorithms in our data to find insights from that. NumPy and Pandas help us to do various mathematical operations, cleaning, grouping in our data. We can also plot various graphs to see correlation, trends, patterns in our data with the help of Matplotlib. By these tools we will be able to make decision from our data which will help us to manage our production and reduce wastage efficiently.

6. Expected Timeline:

Gantt Chart

Tasks	March	April	May	June	July	August	Sept.
	W1-W4	W1-W4	W1-W4	W1-W4	W1-W4	W1-W4	W1-W4
Meeting with the Owner							
Data Collection							
Preparing Proposal							
Data Entry and Cleaning							
Data Analysis							
Mid Term Submission							
Detail Analysis							
Submitting Final Report							

7. Expected Outcome:

By analyzing various data and implementing different techniques we will be able to understand accurate forecasting of demand which will help us to reduce wastage and implement improved production planning.

Identifying profitable item, low selling product, customer wanting, giving discount, minimizing maintenance cost will help us to increase revenue and profitability of Santur Bhabani Sweets.

Appointing well-trained and experienced workers we can improve variation in production and meet customer satisfaction.

By analyzing sales data we can access daily milk requirement and by maintaining milk quality we can improve our daily production and uphold product quality which will improve customer satisfaction.

Submitted by-

Koustav Das

Roll number-23F1003155