

# **Optimizing Inventory Management and Profitability for Samastipur Electronics**

**A Proposal report for the BDM Capstone Project**

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## Declaration Statement

I am working on a project titled “**Optimizing Inventory Management and Profitability for Samastipur Electronics**”. I extend my appreciation to Samastipur Electronics, 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: Harsh Kumar . .

Name: Harsh Kumar

Date: 01/02/2025

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# **1.Executive Summary and Title**

Samastipur Electronics is a small-scale electronics retail business located in Samastipur, Bihar, India. The company deals in a wide range of products, including air conditioners, refrigerators, fans, mobile phones, and other electronic appliances. The business operates on a B2C model, catering to local customers.

The primary issues faced by Samastipur Electronics are inefficient inventory management leading to money blockage and low profitability due to inconsistent gross profit margins across product categories. These problems are exacerbated by overstocking of slow-moving items and understocking of high-demand products.

Using advanced data analytics techniques such as inventory turnover analysis, ABC analysis, demand forecasting, and customer segmentation.

The project aims to provide actionable insights to optimize inventory levels, improve cash flow, and enhance profitability. The expected outcome is a significant reduction in money blockage and increase in gross profit margins.

## **2.Organization Background**

Samastipur Electronics is a retail electronics store located in Samastipur, Bihar, India. Established in April 2021 by Mr. Rahul Shrivastav, the company operates from a physical storefront and offers a wide range of electronic products, including air conditioners, refrigerators, fans, mobile phones, and home appliances. The store was founded after Mr. Shrivastav lost his job during the COVID-19 pandemic and decided to venture into the electronics business despite having no prior experience in the industry. He initially started with INR10,00,000 and now the annual turnover of the company is around INR 1,50,00,000. Through hard work, dedication, and a customer-centric approach, he successfully grew the business to become one of the top electronics shops in Samastipur.

The business primarily serves local customers and focuses on providing quality products at competitive prices. The vision of the founder is to offer quality products, good customer service and establish a strong presence in the market

### **3. Problem Statement**

The business problems that I have identified from the discussion with the current owner of the shop are as follows:-

#### **3.1 Optimizing Inventory Management to Reduce Money Blockage and Improve Cash Flow.**

The company faces cash flow issues due to overstocking of slow-moving inventory , leading to money being tied up in unsold products.

#### **3.2 Improving Profit Margins by Identifying High-Profit Products and Optimizing Pricing Strategies.**

Inconsistent profit margins across product categories are affecting overall profitability.

### **4. Background of the Problem**

Samastipur Electronics faces significant challenges in managing its inventory, which directly impacts its profitability and cash flow. The company has a diverse product portfolio, but the lack of a systematic approach to inventory management has led to overstocking of certain items and understocking of others. This imbalance results in money being tied up in slow-moving inventory, reducing the company's ability to invest in high-demand products.

The problem arises from the absence of data-driven decision-making in inventory management. The company does not have a clear understanding of which products are high-demand or high-profit, leading to inconsistent gross profit margins. Additionally, the lack of demand forecasting and inventory turnover analysis exacerbates the issue, as the company struggles to align its stock levels with customer demand.

Internal factors contributing to the problem include inadequate inventory tracking systems and a lack of analytical tools to monitor product performance. External factors include fluctuating customer demand and competition from other local electronics retailers. By addressing these issues through data

analytics, Samastipur Electronics can optimize its inventory management, improve cash flow, and enhance profitability.

## **5. Problem Solving Approach**

To address the inventory management and profitability challenges faced by Samastipur Electronics, the following data-driven approaches will be implemented:

### **For Problem Statement 3.1: Optimizing Inventory Management**

1. Inventory Turnover Analysis:
  - Calculate the inventory turnover ratio for each product category to identify slow-moving and fast-moving items.
  - Use this analysis to determine which products should be restocked and which should be discounted or discontinued.
2. ABC Analysis:
  - Classify inventory into three categories (A, B, and C) based on their contribution to revenue and profitability.
  - Prioritize inventory management efforts on high-value (Category A) items.
3. Demand Forecasting:
  - Use historical sales data to forecast future demand for each product category.
  - Implement a just-in-time inventory system to reduce overstocking and improve cash flow.
4. Cash Flow Optimization:
  - Identify products with high inventory holding costs and low turnover rates.
  - Implement strategies to reduce inventory holding costs, such as bulk discounts or vendor-managed inventory.

### **For Problem Statement 3.2: Improving Profit Margins**

#### **1. Profit Margin Analysis:**

- Analyze gross profit margins for each product category to identify high-profit and low-profit items.
- Focus on promoting high-profit products and reducing the stock of low-profit items.

#### **2. Pricing Strategy Analysis:**

- Evaluate the current pricing strategy and identify opportunities to increase margins for low-profit products.
- Develop a dynamic pricing strategy to adjust prices based on demand and competition.

#### **3. Customer Segmentation:**

- Analyze customer purchase patterns to identify high-value customers and tailor marketing strategies accordingly.
- Focus on promoting high-demand products to these customers to increase sales and profitability.

#### **4. Bundling Strategies:**

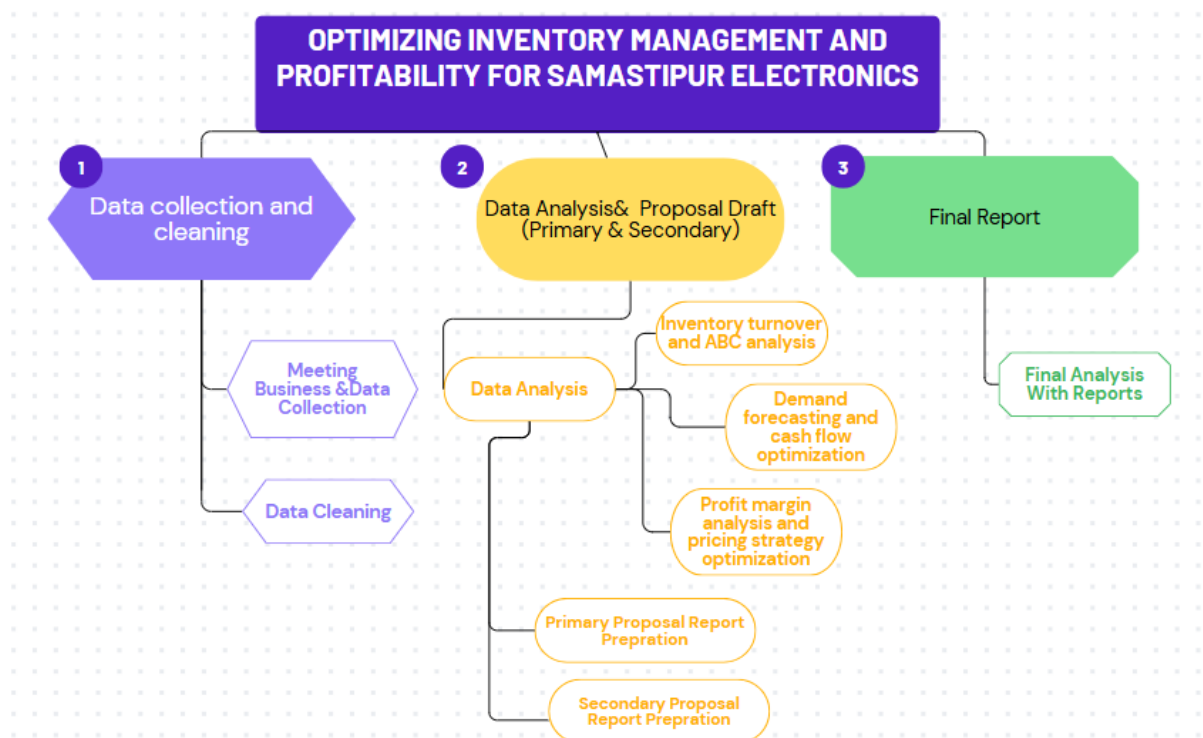
- Propose bundling strategies for low-margin products (e.g., Mobile Accessories) to increase their perceived value and profitability.

By implementing these approaches, Samastipur Electronics can optimize its inventory management, reduce money blockage, and improve profitability. The project will leverage data analytics tools such as Excel, and Python to analyze the data and generate actionable insights.

## 6. Expected Timeline

### 6.1 Work Breakdown Structure:

#### Work Breakdown Structure



### 6.2 Gantt Chart:

A Gantt chart will be created to visualize the project timeline and ensure timely completion of each task.

WBS NUMBER	TASK TITLE	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE	PHASE ONE												PHASE TWO												
						WEEK 1					WEEK 2					WEEK 3					WEEK 4					WEEK 5				
						M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
1	Data collection and cleaning																													
1.1	Meeting Business & Data collection	4/11/24	10/11/24	6	100%																									
1.2	Data Cleaning	10/11/24	12/11/24	3	100%																									
2	Data Analysis &Proposal Draft(Both Primary& Secondary)																													
2.1	Data Analysis	15/11/24	16/11/24	2	100%																									
2.2	Primary Proposal Report Prepration	17/11/2024	18/11/2024	2	100%																									
2.3	Secondary Proposal Report Prepration	19/11/2024	20/11/2024	2	100%																									
3	Final report preparation and presentation																													
3.1	Final Report Prepration	21/11/24	22/11/24	2	100%																									



## 7. Expected Outcome

The expected outcomes of this project include:

1. **Reduced Money Blockage:** By optimizing inventory levels and reducing overstocking, Samastipur Electronics can free up capital and improve cash flow.
2. **Improved Profit Margins:** The analysis will help the company focus on high-profit products and optimize pricing strategies, leading to a 10-15% increase in gross profit margins.
3. **Enhanced Customer Satisfaction:** Customer segmentation and targeted marketing strategies will increase customer satisfaction and repeat purchases.
4. **Better Inventory Planning:** Demand forecasting and just-in-time inventory management will ensure that the company maintains optimal stock levels for high-demand products.

Overall, this project will provide Samastipur Electronics with actionable insights to optimize its inventory management, improve profitability, and enhance operational efficiency.